JOURNAL OF OPTOMETRIC EDUCATION

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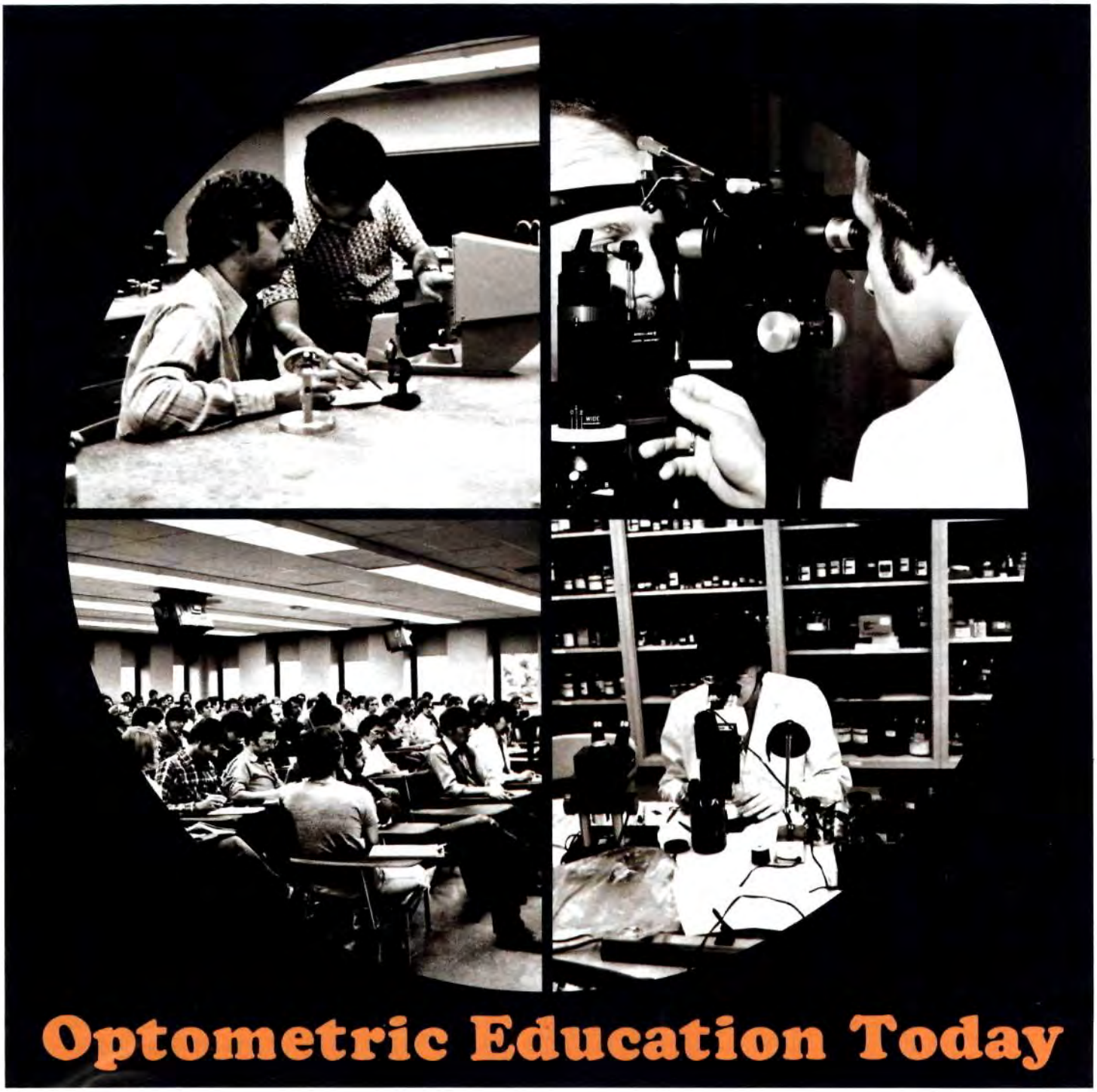

Optometric Education Today

National Goals for Optometric Education

By William R. Baldwin, President
Association of Schools and Colleges of Optometry

Publication of this first issue of the JOURNAL OF OPTOMETRIC EDUCATION symbolizes ASCO's new commitment to provide active national leadership in the quest to strengthen and improve optometric education. During the past two years, our efforts have been devoted to developing resources and designing a working organization which will promote the establishment of sound educational goals for the profession, and facilitate the achievement of them. Nothing is more crucial to the success of future optometrists in diagnosing and solving patients' problems.

Since early in this century, optometry has had the protection of law. This has given the profession the privilege to determine how knowledge from visual science is to be applied to patient care. By additions to the law, by strong internal organization, and by developing and certifying educational competence, we have marked a significant portion of health care as our own. The public has a right to expect that we do not misuse this protection and that we observe our privilege as the deepest obligations. The contract between the public and the profession cannot be fulfilled unless there is general awareness that public resources are required to insure that future citizens will receive high quality comprehensive optometric services. Optometric education serves as the chief agent of stewardship for these public resources. If ASCO is to identify and achieve those goals which are most relevant and most important to the public interest, it is essential that we make valid assessments of our present resources and how we have used them. One inescapable conclusion drawn from such study is that public funds available to optometric education have been inadequate to permit us to meet fully obligations which we now recognize. *The first major goal for ASCO then must be to provide leadership in bringing sufficient public resources to optometric education and research* so that our obligations and opportunities can be fulfilled.

Formal optometric education, during its brief history, has made substantial progress. It has been characterized by diversity with considerable freedom to experiment. We are now examining behavioral objectives for the various programs of optometric education and attempting to develop better models. *ASCO's second major goal is to establish appropriate behavioral objectives; then, to create sound and efficient education models* for the various professional, technical, graduate, post-graduate, and continuing education programs which are essential to comprehensive professional services of high quality.

These necessary resources and sound educational models must be brought together in environments which contribute to efficiency and to excellence. Optometric education has developed too much in isolation from other health educational disciplines. Other considerations of environment include numbers and distribution of institutions and programs. *The third major goal towards which we must organize and act is to insure that all optometric educational programs exist in sufficient numbers and in optimum educational environments.*

Optometry schools have the obligation to produce graduates in sufficient numbers to meet accepted manpower needs projections. Our internal manpower concerns include a substantial pool of applicants to all programs so that we can continue to improve criteria for student selection, along with the development of competent faculties and administrators in large numbers. *Our fourth major goal is to develop those human resources necessary to fulfill our institutional missions.*

Finally, if we are to achieve and maintain maximum benefit to the public, we must set high standards of excellence and design valid systems of evaluation. *ASCO's fifth major goal then is to design standards and implement programs of evaluation which insure that we meet the preceding major goals.*

Optometric education is a national resource. Our future lies in convincing others that it is a vital and significant one that can be entrusted to us--the profession's educators--for its care and enrichment. This is the most certain basis for optimism because all forces in optometry can be and are being marshalled to this task. Optometric educators must overcome two tendencies which are typical deterrents to human progress if we are to take full advantage of today's opportunity. We must avoid the assumption that our future will, ineluctably, be molded for us by forces beyond ourselves; and we must avoid the temptation to involve ourselves in planning and activities only as they relate to perceived benefits to our local milieu. The degree and speed of our success in achieving these five major goals will depend on how well we convince others of the national worth of optometric education, on how well we avoid these two deterrents, on how wisely we select programs and activities which serve the goals and on how we use our own scarce resources and expand them.

Even though we will all be often preoccupied with many lesser matters, and even though our resources are scarce and strained, I believe ASCO is ready to take full advantage of the opportunity we have to design and implement these most important aspects of optometry's future. If we continue to view our challenges as major goals rather than problems too large to attack, we will inspire others to join us in the effort, and future issues of the JOURNAL OF OPTOMETRIC EDUCATION will chronicle, in the years just ahead, a remarkably productive period for optometric education.

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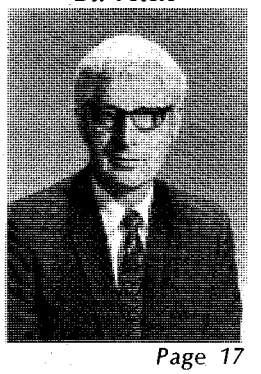

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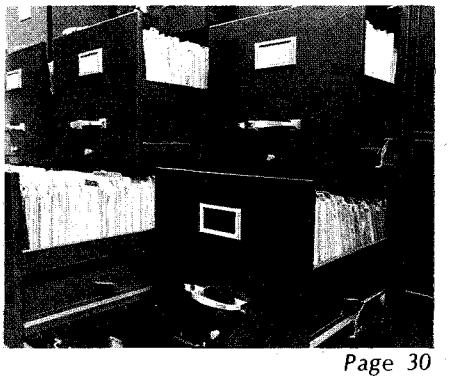

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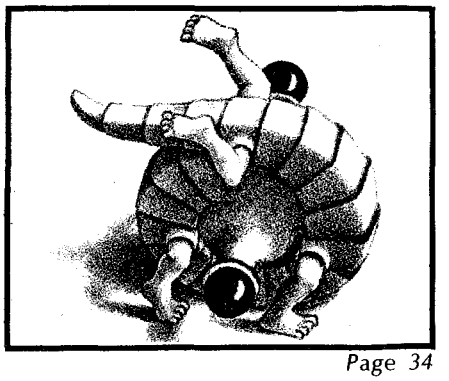

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ASSOCIATION of SCHOOLS and COLLEGES of OPTOMETRY

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

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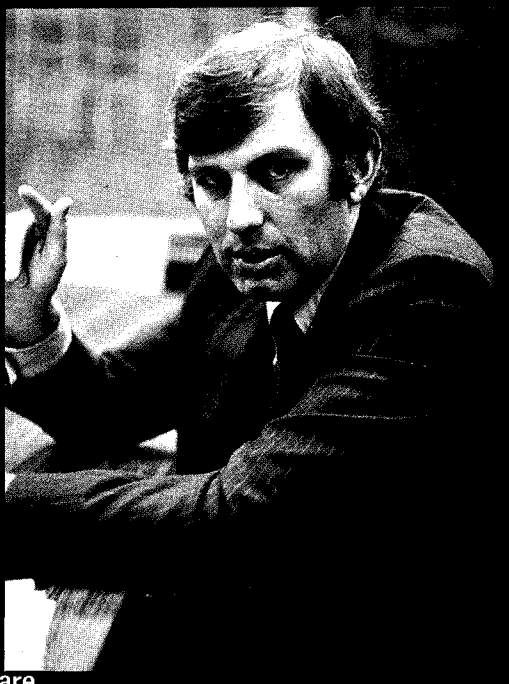
WHY A JOURNAL?

By Norman E. Wallis
Chairman, Editorial Council

Isn't the world overpopulated with printed matter? Then why a *Journal of Optometric Education?* Simply because Optometry is a primary health profession on the brink of major changes.

The potential for the profession has never been greater, and the climate to produce changes has never been more challenging. Within the next few years, the methods of reimbursement for professional services in the health-care field will undergo many changes and modifications. Likewise, the responsibilities and loyalties of our profession as well as others will be modified in various ways.



To meet these challenges, the schools and colleges of optometry, in the last 10 years, have made drastic strides forward in the quality of faculties, curricula, students, facilities and patient-care programs. The educational base of Optometry has never been stronger. The colleges are demonstrating leadership in molding the profession for the future.

To encourage even greater development through an organizational voice on behalf of optometric education, the Association of Schools and Colleges of Optometry, established a national office in 1974. One of the important responsibilities assigned to this office in the nation's capital was the creation of a journal to serve as a forum for all segments of optometric education.

Never before has it been more important for a faculty member to discuss new teaching methodologies as they relate to optometric patient care.

Never before has it been more important for students to voice their concerns about curriculum design and faculty competence.

Never before has there been more need for administrators to record and debate problems related to more effective structuring of educational institutions.

And, never before have people outside Optometry been as interested in the education of the primary vision-care specialist. Other health professionals are now looking more seriously at the education of optometrists.

Now more than ever before, it is possible for optometric education to present a united picture for critical review by outside forces. With this new *Journal of Optometric Education*, the profession has a tangible expression of the quality of education which prepares each future practitioner.

And you, the readers and contributors of this new journal, have a forum for your views and concerns. The *Journal* will be interested in design, stimulating in content, scholarly in deliberation and lively in its presentations.

But, we need your help, as subscribers and authors, in order to maintain these goals. Only with your support can the *Journal of Optometric Education* fulfill its greatest potential.

What Is Ahead For

"Optometric education has come of age"..."ASCO has come a long way"..."the Association has taken a giant step forward"...All of these statements have been heard recently within the profession, and while some might say they sound a little immodest, most will admit that it's true: The Association of Schools and Colleges of Optometry (ASCO) has made significant progress in recent years.

However, if one listens more closely, other comments and questions can be heard which assure the listener that ASCO has no intention of "resting on its laurels"...that constant assessment and reappraisal of priorities goes on...that ASCO leaders are asking, "Where do we go from here?....What are our major objectives for the coming year — the next five years?"

Forces of Change

It is doubtful that one could find a single explanation of "the rise of ASCO" — opinions vary on what has been achieved, why it was attempted and what future plans should be emphasized. As in any evolutionary process, the factors contributing to the growth of ASCO over the past two decades are multiple and complex. Many of the reasons for change within the profession are identical to the stimuli influencing transition in the nation as a whole and society in general: increasing pressures for more graduates of higher education and professional training; increasing affluence and technological expertise; more awareness of diversity in the country and the world because of increased communications media; the need for standardization and centralized administration in many areas to cope with increasing diversity and change; the need for federal government involvement and support as national demands increase beyond the capacity of the autonomous individual operation...all of these and many more could be labeled "forces of change" which have affected the profession, the professional associations and, indeed, the world we live in.

More specifically, the changes seen in optometric education in recent years have elevated the profession to a level such that it is recognized as one of the primary health professions — not merely a technical and specialized trade as it began years ago. The profession has evolved, as all professions have, in formalizing the body of knowledge and making that education accessible and accountable to those it serves. In addition, official regulation and recognition of optometry as a profession came about as early as 1924, when all states had enacted laws governing the licensure of optometrists — another essential aspect of professionalism. And, a third ingredient in the development of optometry and optometric education has been the organization of the professional associations to represent the interests of the practitioner, the educator, the student and the vision health of the American people.

ASCO's Beginnings

ASCO, the official organization of optometric education, was formed in 1940, but had no formal operational status — no central headquarters and little administrative structure to carry out its purposes. It existed primarily as a communications mechanism for the individual schools and colleges of optometry — who functioned in widely-varying institutional settings — and to serve as a focal point for concerns of optometric education in general.

It is significant, however, that optometric educators felt the need to join together in common purpose...that there were visionaries among them who believed 30 years ago that optometric education should speak more prominently in directing the educational aspects of the profession.

ASCO's Accomplishments

The joining of talents, energies, imagination and hard work by optometric educators all over this nation has resulted in some laudable achievements for the profession. All of the following were accomplished under the aegis of ASCO, striving continuously, as its organizational purpose states, "...to search for and promote ideas and practices which are most effective in the education of optometrists...":

- In 1963, the Association conducted the first national conference on the development of optometric education curriculum;
- In cooperation with the American Optometric Association's Council on Optometric Education (COE), ASCO helped develop standards resulting in all schools and colleges of optometry, by 1968, requiring a six-year academic program leading to the Doctor of Optometry (O.D.) degree. The accredited optometric curriculum consists of a minimum of two years preoptometry undergraduate study and a four-year professional course of study;
- The Optometry College Admissions Test (OCAT) was developed in 1970 and is now required of all applicants to the twelve schools and colleges of optometry in the United States;
- A national office to coordinate and administer the Association's concerns was established in Washington, D.C. in July, 1974. An executive director was appointed by the Board of Directors to oversee the central office operation and establish liaison with the federal government and other health profes-

ASCO?

sions organizations;

**The *Journal of Optometric Education* was authorized in June, 1974, for publication in early 1975. The *Journal* serves as the official publication of the Association and, along with the membership newsletter (the "ASCO Educator"), represents the profession to the health and educational communities at large;

**Policy guidelines concerning the development of new schools of optometry were adopted in September, 1974, to insure the growth of future optometric institutions in optimal settings, preferably within academic health centers of state universities;

ASCO's Future

Among primary concerns on the ASCO agenda for 1975 are the adoption of a standardized national curriculum model, establishment of requirements for residency programs in the optometric subspecialty areas (such as pediatric, rehabilitative and environmental optometry), and development of a national program of continuing education for practitioners, including guidelines for continuing education courses in pharmacology.

It is apparent then that ASCO is ready to meet the challenges of the future...that the Association has every intention of working in conjunction with their professional colleagues to insure the finest possible education system for optometrists and the best vision care possible for the American people. And, it has been demonstrated that the profession's educational leaders are willing to take the initiative in appropriate areas, always open to new methods and innovative approaches in the pursuit of excellence in optometric education. Yes, the future looks bright for ASCO and for the profession.

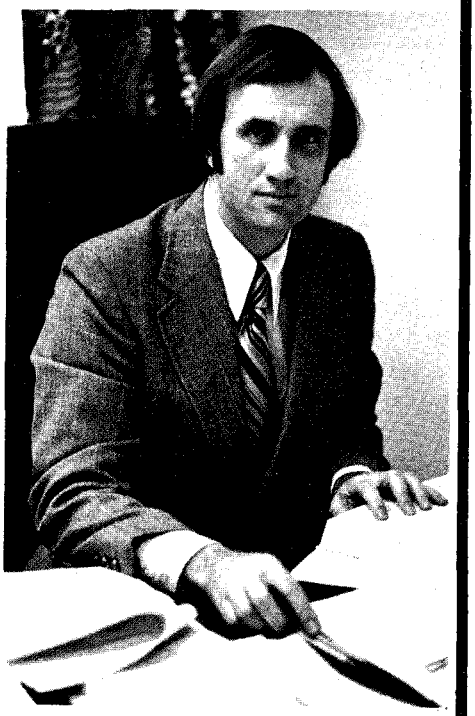
A Message From The Executive Director

"Progress," according to one well-known corporate advertisement, "is our most important product."Applying that maxim to the current state of the national economy makes one pause in speculation of what that "product" may be several years ahead. On the other hand, a look at "what ASCO hath wrought" in recent years brings pride and optimism about progress in the future of optometric education.

The creation of a national office to coordinate and administer the concerns of the Association was a small step--but a significant one--in the profession's forward movement. Quite naturally, an evolutionary step of even this size provokes some soul-searching and even confusion within the profession as a whole. With this in mind, the national Office has placed extraordinary emphasis on establishing good communications among the schools, between the Association and the organized profession, and with outside health organizations. This new JOURNAL is the backbone of that effort, with the **Asco Educator,** the new membership newsletter introduced last month, to complement the program.

In addition to letting everyone know what is going on, the National Office intends to become the largest repository of information on optometric education. Working with the three Association Councils on Institutional Affairs, Academic Affairs and Student Affairs, the National Office will document a wide array of issues from Affirmative Action to "Ways and Means."

Speaking of financing, the National Office itself has sought



Louis A. Ebersold

and will continue to seek outside funding for special projects requiring additional staff. Right now the fulltime work force is limited to the Executive Director and an administrative secretary, with two part-time professionals concentrating on our new publications. Additionally, outside legal and accounting help is utilized on an as-needed basis.

The small central staff, however, intends to serve the Association by enchancing and amplifying the efforts of the officers, committee chairmen and members who supply the vital energy behind the new Association identity. In that regard ASCO will continue to rely on faculty and administrator for substantive effort in progress toward full recognition as a truly professional health education system.

A Constructed Cost Study Of Optometric Education

By Alfred A. Rosenbloom, Jr., O.D., M.A.

The cost of educating health professional students is a subject of utmost importance now as Congress attempts to formulate a strategy of continuing support of health manpower education. The health professions' primary concern is that realistic cost figures be used as the basis for projecting federal support. The profession of optometry is most alarmed at the results of the federally-mandated cost study conducted by the National Academy of Science's Institute of Medicine (IOM) and has attempted to reveal the deficiencies of that report with a cost study of its own. This paper will outline the steps taken to arrive at a fair and accurate cost figure for educating a student of optometry in the current decade, showing that the IOM study is not totally reliable in its conclusions with respect to optometric education.

In 1964, Congress enacted the Health Professions Educational Assistance Act--significant legislation designed to address a recognized national shortage of health professionals. This legislation authorized, for the first time, direct federal support to health professional schools and represented the prevalent attitude at that time: namely, that it was appropriate--indeed necessary--for the federal government to assist the training of the nation's health professional practitioners in order to insure the provision of adequate health care services to all Americans.

The generally-held opinion that the federal government should support health professional education was strengthened by the recommendations of the Carnegie Commission on Higher Education. In a 1970 report on "Higher Education and the Nation's Health," the nationally-prominent body of education specialists asserted that the federal government should play "a major role in the financing of health manpower education," and that "a substantial program of cost-of-instruction supplements per student should be undertaken by the federal government."[1]

Subsequently, when the initial legislative authority was renewed with the passage of the Comprehensive Health Manpower Training Act of 1971, the federal government's commitment to the support of health manpower education seemed clear.

However, many questions have been asked during the past decade concerning the extent of and most appropriate forms of federal support to health manpower education. In an attempt to answer some of these questions and arrive at an appropriate formula for continuing financing, Congress instructed the Secretary of HEW, in 1971,[2] to conduct a study of the costs of educating health professionals in the various disciplines. The Secretary's charge was to:

(a) "...determine the national average per-student educational cost of schools of medicine, osteopathy, dentistry, optometry, pharmacy, podiatry, veterinary medicine and nursing...

(b) "...develop methodologies for ascertaining the national average per-student educational costs and, on such basis...

(c) "...determine such costs for school years 1971-72, and the estimated costs for school year 1972-73 in the respective disciplines."

The results of that study,[3] released by the Institute of Medicine (IOM) of the National Academy of Sciences in early 1974, have been widely-discussed and are still in question in many areas besides optometry. Exactly how much confidence federal lawmakers have in the IOM study and how much bearing its findings will have on future health manpower legislation remains to be seen.

According to the IOM study, the consistent methodology developed by the study group to define average per-student costs yielded "historical costs: what is, rather than what should be." In addition, "They are average costs, not marginal or incremental costs."[4]

The IOM methodology resulted, in part, in the establishment of a *net*

***President, Illinois College of Optometry; the author served as chairman of the ASCO Ad-Hoc Committee for a constructed Cost Study. Other credentials include the distinction of being a member of the Commission for the Report of the National Study of Optometric Education, directed by Robert J. Havighurst, 1973.**

Ed. Note: The author wishes to acknowledge the assistance of Dennis M. Yamamoto, O.D. (AOA Washington Office) in the preparation of this article.

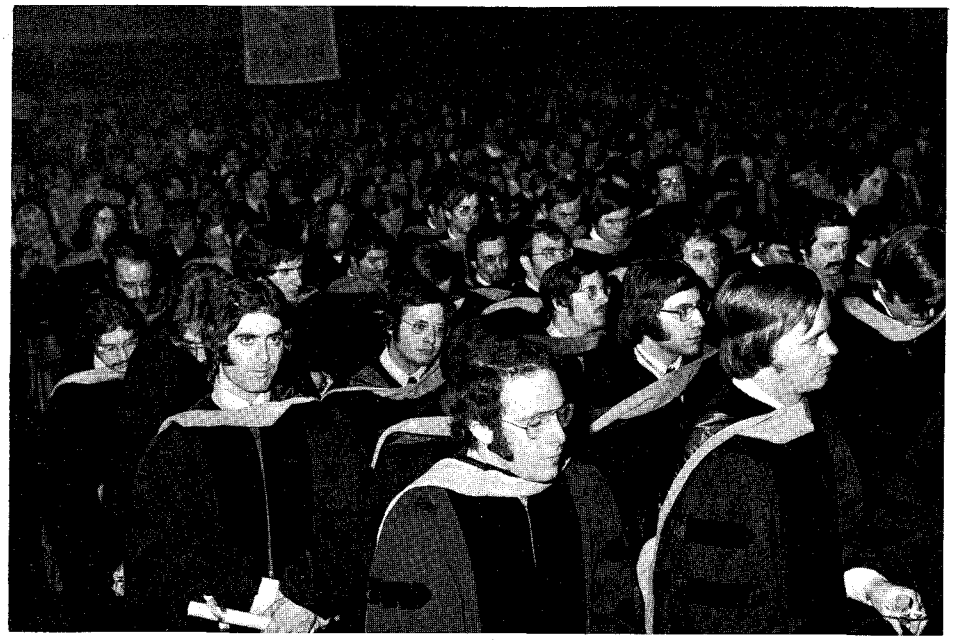
education expenditure (calculated by subtracting from education costs the income received from research and patient care activities) as the basis for recommended capitation payments to institutions from the federal government.[5]

In addition to the program costs analysis process described, the IOM study utilized the *constructed costs* process--developing constructed costs models for medicine, dentistry and veterinary medicine. The final report recognizes, however, the optometric profession's then unpublished independent constructed cost study.

Constructed Costs Defined

"A major feature of the Institute of Medicine's study of the costs of education in the health professions was the use of a technique to 'construct' models of hypothetical schools and to assign costs to these constructed models. These constructed costs helped the study group to understand what constitutes an education program and why the costs of that program should be distributed in particular proportions among the activities necessary to education. Constructed costs identified the resources needed by a school to educate students, without the distortions imposed on actual school by historical funding practices."[6]

For the purposes of this paper, constructed cost is defined as an estimate of the cost of providing health education under optimum conditions without describing the detailed structure of these costs. Its purposes would be to highlight and explain to the Congress, and others, the complex policy issues that must be considered in estimating the "annual average per-student cost" of education, and to provide a reference point that can be used to explore the determinants of the variation in costs of health education. The optometric constructed cost study is based on the determination of an adequate educational resource and health care delivery mode, through which a comprehensive educational program of the quality deemed necessary by the profession will be achieved.



The FORE Study projects an O.D. degree to cost as much as $61,940, according to the author of this analytical study of constructed optometric educational costs.

The components of the constructed cost are:

(1) Curriculum - A curriculum of instruction which prepares the student to meet the professional levels of competence deemed necessary to provide service to the public and to meet accreditation standards for the institution.

(2) Faculty - The numbers of professional persons with the requisite competence in their respective disciplines and the desire and ability to impart these skills to students.

(3) Support Staff - Administrative and support personnel required to provide essential services to faculty and students in the educational process, including institutional administration.

(4) Facilities and Equipment - The physical environment required to accommodate efficiently the faculty, staff and students and to meet the demands of the curriculum.

Limitations of the IOM Study

In a critique of its own methodology, the IOM study group concluded, "The methodology is regarded by the study group as advancing the techniques of program cost analysis in health science centers," but added, "Despite these advances, the methodology has limitations...some of them inherent in the methodology, others reflecting the time constraints under which the study operated..."[7]

As stated previously, the Institute of Medicine constructed cost studies were restricted to three health professions: medicine, dentistry and veterinary medicine. In addition to cooperating with the IOM in reporting the historical costs of optometric education, the Association of Schools and Colleges of Optometry felt it was essential that an independent constructed cost figure should be determined for optometry. The unique characteristics of optometry as an independent health profession do not permit data from other health professions to be used to make a valid comparison with the cost of optometric education. This underscores the need for and importance of an independent analysis.

A March 1974 position paper [8] by the Association of Schools and Colleges of Optometry (ASCO) demonstrated the inapplicability of

the IOM figures, and stressed the complex costs pattern presented by the rapidly growing field of optometric education. This paper also pointed out other proportional growth in optometric education over the past 10 years; the variety of institutional organizational patterns; the lower salary levels; the lower levels of federal support, especially for research, and the disparities in counting administrative and other indirect costs.

Need for Independent Optometric Study

As a result of the above shortcomings and omissions, the American Optometric Association commissioned its own constructed cost study. It was directed toward determining the real 1972-73 costs of optometric education at an idealized optometric college with an enrollment of 330-30 of whom would be Master's and Ph.D. degree candidates.

The study was conducted by FORE Consultants, [9] an independent research firm under contract to the American Optometric Association. To assist in the implementation of the study, an Ad Hoc Committee * was appointed by ASCO and assigned responsibility "to advise on standards for curriculum and facilities which represent the best judgment of the optometric education community" and "to establish faculty requirements and faculty-student ratios which are representative of the standards of health professions education, essential to the accreditation of the institution, and required to prepare students to meet licensing requirements and the high standards of service to be provided to the public."

Basic Concepts and Structure Defined

A basic premise in the formulation and development of an idealized plan for optometric education was the goal of projecting a professional degree and graduate program that would reflect what optometry could and should be in the '70's and later.

There were various conceptual issues and variables surrounding the determination of optometric educational costs that the Ad Hoc Committee considered in projecting its constructed cost figures. These included:

(1) the recognition that today's schools and colleges of optometry have developed their own individual characteristics and program objectives and this individuality is desirable and should be encouraged;
(2) the variety of institutional settings of the 12 schools: some are components of large multiversities, others are free standing, another is affiliated with but not geographically contiguous to the parent university, another is part of a health science center;
(3) the unique capabilities and interests of each optometric faculty determine the degree of involvement of each optometric school in advancing fundamental knowledge in visual science and in searching for new and improved modes of prevention, diagnosis, and treatment of anomalies of the visual system; and
(4) the responsibilities for the delivery of optometric patient care vary with the organizational arrangements regarding the size, location, and function of its clinical settings.

These and other variables were considered in their historical context. However, the Committee endeavored to make projections realistic for the advancement of optometry as a major, independent health profession and for the education and training of future practitioners whose role in the decade ahead will likely change significantly in scope and in function.

Unhampered by out-of-date traditions, policies, practices and organizational schema, the cost study endeavored to project an educational plan that would reflect the future direction of the optometric profession. Forward-looking educational and professional goals could be achieved through innovative curriculum planning and instructional methods, through the recruitment of faculty, administrative, and support staff in sufficient numbers (with the necessary educational and professional qualifications), and through the planning of physical plant and equipment adapted to changing professional and community needs.

Faculty-student ratios in the various instructional modes along with faculty qualifications and instructional and research responsibilities were carefully formulated. For example, the Planning Committee regarded as an imperative that the four year curriculum maintain the best educational practices and procedures from the past and, at the same time, institute innovative instructional methods, the exploration of new curricular areas, and the development of new kinds of learning experiences for the years ahead.

The curriculum was divided into 3 divisions:

1. **Basic Health Sciences** including emphasis on pharmacology, biophysics, biostatistics and epidemiology;
2. **Basic Vision Sciences** (physiological optics) with an expansion in the neural physiologic, sensory and motor aspects of the visual system, and in the perceptual and environmental aspects of vision; and
3. **Clinical Sciences** emphasizing clinical studies and patient care.

The clinical program would stress, in addition to traditional instruction, diagnosis and management of monocular sensory and binocular

***Committee Members were: Alfred A. Rosenbloom, Jr., O.D. Chairman, Ad Hoc Committee, President, Illinois College of Optometry, Member COE; Frederick W. Hebbard, O.D., Ph.D., Dean, The Ohio State University, College of Optometry; Donald G. Pitts, O.D., Ph.D. Associate Dean, College of Optometry, University of Houston; Vonne Porter, Ph.D., Executive Vice President, Southern College of Optometry, Howard P. Winton, O.D., Vice President, American Optometric Association; Lester Janoff, O.D., Director, Division of Professional Studies, Pennsylvania College of Optometry; Robert Hernandez, MHA, Assistant to the Dean for Planning, University of Alabama at Birmingham, School of Optometry/The Medical Center; Dennis M. Yamamoto, O.D. Director, Department of Federal Educational Affairs, American Optometric Association, Washington Office.**

vision problems, perceptual problems, ocular disease, pediatric-geriatric optometry, public health, and environmental optometry. The patient care education of the students would include not only general clinic experience throughout the four years of professional study, but also experience in public health and in the following specialty settings: geriatric, pediatric, rehabilitative and contact lens patient care.

Administrative Framework Conceptualized

The study plan vests administrative and executive authority in a president, executive vice-president and four directors responsible for continuing education, graduate programs, institutional development and alumni affairs, and business affairs. There would be a dean of academic affairs and a dean of student affairs in addition to three administrative assistants. There is also provision for the traditional positions in the organizational schema; comptroller, purchasing agent, bursar, registrar, and a pool of secretarial and clerical personnel.

The instructional staff would provide for two departmental chairmen, two ophthalmologists, a director of patient care, faculty with appropriate rank and qualifications for service in the primary academic divisions, and 12 FTE (full-time equivalent) faculty for the patient care clinics. Instructional support staff included five opticians, a clinical pharmacist, two registered nurses, three social workers, a part-time veterinarian and technicians with training in laboratory and electrodiagnostic procedures. The provision of such a staff assumes a physical plant with the necessary instructional resources appropriate to their roles. In addition, the proposal states a need for three full-time personnel to support an adequate computer facility; a full-time library staff of four; a fully-staffed audio-visual component (including director, T.V. cameraman and engineer to handle the audio and electronic involvements). A photographer, biomedical illustrator and draftsman are also planned, along with technical support services involving machinists, electronic and instrument technicians.

Specific Educational Goals

Within the broad framework described above, the study cost projections were based on specific educational plans. The student body included 300 full-time professional degree students and 30 graduate students. Each academic year of the four-year curriculum was divided into four quarters of twelve weeks each. Included in that four-year curriculum was 40 semester hours of basic health sciences, 42 semester hours of basic vision sciences, 44 semester hours of clinical studies and patient care, and 24 semester hours for direct patient care experience (with a total of 1728 patient contact hours). Total clock hours for the professional degree program, including the various instructional modes, totaled 4464. This time allowance included opportunities for participation by all students in a variety of instructional modes: lecture, laboratory, seminar, patient clinical care, and programmed instruction. The graduate program required 36 quarter credit hours (504 clock hours) for the Master of Science degree and 72 quarter credit hours (1008 clock hours) for the Doctor of Philosophy degree.

The study plan also included the operation of an out-patient clinic; a faculty of 52 FTE's (including 12 FTE faculty for graduate instruction); administrative staff personnel; general and administrative expenses; student services, and the cost for operation and depreciation of the physical facility. The physical facilities costs were based on a twenty-five year mortgage for an estimated 222,346 gross square feet of which 144,525 net square feet were "assignable" as classrooms, laboratories, clinic and office space. Salary costs for faculty was based on comparable data published by the American Association of Medical Colleges.[10] The fringe benefits were estimated to be 22% of salary.

Determination of Constructed Cost

Based upon the assumptions of the above, the constructed cost of optometric education was determined to be $15,485 per student per year. The following break-down shows the individual costs and percentages.*

			% of Total
1.	Faculty and Staff		
	A. Direct Instructional	$ 5,163	33.3
	B. Instructional Support	1,963	12.7
	C. Non-Instructional Support	2,896	18.7
	Sub-Total	10,022	
2.	General, Administrative and Student Services	1,320	8.5
3.	Educational Facility, Equipment and Supplies	4,143	26.8
TOTAL		15,485	100.0%

Cost Standards Established

The second part of the FORE study--concerning instructional, executive, administrative and support staff costs -- approached these expenses in an idealized optometric school by establishing the following standards. Various types of learning modes were identified. Full-time faculty were assumed to be on twelve-month contracts. On average, it was determined that a full-time optometric faculty member would have in each week 8 hours of lecture or seminar contact with students (or 16 hours of clinical contact with students or 24 hours in the patient clinic).

*A more detailed breakdown is presented in the Appendix, page 45.

Non-clinic hours were apportioned as follows: 1/2 to 2 1/2 hours preparation for laboratory or lecture hour respectively, and an average of 35% overall faculty time devoted to research. Each FTE was estimated to have, on the average, 124 clock hours of individual student contact throughout the four year curriculum and a total of almost 960 contact hours with each student.

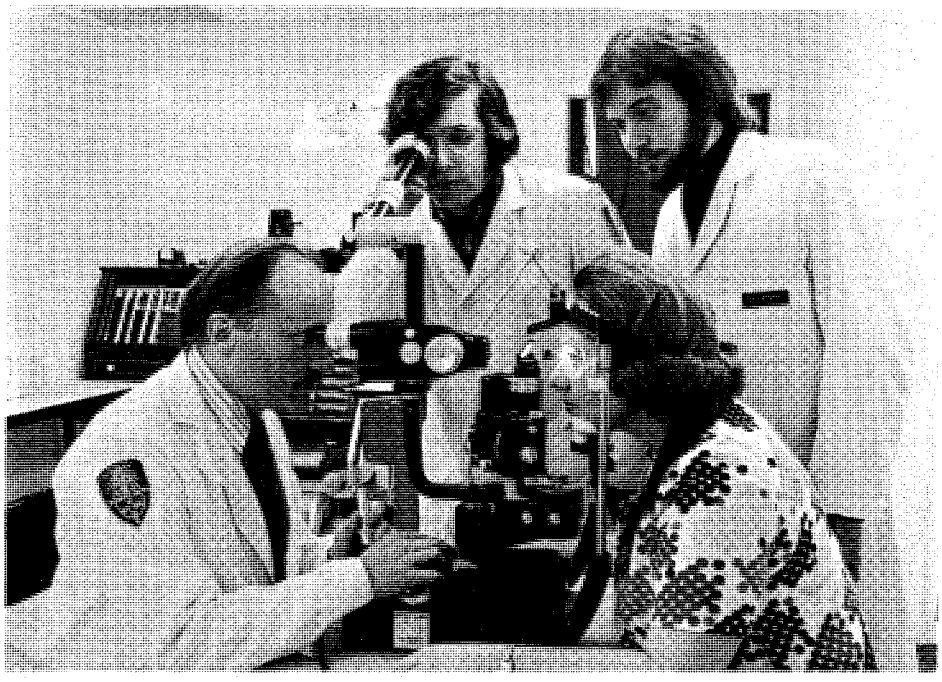
While among individual faculty members these numbers may vary significantly, the total average of almost 1094 hours contact by each FTE, per student, during four years was deemed necessary to maintain the high standards desired for optometric education.

When these hours are divided by the FORE constructed cost study salaries projected for optometric teachers (which are comparable to those paid in 1971-72 in medical education), the pay-per-hour of student contact over the four year curriculum varies from about $12 per hour for the basic science instructor up to about $45 per hour for a chairman of clinical sciences.

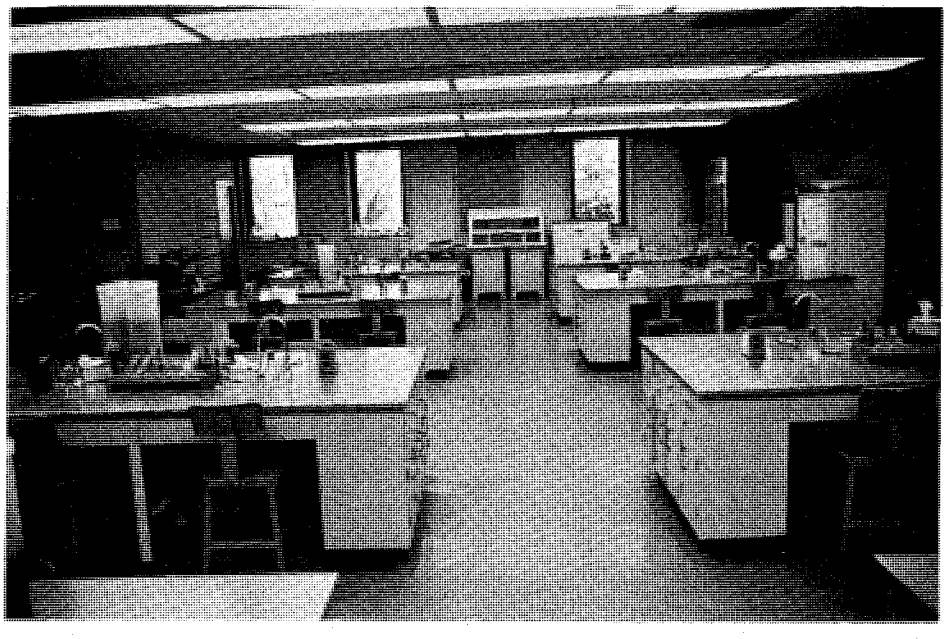
These are not unrealistic hourly rates for professional educators in the United States, let alone in a projection directed toward determining the cost of professional education during the last third of the twentieth century.

Comparison of Salary Scales

It should be noted that, while 52 full-time faculty members were deemed necessary in the FORE projected school, their combined salary totaled $1,703,830 per year, with the average salary being less than $32,700 per year. This average salary projection, while reasonably consistent with salary scales in the other major health profession, is approximately 35% higher than current scales in optometric education. Indeed, significant increases in the salaries of optometric educators are considered an essential means of attracting and retaining optometric faculty with outstanding academic and professional backgrounds of experience. By so doing, we accomplish two objectives. First, optometric education is able to compete more successfully with the greater economic rewards of private practice; secondly, the pool of full-time faculty for teaching and research will increase, not only for existing optometric institutions, but also for the vitally needed new schools being planned.



Patient care program costs, a crucial part of professional study, average $4,618 per student per year, while the operation and maintenance costs of physical facilities alone adds $4,144 to the constructed annual per student cost of optometric education.



Executive, administrative and support staff costs were computed after analysis by the FORE consultants and the Ad Hoc Committee. The results fall within the ranges computed in two Department of Labor Statistics Bulletins, [11] "National Survey of Professional, Administrative, Technical and Clerical Pay," and "Occupational Outlook for College Graduates." Overall salaries of 33 individuals, ranging from president to switchboard operator, were obtained, the figure being $723,948. This represents an average cost per student per year of $2193.78. An instructional support staff--between 62 and 64 persons--was estimated to receive total salaries, including 22% fringe benefits, of $530,800—for a yearly cost per

student of $1962.35. A non-instructional support staff, consisting of 18 individuals, would receive total salaries, including fringe benefits, of $190,000. This would be a cost of $702.42 per student per year.

General and Administrative Costs

The third part of the FORE report dealt with general and administrative expense, including student services. Under a heading of "General Administrative Expense," travel and administrative expenses were determined. Total travel expenses for the appropriate administrative staff, as well as $1000 per each 1.5 FTE, were estimated to be $112,000 per year. Other administrative expenses such as professional memberships, fund-raising costs, postage and consumable supplies, and legal and audit expenses totaled $181,000 per year. The total general administrative expenses were determined to be $293,000 per year or $887.88 per year per student.

Student services, including recreational activities, counseling and student health, came to an estimated annual cost of $34,950 or $105.90 per student per year. It was calculated that 165 of the 330 students would receive some form of financial aid. The financial aid costs, including work study and scholarship aid, came to a total of $751,500--of which the college's cost was $107,500, based on the formula that 1/9 of the total work study grants and 1/5 of the total scholarship grants were paid by the college. The total constructed cost aid of each student was estimated at $325.76 per year.

Analysis of Physical Facilities

The fourth part of the FORE study undertook an analysis of physical facility operation, amortization, as well as materials and supplies. This included a detailed analysis of space needs. Allocation of the cost of physical facilities was based on growing student enrollments at the end of five-year periods starting in 1955, at which time 40% of the present facility was estimated to have existed. By approaching both space requirements and amortization in this manner, the FORE study attained a realistic approximation of the growing physical plant needs for an optometric college in America today.

The total annual amortization cost was estimated at $635,204, or $1,924.86 per student per year. Annual equipment repair and replacement was estimated at $98,964 per year, or $299.89 per student per year. Physical plant operation and maintenance was estimated at an annual cost per square foot of $2.33 for a total of $518,066.00 or $1,569.89 per student per year. Expendable materials and supplies were estimated at $350.00 per student per year.

Results Considered Valid

The results of the constructed cost study were reviewed by the Association of Schools and Colleges of Optometry (ASCO) in December, 1973. At that time, the study was formally adopted as a valid analysis and projection of the costs of an optometrical educational program that is forward-looking in its goals and curriculum design, optimum in its personnel numbers, qualifications, and educational resources, and appropriate in its commitment to the pursuit of excellence.

The following table describes the conclusions of the FORE constructed cost study.

SUMMARY

CONSTRUCTED COST OF OPTOMETRIC EDUCATION

	Description	Total	Unit	% of Total
1.	Personnel Cost			
	1.1 Direct Instruction Staff	$1,703,830	5,163.12	33.4
	1.2 Executive and Administrative Staff	723,948	2,193.78	14.2
	1.3 Instructional Support Staff	647,576	1,962.35	12.7
	1.4 Non-Instructional Support Staff	231,800	702.42	4.5
	Sub-total	3,307,154	10,021.67	
2.	General Administrative and Student Services			
	2.1 General and Administrative	293,000	887.88	5.7
	2.2 Student Services	34,950	105.91	0.7
	2.3 Student Financial Aid	107,500	325.76	2.1
	Sub-total	435,450	1,319.55	
3.	Physical Facility			
	3.1 Facility Amortization	635,204	1,924.86	12.4
	3.2 Operation and Maintenance	518,066	1,569.89	10.1
	3.3 Equipment Repair/Replacement	98,964	299.89	1.9
	3.4 Expendable Material and Supplies	115,500	350.00	2.3
	Sub-Total	1,367,734	4,144.64	
	TOTAL	5,110,338	15,485.86	100.0

Conclusion

The FORE Study served to correct misconceptions of the Institute of Medicine Study by indicating that it should cost an estimated $15,485 to educate each year an optometric student and to provide graduate study opportunities in vision science. The constructed cost figures have been supported by a recent cost study carried out at the College of Optometry at The State University of New York. (SUNY). (The same research firm that conducted the IOM study, American Management Systems, also conducted the SUNY study.)

Results of this preliminary and unofficial study showing annual instructional costs per student are reported (p. 44) along with costs for similar program categories in the In-

Continued on page 44

THE NEED FOR TRAINING OPTOMETRIC EDUCATORS

Lester E. Janoff, O.D.

The author, on leave from the faculty of the Pennsylvania College of Optometry, is a candidate for the M.S. degree at the University of Southern California, Los Angeles.

An obvious need exists in optometric education for more teachers. As of this writing, there are three new colleges of optometry being developed. Numerous states are in varying stages of petitioning their legislatures for new schools. In addition, existing colleges of optometry are clamoring for more full-time educators to produce small faculty student ratios, more small group teaching techniques as well as preceptorship types of training. Where will these people come from? Who is preparing new optometric educators? Are the current teachers adequately trained? Is it now time for the profession to seriously concern itself with training optometric educators? This paper will attempt to answer some of these questions.

There is no doubt that the early day practitioner-teacher is slowly being supplanted by the scientist-teacher in colleges of optometry. Once again, optometry appears to be imitating medicine in its educational approach. The philosophy of Abraham Flexner, formulated in 1910 (Banta 1971), may require an update in 1974. Even medicine is beginning to look critically at the emphasis on basic science and laboratory centered teaching techniques. Propelled by student cries for "relevance", optometry schools are moving toward early student exposure to patient care. This will require more clinicians--but, does clinical experience alone make a clinical teacher? How can the need for quality clinicians be met when opinion in many quarters still equates teacher competency with distinction as a researcher?

Yet, preparation in the discipline continues to be stressed. It may very well be that research ability and its hand maiden, publications, are so emphasized because they are considerably easier to assess than teaching competence. Questions still exist as to what makes a "good" teacher, although volumes have been written on the subject. Oddly enough, a majority of the profession agree on a concept of a "good" optometrist, even though that is no easier to define than a "good" teacher.

Teaching is an important component of the learning process, with the teacher's primary function being the structuring of the environment so that learning is promoted and facilitated. The teacher is not merely a dispenser of information. To be quite frank about it, the learner has at his disposal many sources of information that are more efficient, more accurate, and more convenient that the teacher. It is possible that the student may learn more outside of the classroom than in it, with little, if any, need of a teacher's presence.

This is not to be misinterpreted to mean that the teacher is unnecessary, for it is the teacher who directs and inspires the students' out-of-class learning. In order for the teacher to be effective he must:

1. Specify clearly to the student the objective of his instruction.
2. Plan the proper learning experiences that will facilitate learning or achieving these objectives.
3. Properly assess student growth and provide feedback, which is the evaluation of how well he is achieving the objectives.

In the process of defining "teaching" and "teachers," certain fallacies in current thought should be pointed out. First, a great misconception abounds that lecturing equals teaching. The lecture is but one of the many teaching techniques, with its inherent strengths and weaknesses. Like any other instrument, the professional knows its limitations and thus, uses it effectively.

To destroy another myth, it is emphasized that teachers are made, not born. (Academic freedom does not mean the license to teach as ineffectively as one wishes). Referring again to the Scientist-Teacher, the Ph.D. must have teaching experience and an exposure to educational theory and practices if he is to be a useful addition to the optometric faculty. Learning to teach by observing one's graduate professor, a research-oriented educator, is, for a man of science a rather absurd way to learn a profession. It merely serves to perpetuate a teaching style that may have been outdated eons ago.

Certainly, one must know one's field, but is it not equally true that an educator should know the educational process ... not necessarily to the level of the specialist, but at least to that of the general practitioner? What would the optometrist say of his colleague who undertook contact lens fitting with no formal training in contact lenses, no informal training and not even the interest to seek the knowledge that he lacks.

LEARNING THEORY

"What is there to know about teaching," one might ask. Many answers are to be found in studying the psychology of learning. This branch of educational psychology is only one of the pillars that the knowledgeable educator must use to build his foundation. There are books galore documenting learning theory and a huge literature with considerable experimental input. Some examples to illustrate the range of information are:

1. Memorization and its relationship to learning -- It should be noted that memorization is only one of eight types of learning (Gagne 1970) and, in the absence of understanding, it is useless if not dangerous.
2. The characteristics of learning -- Learning is cumulative, continuous and purposeful. The learner must first perceive a need, which is not always identical to what the teacher thinks should be the need, learning is a very individual matter.
3. Theories of learning -- Differing schools of thought exist characterized by the stimulus-response ideas of Skinner (1968) or the cognitive approach of Dewey (1910) and the Gestaltists.
4. Influences affecting learning -- The learner's motivations and the effects of anxiety are two examples of influences on the learning process - some of which are useful, while others are destructive. Fear and punishment can inhibit learning, while reward has been shown to be a greater reinforcer of learning than punsihment.

Again, one could go on indefinitely exploring the body of knowledge relating to educational theory. Some people contend that many of the issues mentioned are not definitely settled, that varying opinions exist. It is hardly a defensible position in optometry, where varying theories abound with respect to case analysis and contact lens fitting philosophies among others. The existence of controversy has never been sufficient reason to deter the learner from seeking knowledge; on the contrary, the challenge implicit in such situations often serves as a catalyst in the learning process.

CONCLUSION

By attempting to answer certain key questions about the training of optometric educators, this paper has raised new ones. Will our future educators come from the professional graduate school programs with little or no training in education? Will they come from the ranks of the practitioner with no formal training at all in educational theory? Is it not time for the profession to address the problem by setting up training programs for optometric educators? Certainly, schools of education are available, often close by, that could supply the needed expertise. Optometry schools could create their own formal training programs of varying formats and there is no reason why every school could not have some type of in-service program.

The final question that may be anticipated from this discussion is, "With all the training, will it make a difference in optometric education? -- Is it worth it?" The answer to that question becomes apparent when it is countered with another question of similar impact: "Will continuing education for the optometric practitioner result in better vision care for the patient? Or does a year of internship for the physician result in better patient care?" Everyone seems convinced, even in the absence of quantitative evidence, that certain programs will be rewarding. Can we not expect the same from some exposure to the science of education? Certainly some good will come of it, although not overnight. Maybe the good that will come will be that teaching in a school of optometry will become so much more respectable that the question "Where will our educators come from?" will no longer need to be asked. JOE

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AMERICAN OPTOMETRIC FOUNDATION

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An Open Letter to the Readers of the JOURNAL OF OPTOMETRIC EDUCATION

Most of you are familiar with the American Optometric Foundation (AOF) and our efforts in behalf of optometric education. Those of you who are members of the profession know that this organization has provided fellowship support and research aid to over 400 individuals in our 28 years of service. You know also that we have been assisting the schools and colleges of optometry, especially in recent years, in obtaining contract support from states without optometric institutions. Contracts help to finance the education of students from states without optometry schools by assuring places for them in the twelve existing optometry programs.

Those readers who are not aware of the AOF's function should know that the organization is the national fund-raising coordinator for optometry, with new offices established in Washington, D.C. The following program of priorities was established by AOF over a year ago in conjunction with the American Optometric Association (AOA) and the Association of Schools and Colleges of Optometry (ASCO):

- *****Annual support to the operating budgets of the Schools and Colleges of Optometry through the State Contract Program funded by State tax dollars.**
- *****Scholarships for students pursuing the O.D. Degree.**
- *****Clinical Residency Stipends for instructors needed in our college clinics.**
- *****Support to Allied Optometric Organizations.**
- *****Research Grants.**
- *****Fellowships for students pursuing advanced degrees to teach in the Schools and Colleges of Optometry.**

The AOF needs your support. The money channeled through the Foundation for optometric education comes from individual optometrists' contributions, the opthalmic industry and some pricate foundation support. As a member of the profession or as a friend of optometry, please make a contribution (tax-deductible) in 1975 to help us work toward the goal of providing the best vision care possible to all Americans.

With sincere appreciation,

Tom Brungardt

Tom F. Brungardt, O.D.
President

Optometric Education in an Academic Health Center★

By Henry B. Peters, O.D., M.A.
Dean, School of Optometry, The Medical Center, University of Alabama in Birmingham.

It is an honor and a privilege for me to participate in this great celebration. Though my American friends find it humorous that I have traveled half way around the world to stay at a Holiday Inn, it is a lovely setting.

I have carefully studied the materials available to me on the history of your association's efforts to improve the profession of optometry through legislation, licensure and educational development. Except for the names, dates and places, it is most familiar reading. We, too, have fought, and continue to fight, these battles as part of our continuing responsibility for the visual welfare of the public.

Central to these issues are those that relate to the qualifications of practicing optometrists. You have made a major step forward with your new Board and licensing procudures. I congratulate you.

The legal licensing and establishment of Boards took place in the United States, each State separately, between 1901 and 1924. This didn't solve all our problems, nor will it solve yours, so I caution you to maintain your association as a strong educational, political and ethical force for your professional development.

The issues surrounding optometric education are still unresolved in your nation and it is entirely appropriate that we consider these today. The School of Optometry which I have the good fortune to head is a new model, not completely accepted, even in the United States. I would like to share with you some of my experiences in developing the first school of optometry in an academic health center.

At the turn of the centry, more than 60 independent, private "schools" of optics and optometry existed in the United States. Most were small, apprentice-type, part-time, proprietary schools. In 1910, the first university course in optometry was started at Columbia University in New York City. This was a two-year program related to the physics department. In 1915, the first four-year degree-granting program was started in the physics department at the Ohio State University. This was followed in 1923 by a similar program at the University of California. The private schools disappeared, consolidated and/or became non-profit institutions, increasing their educational programs. By the 1950's, the educational programs were five years in length and by the 1960's, all schools were at a minimum of six years - all leading to a standard degree, Doctor of Optometry (O.D.).

Today, there are twelve schools of optometry in operation in the United States - seven in universities, five as independent, non-profit institutions with various university affiliations. I hasten to add that two more university schools, Missouri and Florida, have been created by legislation and are scheduled to start in 1975. All schools require a minimum of two years collegiate-level, prescribed, pre-optometry study (although 67% of entrants in 1973 held bachelors degrees) and a four-year professional curriculum leading to the O.D. degree.

What, then, is unique about Alabama? The School of Optometry at the University of Alabama in Birmingham, created by the State Legislature in 1969, was the first to be physically and organizationally a part of an academic health center. On our campus, the academic programs are divided into two main administrative units. University College contains the traditional general programs of the University: arts and sciences, education, engineering, business, etc. The Medical Center, an academic health center, contains the School of Medicine, the School of Dentistry, the School of Optometry, the School of Nursing and the School of Community and Allied Health Resources, all reporting to a Vice President for Health Affairs.

The creation of a new school of optometry in an academic health center provided a unique opportunity to design a curriculum relevant to the vision welfare of the public and the future of the profession. The charge of the administration of the University to me, as the new dean, was simply to develop a program of excellence, utilizing the considerable resources of the Medical Center.

No other school of optometry has been developed as an intimate part of an academic health center; no other school of optometry has had such an array of opportunities and resources available to it; no other

★ **Text of an address delivered to the Fiftieth Congress of the South African Optometric Association, Durban, South Africa, July, 1974.**

"The creation of a new school of optometry in an academic health center provided a unique opportunity to design a curriculum relevant to the vision welfare of the public and the future of the profession."

school of optometry has been started in a geographic and social setting so in need of its services. Because of this uniqueness, the development of the School of Optometry/The Medical Center, University of Alabama in Birmingham has become the focus of attention for a wide variety of individuals and groups interested in optometric education-including federal agencies, other medical centers, optometric and ophthalmological societies, as well as those interested in the organization and delivery of health services.

I would be less than candid if I told you that I approached this task without some fear. Many of my colleagues predicted dire results. I wrote at the time, however, my commitment that "Optometry is a health science and as such its educational program should be developed within the medical center of a university. Only through the establishment of symbiotic relationships with other health disciplines and allied health programs can optometry realize its potential for service in the evolving health care delivery system." I believed it then and I believe it even more strongly now.

We have available to us magnificent basic health sciences departments-the same departments, faculty and facilities that serve the medical and dental schools. The optometry students take courses, frequently with other health professional students, in anatomy, histology, neuro-anatomy, physiology, biochemistry, microbiology, pharmacology and systemic pathology.

The School of Medicine faculty teach optometry students public health and epidemiology, ocular pathology, clinical medicine for optometrists, and clinical pathology.

Our own faculty teach remarkably effective courses in physiological optics, physical and geometric optics, optometric theory and practice. Frequently we have students from other programs, often graduate students, taking selected courses in our curriculum for their own purposes.

The clinical program includes a pre-clinical and clinical experience in our own facility but, more important to this discussion, we have clinical programs for our interns in affiliated clinics in hospitals and clinics on campus and in the community. These later provide remarkable interdisciplinary, institutional experiences with special population groups we might not see in our own clinic.

One such affiliated clinic is in the Diabetes Research and Education Hospital where our students see more diabetic retinopathy than they are likely to see in years of practice. It is the only such optometry clinic in the nation.

Another is in the Veterans Administration Hospital, another unique optometry clinic, where we see, in an interdisciplinary setting, mostly older men with a wide variety of eye conditions, and where we expect to be able to begin soon a series of experiments in role relations with ophthalmology and the cost-effectiveness studies of various delivery models.

A third is the Vision Functions Laboratory of the Center for Developmental and Learning Disorders. This teaching and service program involves seventeen different disciplines that provide a broad interdisciplinary approach to children with learning disabilities.

A fourth is a series of programs related to the Special Technical Facility for the Deaf and Blind. In this program, optometry students work with partially-sighted patients of various age levels to optimize the limited visual capabilities of these persons through the application of special optical aids.

Two more affiliated programs involve vision screening, one of young children and one for a large group of hospitalized mental patients. We are currently working on the development of such programs in the Children's Hospital, a family health center, and a series of nursing homes. These opportunities are available because of our relations with the Medical Center.

Because of the resources of the Medical Center, and the general commitment to sharing these resources, my faculty and students have had rich opportunities to develop exciting research projects to name a few: imaging ultra-sound for the detection of cancer, with the Cancer Research Institute; visual characteristics of schizophrenics, with Psychiatry; visual performance and cerebral blood flow, with Neurology; color vision and visual tracking in monkeys, with Neurosciences; biochemistry of visual pigments, with Biochemistry; neuronal development in visually deprived kittens, with Anatomy; gaseous transport across the cornea, with Physiology. Ther are others, but that will give you an ides of the rich resources available for vision-related research.

"Only through the establishment of symbiotic relationships with the other health disciplines and allied health programs can optometry realize its potential for service in the evolving health care delivery system."

Is this a one-way street? I do not believe so. With administrative support, a school of optometry can flourish in an academic health center, drawing on its resources to strengthen its educational and service programs and, most importantly, developing viable interprofessional communications. But, an optometry school can make significant contributions to an academic health center - both in terms of scholarly contributions and patient services not otherwise available, and in terms of important research on unsolved vision problems. It should be no surprise that vision problems within the scope of optometry are the second most prevalent chronic health problem in our population, and that among the public's health concerns, vision problems rate just after their concern for cancer. Optometry can and does make significant teaching, research and service contributions to a health center.

This kind of setting has been attractive to faculty. Always of great concern in starting a new school, faculty recruiting has been relatively easy and remarkably effective. In the department of the School of Optometry, excluding the Basic Science and School of Medicine faculty who teach our students, we have thirty faculty-fourteen of whom have Ph.D. degrees and eight with MA or MS degrees and in addition most have O.D. degrees. They are a group of young, eager, talented vision scientists and clinicians who share the excitement and challenge of this new program.

Clearly, this program, only in existence five years, has become a center for patient referrals for difficult problems, a regional center for continuing education for optometrists, and a major locus for basic and applied vision research. And most importantly, we are producing excellent optometrists to serve the public's need for vision care in our state and region.

One more experience I would like to share with you. This is the developing relationship between ophthalmology and optometry. My reading of your history indicates that you understand the problems involved in this long-standing conflict. We haven't solved this problem but we have made some progress. I adamantly reject the posture of confrontation and conflict with ophthalmology. The public's needs for vision services are far greater than our combined resources and capacities can provide. We each have significant and unique contributions to make: optometry's emphasis on refraction and vision performance; ophthalmology's emphasis on ocular pathology and surgery. The differences and complements of these interests are clearly reflected in the research literature of the two professions. Cooperatively, we can make a greater contribution to the visual welfare of the public than either discipline can by itself or in antagonistic roles.

Such a statement will not prevent some ophthalmologists from derogating the optometry program; however, with administrative support from the institution, and with the establishment of the optometry program as an administratively equal professional school in the academic health center, it is possible to build the lines of communication, respect and understanding on which sound interprofessional relations can be developed. We have made a significant start in this direction, progress which we believe could only take place in an academic health center.

Although not all of you, nor all of my American colleagues are convinced of the advantages of the model I have presented - after all we have only been in existence five years - I do recommend that you study this model in the light of your own needs.

The key features of such a model are:

1) Separate status as a professional school administratively on the same level as medicine and dentistry, within the health center, and granting an appropriate academic degree.
2) Strong central administrative committment to interdisciplinary development and mutual support.
3) Shared basic health science programs for health professions students.
4) Opportunity for development of optometric clinical services in the various patient care facilities of the center.
5) Opportunity to develop research programs of mutual interest.
6) Commitment to graduate and continuing education for the further development of practicing optometrists and future educators.

Modified to your own needs and resources, I believe this model can make a substantial contribution to the visual welfare of your nation and the development of our profession. JOE

Curriculum Planning in Vision Training: A Proposed Model

By Irwin B. Suchoff, O.D.*

Vision training potentially represents an area of optometric practice that clinically applies all previous optometric education. In order to successfully and intelligently practice vision training the clinician must have sufficient knowledge of the anatomy, neurology and physiology of the visual system and a good understanding of optics and perception. He should also be well versed in the sciences of human behavior, particularly in learning theory, child development and behavior modification. The application of his accrued knowledge in all of these areas leads on the one hand to evaluative procedures (e.g., anatomy, neurology, physiology, child development) and on the other hand to therapeutics (e.g., learning theory, behavior modification).

In terms of teaching strategy with regard to the didactic and clinical curriculum in vision training, what has preceded largely determines what is to follow. For example, if the neurology of the oculomotor system and the characteristics of eye movements have been covered in previous courses, then the instructor in Strabismus is able to assume students' didactic knowledge and orient his course toward the clinical application of this knowledge. Faculty must provide coordination between the basic and behavioral scientists with the optometric scientists and clinicians. A key ingredient in this coordination is a clear understanding of how the knowledge imparted to the student by the scientist will later be utilized in the vision training clinic. A further coordination must occur between those optometrists teaching basic optometric sciences and those teaching clinical optometric sciences.

***Associate Professor; Coordinator of Clinical Teaching in Visual Training, State University of New York, College of Optometry.**

Applied Knowledge

If we assume learning on the part of the student and coordination on the part of the faculty, the next major area of concern in the planning of curriculum in vision training is the application of knowledge to the patient. While the learning aspect can be defined in terms of the students' ability to perform and interpret various evaluative and therapeutic procedures, and the coordinative aspect can similarly be defined by agreement between the appropriate faculty members, the means of applying the knowledge to the particular patient presents certain obstacles to precise teaching. There are few instances in the management of a patient's problem by means of vision training where only one form of remediation is possible. Frequently the optometrist must choose between a home-based vs. an office-based program, lens therapy vs. office therapy, no therapy vs. active therapy, etc. Further, it is possible for two patients to present identical problems and for the attending clinician to choose alternative treatments. An example might be two patients, both of whom have identical optometric "numerical" findings, who are diagnosed as accommodative insufficiencies. If one patient reveals in his case history that he is taking a medication that the optometrist, upon proper consultation, determines to have a deleterious effect on the accommodative amplitude, therapy in the form of appropriate convex lens power would probably be given to this patient for the time he needs to take the medication. If the other patient reveals no systemic or exogenous cause for his lowered amplitude of accommodation, the optometrist might well suggest a program of vision training.

This example is rather clear cut but, unfortunately, it is not always representative of the type of situation the optometrist faces when he considers the data obtained from his general and vision training evaluations. Frequently, key issues that determine the next step in the care of the patient relate to such things as patient motivation, an estimation of parental cooperation, the patient's ability to cognitively contend with the demands of the vision training program, etc. Still another significant factor relates to the individual practitioner's view of the visual process and visual system and of his role as an optometrist. If he adheres to the anatomical model of

vision, his decision regarding vision, training for the remediation of a patient with an accommodative inflexibility might well be negative; if he adheres to the functional model of vision, his decision might well be in favor of vision training.

Some of the major parts of a vision training curriculum are: a) basic knowledge in various areas (didactics); b) coordination between faculty; c) clinical application of the knowledge to the patient. While each of these areas are undoubtedly considered in the various colleges and schools of optometry, it is rare for the total curriculum in vision training to be presented to the faculty or student body in these terms.

The Need for a Model

The need for some type of overview dealing with guidelines for all aspects of vision training quickly becomes evident to the optometric educator. Student wants frequently differ from teaching strategy. While it might be decided that a particular academic time period will be devoted to developing proficiency in evaluative techniques on "real" patients, it is the unusual student who is not concerned with how this information will be used in terms of diagnoses, prognoses and patient management. Indeed, it would be detrimental to the quality of clinical education to discourage this type of student interest. Yet this interest should not be destructive to the basic teaching strategy. As Eble points out, "...in teaching as in writing, a person can go wrong in all the right directions. There must be discipline in teaching, but discipline goes over into rigidity as easily as informality becomes sloppiness."[1]

In terms of student utilization, a paradigm that accounts for the total vision training picture in general terms might well allow for discipline without rigidity.

An overview approach can be equally important for faculty. While the technology of vision training can be defined by instructional objectives the overall educational objectives of the total vision training curriculum frequently remain undefined. Often these objectives are situationally defined in the clinic by the clinical instructor.

This is not always in the best interests of good teaching. Clinical teaching differs from classroom instruction in several important ways. The practicing clinician has been characterized as follows: "He has to do the best he can with the knowledge that he has..."[2] Often the "best he can" is determined by what has clinically been successful over a period of time, and as Dykes has pointed out, certain evaluative and therapeutic maneuvers that "work" become identified by the clinician as hard knowledge rather than hypothesis.[3]

The teaching clinician must guard against this pitfall. His academic appointment carries a unique responsibility of role; he cannot be as purely didactic as his non-clinical teaching colleagues, nor can he be as purely clinical as his non-teaching clinical colleagues in the larger optometric community. For maximum teaching effectiveness, he must be somewhere "in-between." Carl R. Rogers, a renowned and experienced clinical psychologist, has addressed this duality of role of the enlightened clinician. Clinical care, he feels, is a subjective experience for the clinician, but "...Research is the experience in which I can stand off and try to view this rich subjective experience with objectivity, applying all the elegant methods of science to determine whether I have been deceiving myself."[4]

The teaching clinician in vision training must be aware of the fact that what he presents to the student is frequently accepted, not as the "best way for this patient," but rather as dogma that will then be applied to all patients.

A paradigm that presents an overview of the vision training curriculum can serve the faculty as more than a guideline, or a statement of clinical sequence to be followed. It can act as a statement of the educational intent of the vision training curriculum that embodies the institution's philosophy of optometry and patient care.

In terms of student-faculty interaction, a model can establish the parameters of clinical communication; it can provide the format of the sequence of clinical interventions as a function of various didactic areas so that a systematic approach to the patient results. Ideal-

1. **Eble, K.** *Professors as Teachers,* **Jossey-Bass, Inc., San Francisco, 1972. p. 37**
2. **Pickering, G. "Physican and Scientist,"** *British Medical Journal,* **Vol. 2, 1964. p. 1617**
3. **Dykes, N. "Uncritical Thinking in Medicine,"** *Journal of the American Medical Association,* **Vol. 227, No. 11, 1974. pp. 1275-1277**
4. **Rogers, C.R.** *On Becoming a Person,* **Houghton-Mifflin Co., Boston, 1961. p. 14**

ly, this systematic approach should lead to a "way of thinking" common to both student and teacher that is consistent with the educational goals and intents of the curriculum.

While other health-care professions[5, 6, 7] have shown interest in this type of curriculum planning, the models which have evolved are not totally applicable to vision training. It is possible to "adapt rather than adopt" the other models so that a usable one for vision training curriculum might result.

A Proposed Model of Vision Training Patient Evaluation Curriculum

Vision training shall be introduced as a means of problem solving in optometric practice. Ways, et al., has referred to such an approach in medical education as "focal problem teaching." "...This format directly stimulates the problem solving character of medical practice in order to explicitly cultivate the skills of medical problem solving while simultaneously providing a realistic context for transmitting relevant information and concepts."[8]

The utilization of a problem solving approach in the proposed vision training model is meant to answer two general questions:

1. Will vision training therapy solve the problem the patient (or the patient's agent) used as a basis for seeking optometric care?
2. Will vision training therapy be effective in preventing a problem for this patient in the future?

In order to arrive at the best answers to these questions the proposed model will borrow heavily from Shields Model[9] in nursing curriculum in the spirit of "adapt rather than adopt." A 3-dimensional model is consequently evolved (see page 23). The vertical axis represents the curriculum content with regard to all the "knowledge areas" that are required to competently administer and interpret the various clinical probes. The horizontal axis represents the affective-cognitive processes the clinician utilizes in order to arrive at a decision (problem solve). These processes represent a sequence that is not always clear to the student; he will many times observe a clinical-instructor who is "thinking on his feet." It is often difficult for the instructor to verbalize the mental steps he went through to arrive at a decision because the process tends to become internalized or automatic with time. The outlining of the processes can represent an important framework for clinical communication between student and teacher. These processes are:

1. **Collection of Data**
   This is the "technician's" phase. The practitioner accumulates all pertinent data such as case history, chief complaint, "numerical" optometric findings, reports from other professionals, the performance-based vision training evaluation, etc.
2. **Categorization of Data Utilizing Established Relationships**
   In this phase, the data is viewed on the basis of possible cause-effect relationships that are well established. This would include direct 1:1 relationships as well as recognized syndromes. Thus, a chief complaint of "I've recently started seeing double" can be related to a receded near point of convergence, a low base out break point and negative recovery value at near. It will not be related to a neurological or general medical report that reveals no neurological or organic basis for the diplopia. On the other hand, if there has been no neurological or general medical report such evaluations must be sought because of causal relationships that are well established between sudden onset of diplopia and systemic or neurological conditions.
   In a similar vein, a finding of amblyopia can be positively related to an uncorrected refractive error, but cannot be related to a finding of central fixation with the Visuscope, Maxwell Spot, or Macula Integrity Tester.
3. **Categorization of Data Utilizing Insightful Relationships**
   If the previous area of process (2) is characterized, as reproductive thinking, i.e. clinical thinking according to established cause-effect relationships, this phase can be described as creative thinking. "The teacher and student need

Continued on page 42

5. Shields, M. "A Model Apt. for Measurement," *Nursing Outlook*, Vol. 19, No. 9, September 1971. pp. 600-601

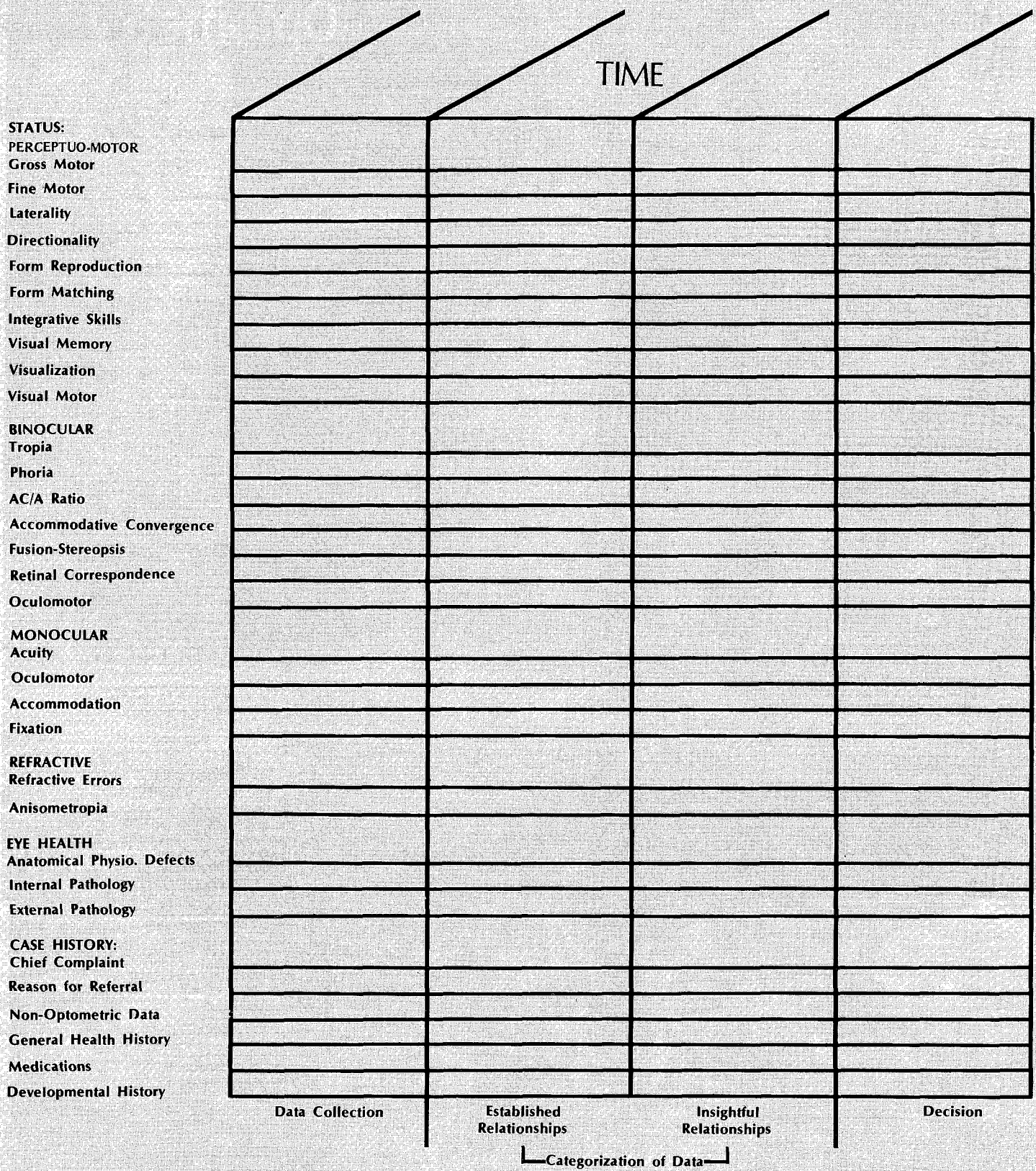
6. Personal Conversations and Communications with Charles W. Ford, Ph.D.; Dept. of Health Sciences Education and Evaluation, School of Health Related Professions, SUNY, 260 Winspear Ave., Buffalo, New York 14214

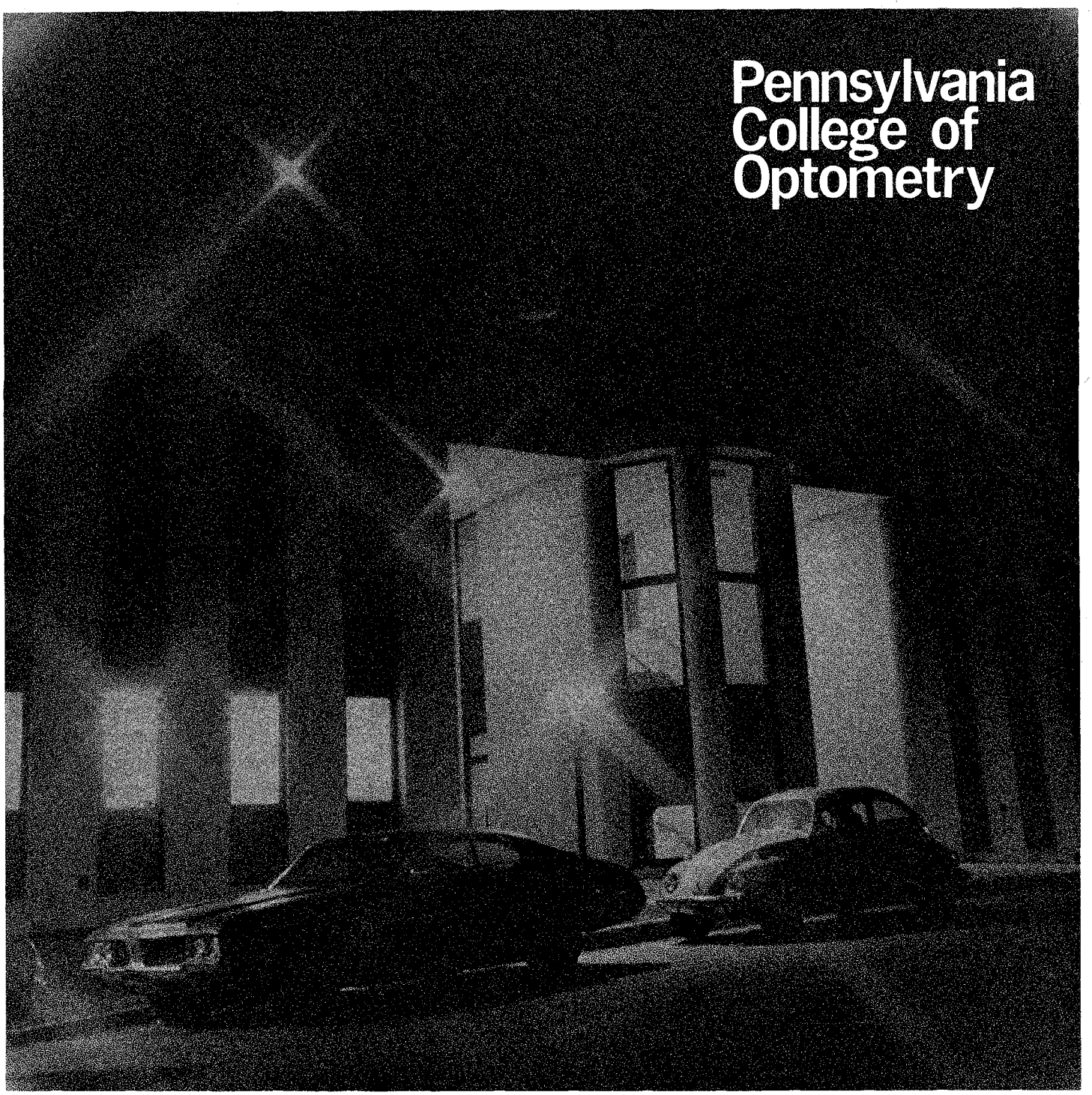
7. Ways, P. et al. "Focal Problem-Teaching in Medical Education," *Journal of Medical Education*, Vol. No. 48, June 1973. pp. 565-571

8. Ibid., p. 565

9. Shields, M. "A Model for a Curriculum Goal," *Nursing Outlook*, Vol. 20, December 1972. pp. 782-785

Proposed Curriculum Model





NO "SHRINKING VIOLET"

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By Phyllis Propert, Editor
PCO *Alumni Bulletin*

It may seem incredible, but an institution has a body, a spirit and a soul--it has personality. Defined in those terms, the Pennsylvania College of Optometry (PCO) is a real extrovert.

To some extent this personality trait has always been in evidence at PCO. Founded in 1919 by Albert Fitch, the institution has a distinguished list of "firsts":

*This private, non-profit health professional college in Philadelphia was the first school of optometry to award the Doctor of Optometry (O.D.) degree;

*PCO was the first to develop a four-year professional curriculum, requiring a minimum of two years of undergraduate education and setting stringent standards for science prerequisites for applicants;

*The first optometric institution to initiate comprehensive continuing education programs for practicing optometrists, PCO also led the way in introducing into the optometric curriculum new areas of study such as contact lens education while emphasizing areas in pathology, pharmacology and hypertension as they relate to vision care.

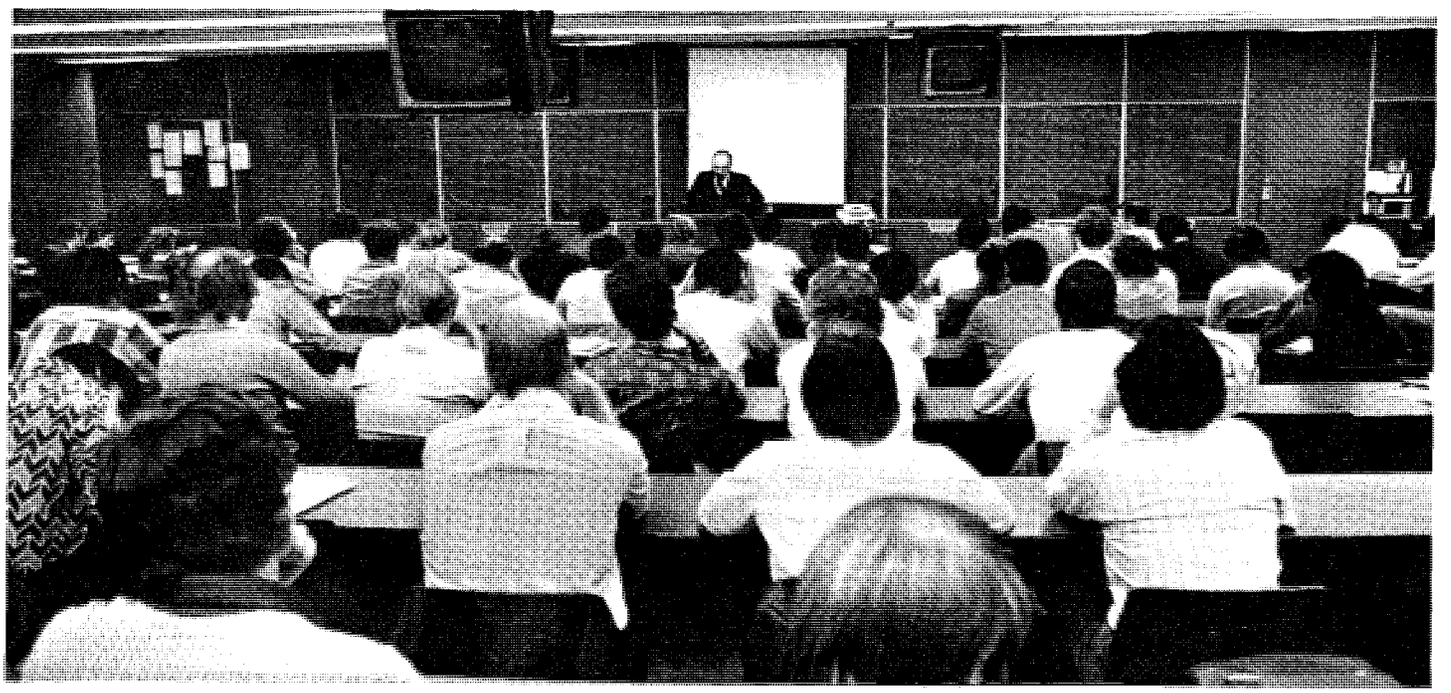
Dr. Wallis greets new PCO students during Freshman Orientation.

The "Space Age" brought a new breed of students to PCO--students who emphasized community outreach and insisted on a right to participate in decision-making related to their education and future careers. As a result, PCO, like many other institutions of higher learning in the same era, found itself shedding even more of its "traditional" inhibitions.

Under the leadership of Dr. Norman E. Wallis, PCO president since 1972, students are given even more voice by participation on joint committees with the faculty. Student involvement in community service projects continues to be emphasized.

Dr. Wallis became the third president of Pennsylvania's only optometry school more than two years ago. At age 36, Dr. Wallis is the youngest college president in optometry. Dr. Wallis, who earned his O.D. degree at the City University of London and a Ph.D. at Indiana University, currently serves as vice-president of the Association of Schools and Colleges of Optometry.

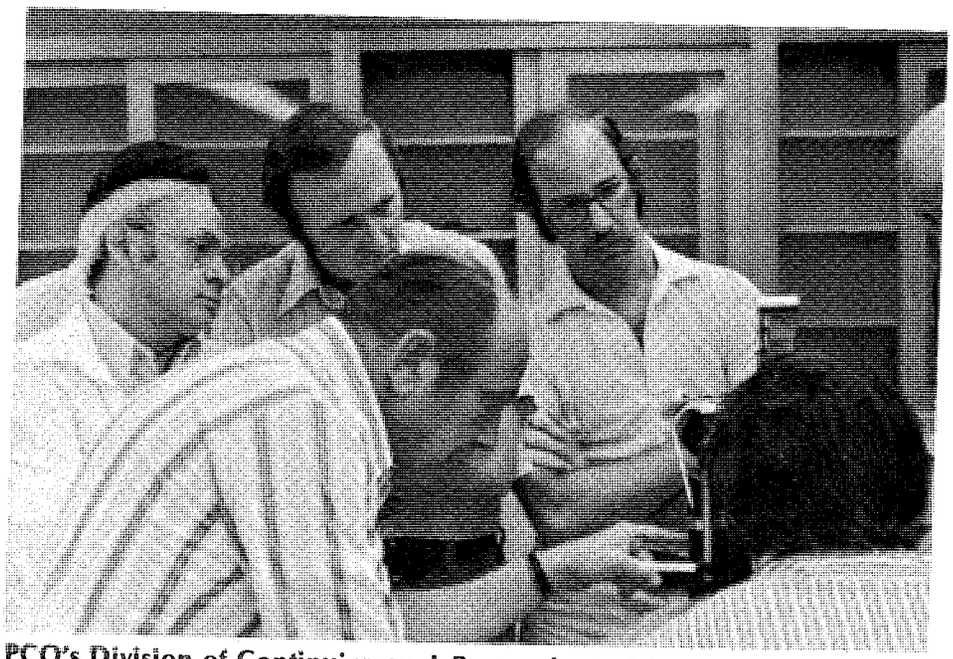
The curriculum at PCO has been further developed by maximizing the students' patient-care education and emphasizing the transfer of basic scientific information from the classroom and laboratory into the examination rooms. Patient-care services have been expanded, both



physically and by extended hours: the scope of services provided has been increased to include electrophysiological diagnostic procedures, a bigger emphasis in pediatric optometry and involvement in vision rehabilitation.

The Division of Continuing and Postgraduate Education was established as a complete academic division to oversee the continuing education of the practitioner and the post-graduate education of residents in the specialty areas of Optometry. In its outreach program, the division provides continuing education programs throughout Pennsylvania and in several other states.

And what do PCO's students think of all the changes and the college's rejuvenated personality?



PCO's Division of Continuing and Postgraduate Education.

George Angello of Bradford, Pa., a member of the Class of 1975 and chairman of the Student Optometric Service to Haiti, says it this way:

"The system here is good. The curriculum has kept pace with the increasing opportunities in the field. In fact, it might even be ahead of its time by a few years. The clinical facilities are good now, but they could be better. I know the college is working on this and it's a question of economics.

"Perhaps PCO's biggest advantage," the fourth-year student added, "is that it is independent. We seem to be moving faster than some of the other schools, perhaps because there is less red tape to go through to get things done. The students now have a lot of say here--after all, we're not kids--and I think it shows that it can be all for the good."

But where is PCO weak?

That question deserves to be answered and it was. One person said that the school attempts to do too many things at once, not giving enough attention to each project.

Another said that there is too casual an attitude on the part of some faculty about being at the college to answer students' questions.

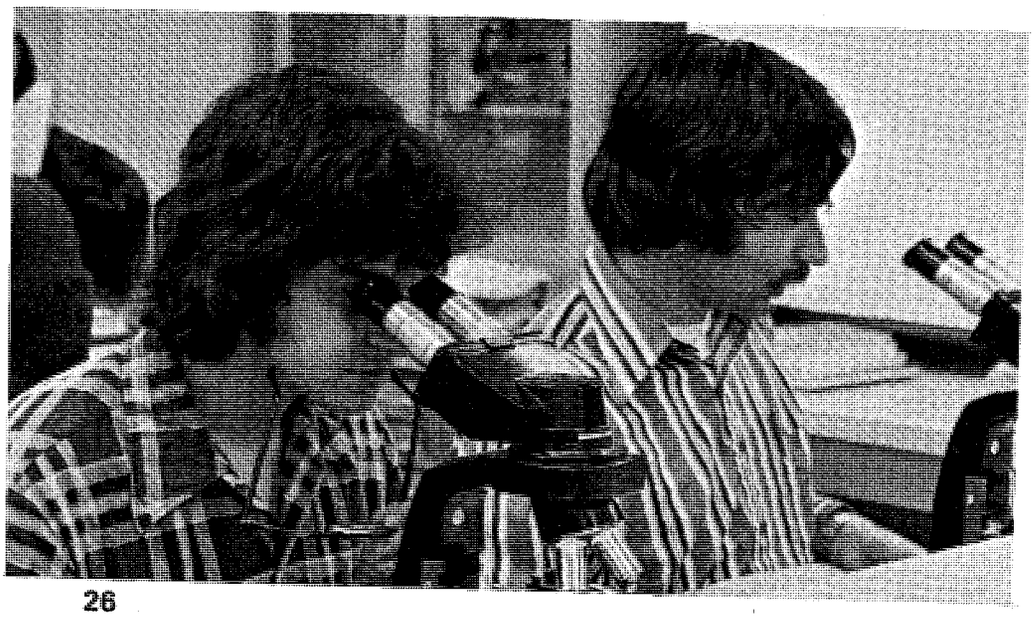
An administrator who was queried agreed with fourth-year student George Angello:

"There is a real need for expanded, modernized clinical facilities at PCO to develop even more the patient-care education of the student. This can only be done," he added, "by means of a much greater operating budget with significant state appropriations to allow the college to spend all it should to produce a first-class health professional."

A few other persons also were questioned in this non-scientific survey of college weaknesses in an attempt to discover if there were any who might object to PCO's new outgoing personality. Fortunately for the college's ego, none was found.

In addition, students, faculty and administrative staff seemed pleased with the "shape" of PCO.

The college has a 13-acre, tree-lined main campus in the Oak Lane section of Philadelphia. Its main academic building was completed in 1970 at a cost of three million dollars. The MacElree Building, opened in August 1973, houses the Special Services Clinic, including contact lenses, vision rehabilitation, and pediatric optometry facilities.



Two modern apartment houses also are located on the campus.

The college's off-campus clinics in Philadelphia are located at 1809 Spring Garden St. and at 5604 North Broad St. Other clinics are located at a home for the aged and a prison and detention center. Clinical services also are provided at nursing homes, optometric centers in other states, schools for normal children as well as for deaf, learning disabled, and orthopedically-handicapped.

PCO's outreach also is seen in its current research. Through grants from the National Science Foundation and the Pennsylvania Lions Sight Conservation and Eye Research Foundation, the college is conducting research into visually-evoked responses (VERs) from the brain's visual cortex and the electrical impulses from the retina.

Among several other research projects are: a study on "Teratological and Systemic Effects of Common Ocular Corticosteroids," also funded by the Pennsylvania Lions Sight Conservation and Eye Research Foundation, and a multi-disciplinary program within a suburban school district to identify and treat children with visual and visual perceptual developmental problems.

The multi-disciplinary approach also is used in the "PHIHEP" program, funded by the Comprehensive Health Manpower Training Act. PHIHEP, the Philadelphia Interdisciplinary Health and Education Program, brings together students of optometry, medicine, podiatry, pharmacy, dentistry, nursing, allied health professions and social work as a clinic team. Students say they find the experience highly rewarding.

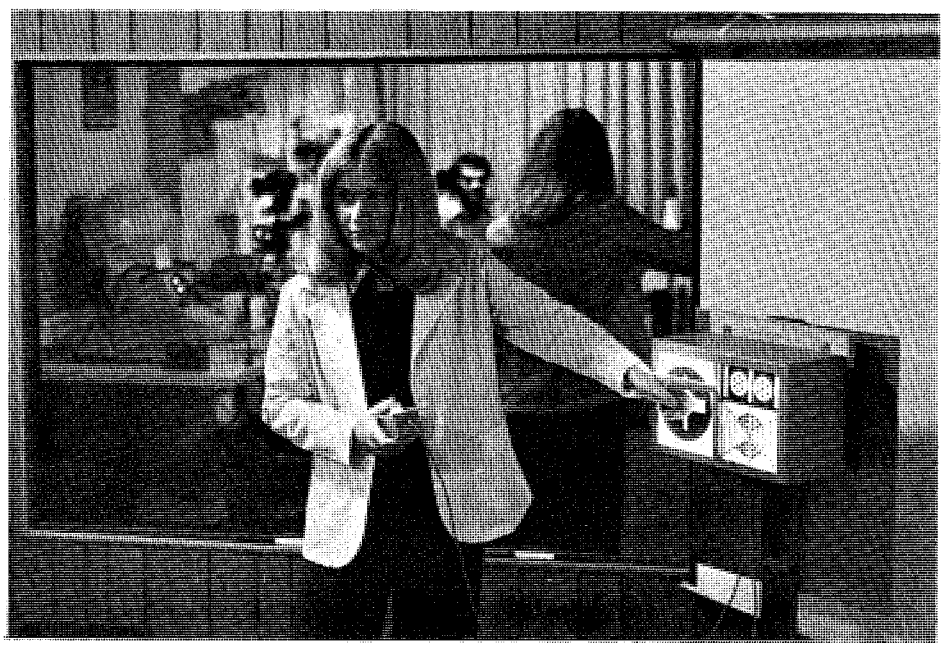
But perhaps one of the best known examples of PCO's extroversion is SOSH, the Student Optometric Service to Haiti.

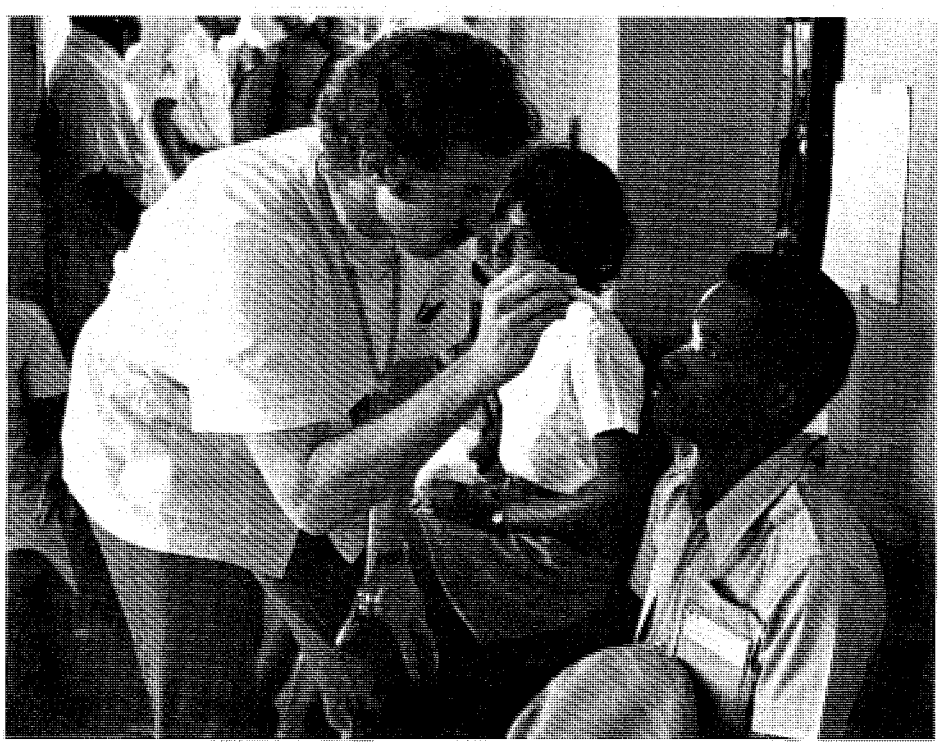
Founded in 1968, the volunteer student organization spends 10 days in Haiti each February, providing free examinations which include the diagnosis of general health problems and eye diseases, and the diagnosis and treatment of vision problems. (SOSH also provides spectacle corrections for the impoverished island people.)

Last year, SOSH was able to help several thousand Haitians. Among them was Janet Jawara, a seven-year-old, who had never seen the faces of her parents or sisters because of cataracts in both eyes. SOSH interns and their faculty advisor determined that surgery could help the youngster. They dug into their own pockets to pay for it and the hospitalization. Since then they have provided the little girl with the necessary spectacle correction.

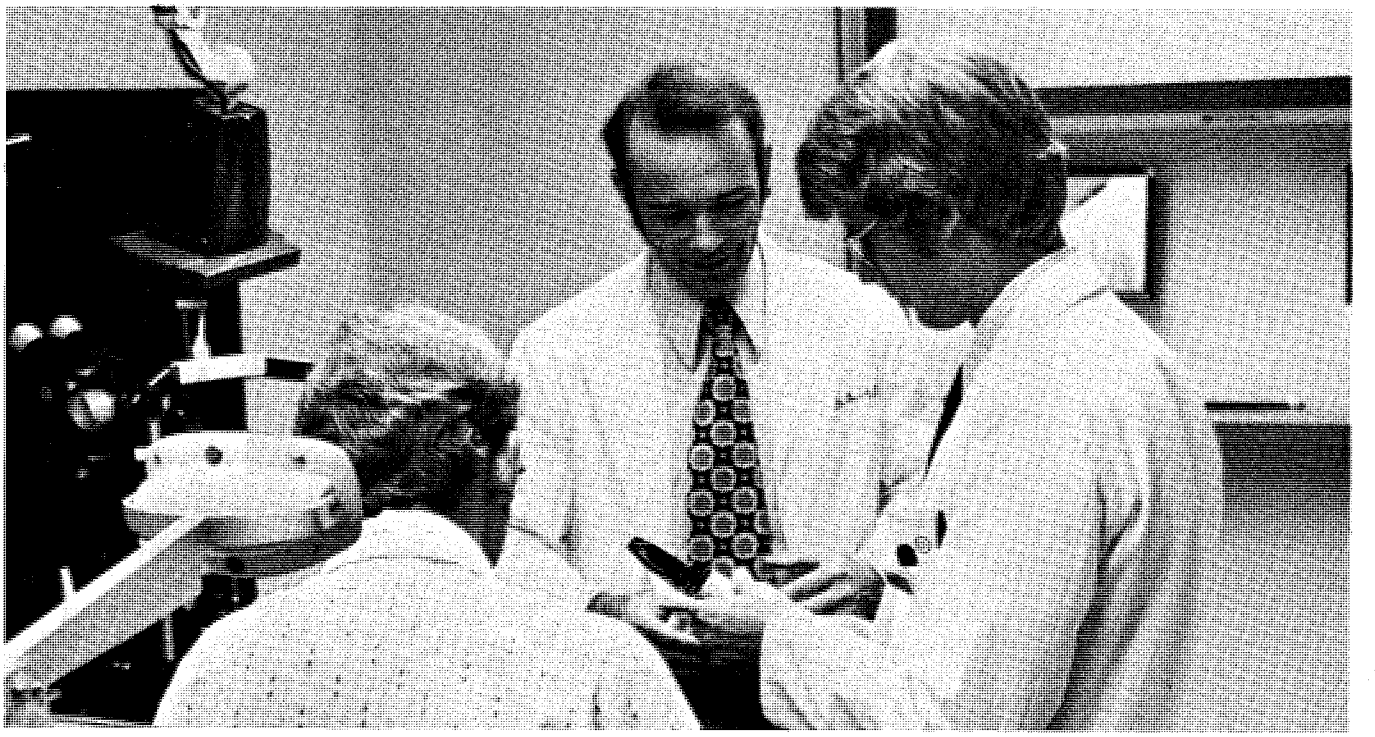
This February, the 1975 SOSH team will see Janet to make sure all is still going well.

Janet's parents think that the Pennsylvania College of Optometry has a kind heart. JOE





SOSH interns provide free vision care to Haitians each year.



An Educational Dilemma

Training for Clinical Practice

By Thomas S. Greenspon, Ph.D.*

This article is completely theoretical. It concerns a fundamental discrepancy between the approach to optometric education and the product of that education. Stated simply, there are two kinds of learning which must take place in any health care professional school: first, there is the information base underlying diagnosis and treatment capabilities; second, there is the diagnostic ability itself. Our educational system is geared to the first kind of learning, but not the second. This is a serious problem. It hampers the development of the profession, and its solution will be slow in coming because it will involve a major attitudinal change.

The primary difficulty can be stated in this way: the usual classroom situation in our schools puts the students in the position of being consumers of information rather than derivers of knowledge. Once in practice, however, the situation reverses. Optometrists do not routinely rely on external sources for answers to problems confronting them, nor do they engage in memorizing things. Rather, they must gather detailed data from which to make a decision about appropriate treatment. Put another way, they must act as producers of knowledge -- their conclusions about the patient have never been arrived at by anyone before.

Looked at from this point of view, the clinician is involved in an activity which is similar to that of a scientist. Certainly a clinician is involved in more deductive logical processes, and does not engage in generalizing to a class of events from one set of observations. Nevertheless, both clinician and scientist bring to light a new interpretation of a particular set of events. In one case, this is labelled "diagnosis," in the other, "explanation".

Unfortunately, neither the clinician nor the scientist normally engages in activities in which they previously engaged in the classroom, and this is the crux of the problem. In the schools, research requirements are set for the aspiring scientist, with clinic assignments for the coming practitioner. These activities are appropriate and good; however, in all the courses in which basic information is involved, the students, rather than learning to be problem-solvers, learn to be receptacles of facts. Unless they intend in their practice to refuse all but the most routine and simple cases, this experience is inimical to their future goals.

***Chairperson, Department of Physiological Optics; School of Optometry/The Medical Center, University of Alabama in Birmingham**

To some, education is teaching: presenting material, "covering ground," providing explanations--things pertaining to what the teacher does. To others, education is an active process having to do with the learner. When the student becomes a deriver of knowledge, rather than a compiler of facts-- a human being rather than a vessel or repository-- then education has occurred. It is frequently pointed out that the Latin root of the word educate means "to lead out". This implies an active change of orientation on the part of the person being educated.

Education is understanding, not simply explanation. Again, the emphasis is on the learner. Understanding provides the capacity to confront and assimilate new facts outside the classroom. Too often, explanation provides only an exercise in memorization. An educator should be constantly concerned with the level of students' understanding of the content of the subject.

Finally, education has an aspect of liberation. If a student can be produced who is an autonomous individual, free of the need for authority and capable of being a source of knowledge by himself, then educated has occurred. Only in this way can the learner continue to thrive when some of the "facts" imparted in the classroom become outdated. Piaget said, "The principle goal of education is to create people who are capable of doing new things, not simply of repeating what other generations have done -- people who are creative, inventive and discoverers." (Ginsburg and Opper, 1969).

The Lecture Method

Probably the greatest impediment to the student's becoming an active learner is the heavy reliance on the lecture method in the classroom. A lecture represents a display of facts, most of which are to be memorized, and it places the listener in a passive role. A lecture typically "covers material" before the students realize they have any need for that particular information. Finally, a lecture is given with the assumption that all the listeners are at the same point in their intellectual development with respect to the topic.

Lectures are necessary in that the students need to relate to the instructor as a resource person on topics of concern to them. Ideally then, the lecture should present a circumscribed group of facts on a topic with which the students have been actively involved in lab or clinic, for example. In addition, there should be more problem-solving activity in the educational program. This can be done in a classroom or with small groups of students or without instructors when computer facilities are available. By trying to solve a problem, the student is building a structure of sorts, and this psychological structure contains "slots" into which facts can be put. Facts are always more easily remembered when put into a relevant context. Many engaged in scientific research can probably reel off a myriad of unrelated facts concerning experimental techniques from their own experience which no one else has collected under one skull because they are not relevant in the same way. Problem-solving provides a structure for retention of facts, whether for an exam, national boards, or one's own research.

Active Learning Orientation

The problem-solving, active learning orientation should be instituted at the earliest preschool level, but it can be introduced in college or professional school without undue difficulty. It requires a reorientation to what Epstein (1970) calls "experience-based learning." Problems are posed which force the students not only to collect facts but to integrate them as well. Class time is spent on reviewing the relevant factual material, but much of it is devoted to discussion of the techniques for gathering information, whether in the clinic or the lab. If a student has a question about visual processes, or about deficits in vision function, how does he answer it? Finding the answer puts the student in the role of active learner and deriver of knowldedge -- the role played by the practitioner.

At least two other features are necessary in this type of program. First, there must be sufficient time for reading and private study by the learner. Educators typically do their best to keep students busy in class all day long, but their desire to cover everything by word of mouth may be self-defeating. Second, there is a need to concentrate on the interdigitation of clinic and basic science. The health sciences and physiological optics are not hurdles to be jumped on the way to the clinic -- they are the backbone of clinical practice. A closer relationship between courses in these areas would reinforce the logical connections between them and, perhaps more importantly, it would keep alive the sense of experimentation and exploration.

Challenges in Health Education

Health care professions schools can be looked upon as trade schools. There are those who would argue that they simply train people to respond with certain treatments to certain collections of symptoms, and to look in a book or refer to a specialist for anything difficult. Too much analytic activity interferes with the professional "art" and can be detrimental to the patient. For routine cases this may be true, but not much analytic energy is expended on these anyway. If, in the noblest tradition of the healing arts, the practitioner is seen as one who attempts to gain insight into human problems and provide help, then the trade school approach is out and a reorientation of thinking is in order.

These problems are not unique to schools of health care. Postman and Weingartner (1969) discuss similar deficiencies in elementary and secondary public education in their memorable book, *Teaching as a*

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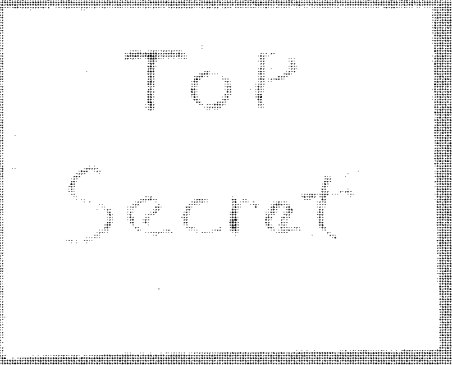


STUDENT'S RIGHT-TO-KNOW BASIS OF NEW LAW

By Barbara J. Harrelson
Associate Editor
Journal of Optometric Education

"A Pandora's box" is the description many have given to the newly-enacted law which began as "the Buckley Amendment." The law governs privacy rights of students with respect to records kept by educational institutions at all levels.

Proposed regulations published January 6 to implement the amended Family Educational Rights and Privacy Act of 1974 left several important questions still unanswered. With the 60-day public comment period still in progress, no final regulations appear to be forthcoming until mid-April at the earliest.

Does the new law apply to optometry schools if they receive no federal funds from the U.S. Office of Education? Or, will schools be expected to voluntarily comply with the intent of the law even though no penalty can be invoked with respect to funding from HEW's health manpower bureau?

In the case of an optometry school within a state university structure, is there potential for punitive action against one component unit because of noncompliance by another component of the university?

Will students effectively be pressured into waiving access to certain confidential information in order to increase their chances for admission?

Will educational record-keeping become so cumbersome and meaningless as a result of complications and burdens imposed by the new law--indeed, will records be routinely destroyed in order to avoid scrutiny?

Controversial Legislation

These are many of the questions that have been raised by the controversial Buckley Amendment enacted in late summer and recently amended--both definitive actions having been taken without the benefit of public hearings. Because of the technical procedures used in attaching the original amendment to an omnibus education bill after it reached the floor of the House of Representatives, no legislative hearings were held and most public scrutiny of the potentially far-

reaching measure came after it was accomplished. Despite the ensuing controversy and attempts to delay implementation until certain matters had been adequately explored by the educational community, the same legislative device was used in attaching the final and supposedly clarifying amendments to the new law just before Congress adjourned last December.

The Association will take the present opportunity to comment on the proposed regulations, working with other health professional education organizations and the AOA in articulating the profession's concerns and attempting to answer some of the pertinent questions raised. ASCO members will be informed of developments in the rule-making process and application of the new law to schools and colleges of optometry.

Basic Provisions

As amended, section 438 of Public Law 93-380, effective November 19, 1974, guarantees students (and parents of dependent students) access to any and all individual educational records maintained by an educational institution they are attending or have attended, as well as the right to challenge any records they find to be inaccurate or misleading. In brief, the statute provides: "that such institutions must provide parents of students access to official records directly related to the students and an opportunity for a hearing to challenge such records on the grounds that they are inaccurate, misleading or otherwise inappropriate; that institutions must obtain the written consent of parents before releasing personally identifiable data about students from records to other than a specified list of exceptions; that parents and students must be notified of these rights; that these rights transfer to students at certain points; and that an office and review board must be established in HEW to investigate and adjudicate violations and complaints of this section." (Department of Health, Education, and Welfare proposed regulations, FEDERAL REGISTER, vol. 40, No. 3, Monday, January 6, 1975)

The HEW January 6 announcement of the proposed rules included the designation of the following office to be contacted with inquiries pertaining to the new privacy rights law:

Mr. Thomas S. McFee, School Records Task Force, Room 5660
Dept. H.E.W.
330 Independence Ave., S.W.
Washington, D.C. 20201
Telephone: (202) 245-7488

Basically, the changes in the previously-enacted law which had been under much discussion are:

--confidential letters of recommendation placed in the records prior to January 1, 1975 do not have to be made available;
--students may be allowed but not required to waive right of access to letters of recommendation received after January 1, 1975;
--financial statements submitted by parents need not be shown to students, and, in the case of dependent students, information may be disclosed to parents without the student's consent;
--certain educational records may be released to appropriate persons in connection with an emergency if the knowledge of such information is necessary to protect the health or safety of a student or other persons.

Also required by the new law is the right to access to copies of records and the annual notification by institutions to parents and students of their rights under the law. Whether or not graduate students must be given annual or one-time notification is not made clear in the proposed rules. It is made explicit, however, that applicants to institutions who are not admitted have no rights to records compiled in the admissions process.

Personally Identifiable Data

With respect to the provision requiring a student's permission before releasing personally identifiable data, the HEW document spells out the type of "directory information" that may be released if adequate advance notice has been given of the intention to release such data. "Directory information" relating to a student includes the following: "the student's name, address, telephone listing, date and place of birth, major field of study, participation in officially recognized activities and sports, weight and height of members of athletic teams, dates of attendance, degrees and awards received, and the most recent previous educational agency or institution attended by the student."

Besides the described "directory information" data, institutions may not release personally identifiable data on students except to the following individuals or organizations, (several of which have bearing on studies currently engaged in by ASCO's Optometry College Admissions Test (OCAT) Committee and other professional surveys):

"--other school officials, including teachers within the educational institution or local educational agency who have been determined by such agency or institution to have legitimate educational interests;
--officials of other schools or school systems in which the student seeks, or intends to enroll, upon condition that the student's parents be notified of the transfer, receive a copy of the record if desired, and have an opportunity for a hearing to challenge the content of the record;
--authorized representatives of (1) the Comptroller General of the United States, (2) the Secretary, (3) an administrative head of an education agency... (4) State educational authorities...;

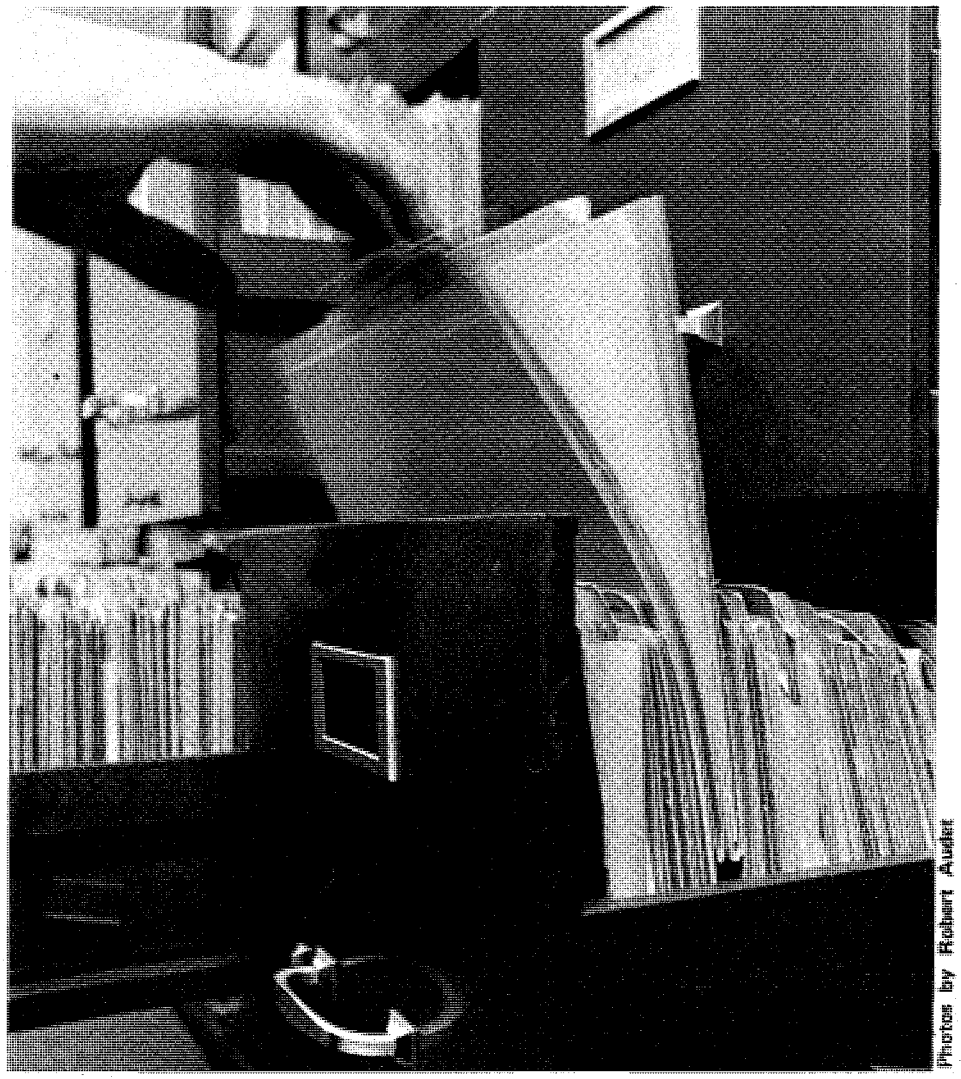
...applicants who are not admitted have no rights to records compiled...

...students may be allowed but not required to waive right of access...

--in connection with a student's applications for, or receipt of, financial aid;
--State and local officials or authorities to which such information is specifically required to be reported or disclosed pursuant to State statute adopted prior to November 19, 19, 1974;
--organizations conducting studies for, or on behalf of, educational agencies or institutions for the purpose of developing, validating, or administering predictive tests, administering student aid programs, and improving instruction, if such studies are conducted in such a manner as will not permit the personal identification of students and their parents by persons other than representatives of such organizations and such information will be destroyed when no longer needed for the purpose for which it is conducted;
--accrediting organizations in order to carry out their accrediting functions;
--parents of a dependent student of such parents, as defined in section 152 of the Internal Revenue Code of 1954; and
--subject to regulations of the Secretary in connection with an emergency, appropriate persons if the knowledge of such information is necessary to protect the health or safety of the student or other persons."

In addition, any information subpoenaed by a court will be supplied by the institution, "upon condition that parents and the students are notified of all such orders or subpoenas in advance of the compliance therewith by the educational institution or agency."

HEW Secretary Caspar W. Weinberger said that regulations were being developed and would be announced later to deal with that provision of the privacy rights law which concerns certain Federal data-gathering activities.



Photos by Robert Auder

Right to a Hearing

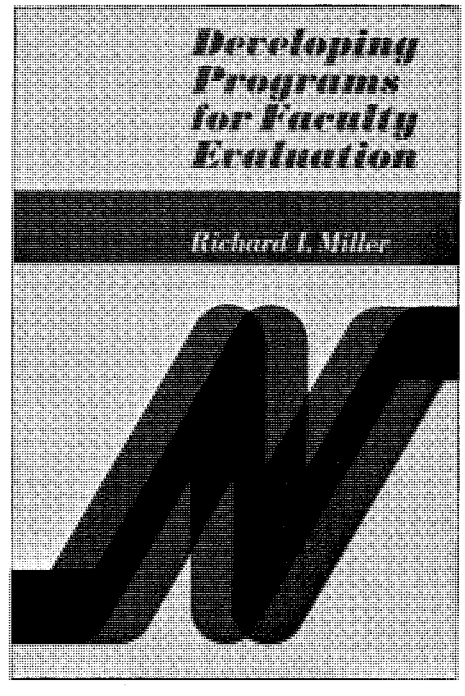
With respect to the guaranteed right to a hearing by students who challenge information in their records, the proposed regulations outline procedures for "informal" and "formal" hearings: Educational institutions may attempt to settle a dispute with a parent or student regarding the content of the student's records through informal meetings and discussions, provided that the hearing be held and a decision rendered "within a reasonable period after the parent's (student's) request." The regulations state that "formal hearing procedures may only be necessary when such informal means are not satisfactory to the parent (or eligible student), or the educational institution."

Responding to criticism of the provisions for a hearing, Senators Buckley (C-N.Y.) and Pell (D-RI.) presented the following statement in their attempt to add clarifying amendments to the law: "The amendment is intended to require educational agencies and institutions to conform to fair information record-keeping practices. It is not intended to overturn established standards and procedures for the challenge of substantive decisions made by the institutions. It is intended, however, to open the bases on which decisions are made

Continued on page 43

Book Reviews

Two recent books have appeared that may be of value to those in optometric education who are interested in the evaluation of faculty. *Developing Programs For Faculty Evaluation*, Richard I. Miller, Jossey-Bass Publishers, San Francisco, California, 1974, is the second book on faculty evaluation by the author and is designed to serve as a resource for those developing and maintaining evaluating systems. A chapter on "Strategies For Developing Systems" discusses the psychological processes involved. A chapter on "Choosing Evaluation Criteria" elaborates on each of the nine categories the author considers. Unfortunately, those components advocated for the evaluation of classroom teaching leave something to be desired, for nowhere is there the mention of an objective measure of gains in students' knowledge or skill acquisition - which should be a very fundamental concept in evaluating teaching competence. The chapter on student evaluation makes it clear that this is what the author considers the most significant component of evaluating classroom teaching. A case study of teacher evaluation at Texas Christian University is cited in support for Miller's theme. The chapter on evaluating administrators is interesting, and an aspect of faculty evaluation often not considered. Also, the authors epilogue is a fitting conclusion and presents the question of the evaluation of faculty in a humane perspective. Superb and valuable in itself, for those interested in the very vital field of faculty evaluation, is the selected and annotated bibliography.



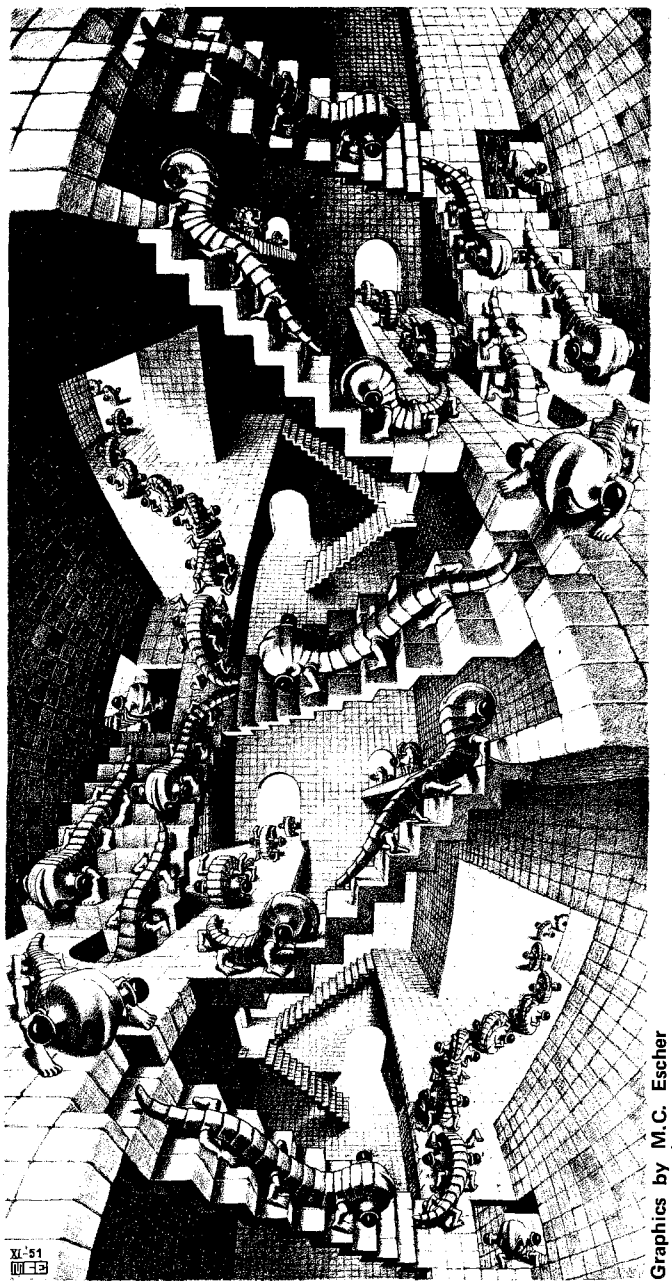
Selection and Evaluation of Teachers, Dale L. Bolton, McCutchan Publishing Corp., Berkeley, California, 1973, is an expansion of a study done by the author for the U.S. Office of Information. Unfortunately, it is directed to those teachers involved in primary and secondary education. Certain things, however, are applicable to those in post-secondary schools. In the first chapter the author presents valuable concepts concerning what teacher evaluation is and how to plan for it. Chapter two is an excellent chapter that deals with the selection of teachers. The principles presented by Bolton could well be applied to professional schools. The third chapter is the practical application of the principles given in chapter one, and gives detailed evaluation procedures. These procedures are often supported by citing relevant research. The final chapter on trends in education devotes considerable space to the application of systems analysis to decision making, and certainly points to the use of computers in evaluation of teachers. The bibliography is very thorough. It is not a long book and the style is easy to read. Much of the material is available in PREP Report No. 21 from the Department of H.E.W.

These two books constitute a valuable source of information for the optometric educator or administrator who is either on the receiving or producing end of evaluative procedures. Unfortunately, too many people in education are ill-informed on the objectives of the process of faculty evaluation. Such books as the above can help give direction to our evaluative efforts. I believe such direction is very necessary in the optometric profession.

Lester E. Janoff, O.D.

Coping with the Admissions Avalanche:

Role of ASCO's OCAT Committee



Graphics by M.C. Escher

By Nira R. Levine, Ed.D.*

*Chairperson, Optometry College Admissions Test (OCAT) Committee for the Association of Schools and Colleges of Optometry; Director of Student Services, Pacific University College of Optometry.

"I am sorry that I must inform you that your application for admission to the College of Optometry was not approved by the Admissions Committee." These words, or their equivalent, formed the first sentence of a letter that was mailed some 6,000 times by U.S. optometric institutions to unsuccessful applicants for the 1973-1974 academic year. Based on present information, it is estimated that this situation was repeated some 7,000 times for the 1974-1975 academic year. (Of course, most applicants submit their credentials to several schools, so there is considerable duplication of these letters of non-acceptance.)

Thus, from the national standpoint, there were some 3,500 applicants for admission to the colleges of optometry in the United States for 1974-1975, with only 982 positions available in the entering classes of these schools, resulting in a ratio of 3.6:1. From the standpoint of the individual schools, their admissions operations were required to process between 6 and 20 applications for each position available, the average being 8.0 applications per position.

These figures make two obvious points: (1) for the individual applicant, being admitted to a school or college of optometry is becoming increasingly more competitive, and (2) for the individual school, admissions personnel are forced to cope with a larger and larger number of applications.

SIGNIFICANT QUESTIONS

A far more important, if not as immediately obvious, question raised by the statistics is: Faced literally with an avalanche of applications, how can each college satisfy itself, the applicant and the profession that all candidates have received an equitable review, and that the selection criteria have been consistently applied? Since for each letter of acceptance that is mailed, seven letters of non-acceptance must be posted, can admissions officers give assurance that these unsuccessful applicants were all given the same fair opportunity for acceptance?

Such questions as these have been the concern of optometric educators and administrators for some time. This concern led the Association of Schools and Colleges of Optometry (ASCO), in June, 1970, to take the historic step of creating the Optometry College Admissions Test Committee (OCAT Committee). The initial and top-priority charge to the OCAT Committee was clearly-stated: Make a thorough investigation and prepare specific recommendations to ASCO as to content, format, preparation and administration of a standardized, national entrance examination to be required of all applicants to colleges of optometry.

At that time, optometry was the only health-related profession which did not have and require such an examination as part of the admissions procedure. Although this situation placed the profession in the position of having to play "catch up," optometry had the benefits of learning from the experiences and avoiding the mistakes of the other professions, in attempting to establish its own unique test.

COMMITTEE RECOMMENDATIONS

The OCAT Committee engaged in much research, including constructive dialogue with their counterpart in the other health professions — especially dentistry — before reporting its recommendations to ASCO. In addition, much time was spent consulting with several of the leading professional testing corporations. At the conclusion of their studies, the Committee's recommendations included:

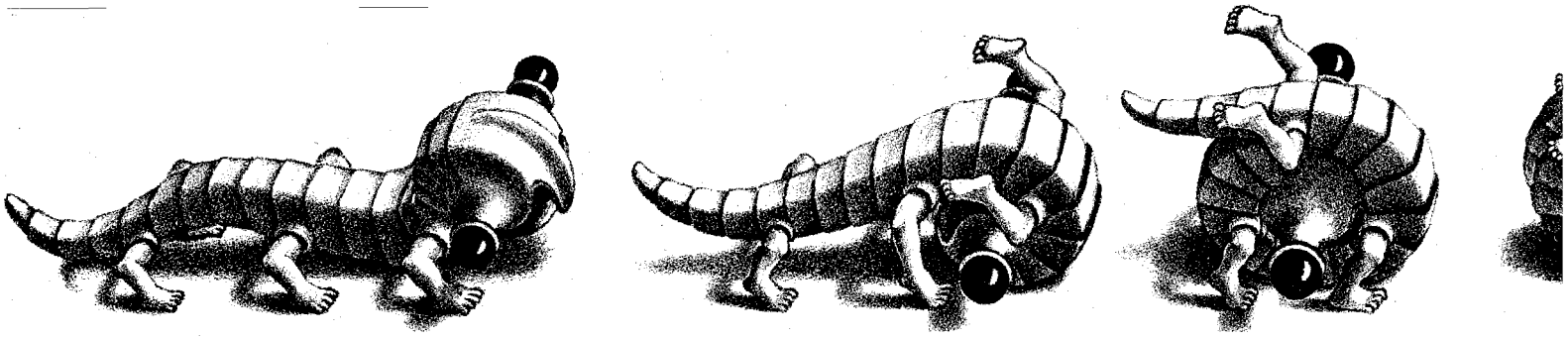
--engage a professional testing corporation to prepare and assume responsibility for a thrice-yearly administration of an Optometry College Admissions Test (OCAT) to be required of all applicants to optometric institutions;
--the OCAT should consist of six sections: achievement tests in the areas of biology, chemistry and physics; aptitude tests in verbal skills and quantitative abilities, and a final section designed to test reading comprehension of scientific material;
--begin implementation of the required OCAT for 1971-1972, allowing time in the immediate future for necessary validation and reliability studies involving current optometric students in preparation for composing the actual test questions.
(The Psychological Corporation of New York, with long and distinguished experience in the preparation of entrance examinations for other professional groups, was recommended for an initial contract period of three years to work with the profession in developing, validating and administering the exam.)

The foregoing recommendations of the OCAT committee were accepted and implemented by ASCO, and led to the first required OCAT for all applicants for the academic year 1971-1972. Since its inception, the OCAT has been given to approximately 9,500 applicants in ten separate sessions conducted at 220 testing centers in the United States. All twelve of the member institutions of ASCO now require all applicants to take the OCAT, with their scores forwarded to the admissions offices, as a necessary part of the application process.

Several articles describing OCAT and its evolution in greater detail have appeared in various optometric journals (Levine 1972, Wallace and Levine 1974, Levine and Wallace 1974). In addition, an information handbook on OCAT is published by The Psychological Corporation of New York.

ADDITIONAL RESPONSIBILITIES

Probably all members of the profession with an interest in optometric education know of the OCAT and the OCAT committee. Most, no doubt, associate the mission of the OCAT committee exclusively with the development of the entrance exam. Since the OCAT has now been in use for three years, it has been wrongfully inferred that the work of the OCAT committee is largely finished, with its present status reduced to little more than "caretaker" in the admin-



istration of the exam each year. This common impression is unfortunate, since the OCAT committee was never conceived with such a limited scope and, in fact, the activities and concerns of the OCAT committee, consistent with its original charge, have increased progressively each year.

When the OCAT committee was established by ASCO, it was instructed not only to take those steps that would culminate with the inauguration of the Optometry College Admission Test, but it was additionally directed to undertake programs of research and further development of the OCAT. This responsibility involves continuous monitoring of the content of the OCAT, supervision of validation studies, investigations concerned with test reliability and evolving alternate forms of the test.

Since the initial charge of the OCAT committee is well known, it seems more appropriate to devote the balance of this article to those other activities, less well known and publicized, with which the OCAT committee has been involved. There follows a brief progress report of the committee's concerns and activities in each of the following areas: research, recruitment, conferences of optometry admissions officers, information booklet for applicants to colleges of optometry, biographical data collection on optometry applicants, liaison with other health-related professional societies.

RESEARCH

As part of the original contract which authorized The Psychological Corporation to develop and administer the OCAT, there was agreement that several research and development programs would be jointly undertaken with ASCO, through its agency, the OCAT committee. Major accomplishments in these areas may be briefly summarized under the headings, "Validation and Reliability Studies," "Development of New Forms" and "Non-Cognitive Evaluation."

Validation and Reliability Studies. Obviously the only valid short-term criterion against which to measure the validity of the OCAT is its ability to predict academic success in the professional program. However, if the OCAT has been employed as a selection criterion for admission, then it would be poor experimental design to correlate academic grades of students who had been admitted on the basis of high OCAT scores, with those OCAT scores. A better approach is to correlate OCAT scores with academic grades for students whose acceptance into optometry college was not based on OCAT scores. Both types of statistical studies have been made, and the results lend strong support for the validity of the OCAT in predicting academic success in the first two years of the Optometry curriculum. These studies, as well as the others described in this category, are given detailed treatment in one of the articles on OCAT that was alluded to earlier (Wallace and Levine 1974).

Another approach to validation of the OCAT has been to compare scores of accepted students who were retained in colleges of optometry with those of admitted students who were dropped for academic reasons before the start of the second and third years. These studies, based on data compiled from all 12 colleges, reveal that students who failed to satisfy minimal academic standards had average scores on each of the six sections of the OCAT that were significantly lower than the corresponding scores of the retained students.

The fact that a number of applicants to colleges of optometry have also submitted applications to medical schools provides an opportunity to compare the scores of such applicants on the OCAT with their scores on corresponding sections of the Medical College Admission Test (MCAT). Calculation of the correlation coefficients between the relevant parts of the MCAT and OCAT for 212 applicants indicated values between 0.7 and 0.8 for the verbal and quantitative sections, and values between 0.5 and 0.7 for biology, chemistry, and physics of the OCAT compared with the lumped science achievement section of the MCAT. Such high correlation coefficients lend additional validation support to the OCAT.

Some 2,714 applicants for admission to colleges of optometry in the fall of 1973 were examined by the OCAT. For each of the six sections of the OCAT, a coefficient or reliability for this sample was calculated, based on the number of questions in the section, the mean raw score, and the standard deviation, according to the Kuder-Richardson formula. The calculated co-efficients ranged from 0.82 to 0.89, and provide strong support for the reliability of the OCAT and the high precision of its measurements.

Development of New Forms. From the beginning, the OCAT committee recognized that it would not be sufficient, even if the security of the test contents could be guaranteed, to construct, validate, and determine the reliability of a single OCAT form. Additional forms would need to be developed and, not only would validation and reliability studies be required for these new forms, but they would additionally need to pose, as nearly as possible, the same degree of difficulty as the original form. Otherwise, the use of more than one form in the three different testings each year would not be equitable to all applicants.

Collection of necessary data for the validation, reliability and degree of difficulty studies of new OCAT forms obviously requires administration of presumptive OCAT forms to a sizeable and appropriate sample. The sample must be comparable to the applicant group on whom the test being developed will be used. Thanks to the understanding and cooperation of the member institutions of ASCO, new OCAT form development has been greatly facilitated by administering experimental new OCAT form test questions to all newly-enrolled first year optometry students each fall.

Since the introduction of the initial form of the OCAT, alternative forms have been perfected as a result of the procedures just described. The availability of alternate OCAT forms will minimize the effect of a breech of test security. Finally, the ongoing program of new form development will allow updating test questions to reflect new discoveries or even changes in accepted concepts, so that the OCAT will remain scientifically current.

Non-Cognitive Evaluation. It is the generally held view of all the health-related professions today that cognitive measures, such as the OCAT and pre-professional grade point averages (GPA's), are an insufficient basis by themselves for determining acceptance of applicants, and ultimately, the success of future health professional practitioners. Somewhere, and in some acceptable manner, all agree, decisions should be influenced by non-cognitive input. Unfortunately, translation of this consensus into practical terms has defied realization despite numerous discussions, suggestions, investigations and good intentions.

There are really two aspects to the "non-cognitive problem." One is to obtain a consensus on what are the desirable qualities that should be found in an optometrist. There are almost as many answers to this as there are persons to whom the question has been put. Further, the very qualities which are generally considered essential in the "ideal" optometrist, are intangibles impossible to describe with the exactness available in the cognitive domain. The second difficulty (assuming for the moment that the first one is solved, and a non-cognitive profile for optometrists of excellence becomes available), is the development of programs or procedures which will provide a valid and reliable measure of these non-cognitive traits.

Despite these difficulties, the OCAT committee is committed to the belief that investigation into non-cognitive characteristics is essential. To this end, several research studies have been undertaken by The Psychological Corporation on behalf of ASCO. When these studies have matured to the point that a meaningful communication can be made, an appropriate report will be published in this journal.

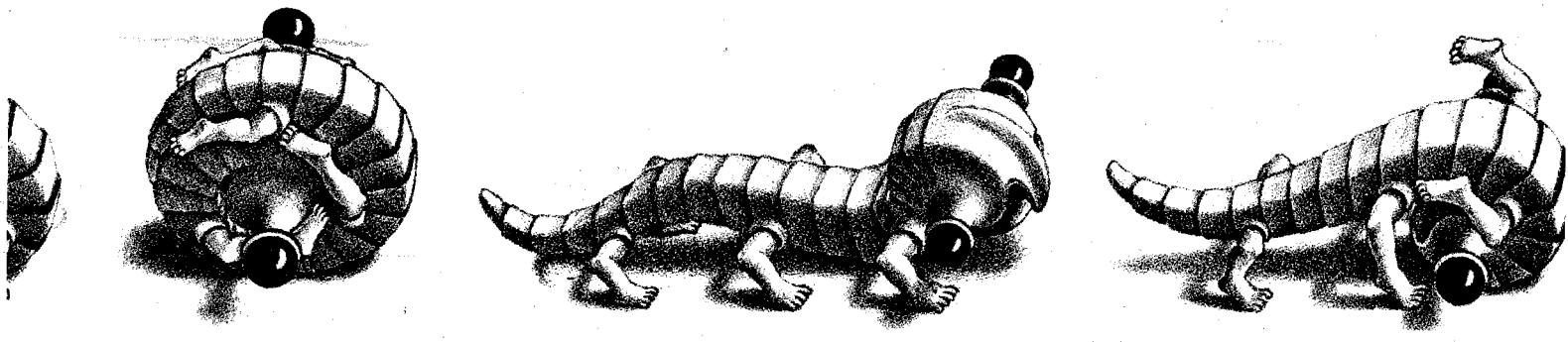
RECRUITMENT ACTIVITIES

During the first year in which the OCAT was required for application to optometry college, 2,202 candidates were examined. During its second year, the OCAT program tested 2,714 applicants, an increase of 23%; and in its third year, the number increased to 3,279, a gain of 21% over the second year. One of the responsibilities assigned to the OCAT committee which has received relatively little notice is recruitment-oriented publicity and education. It is likely that these activities, summarized in the following three categories, have contributed significantly to the progressive increase in the number of applicants to optometry colleges.

Mailings to Health Professional Advisors. At the recommendation of the OCAT committee, ASCO authorized The Psychological Corporation to make an annual mailing of an informational packet to some 2,500 undergraduate college advisors who provide guidance to prospective health professional students. Contents of this packet include an informational booklet on the profession, information concerning opportunities for minority students in optometry, the OCAT instructional booklet, and a bulletin-board poster announcing OCAT dates along with other pertinent information.

Participation in Regional Meetings of the Association of Advisors for the Health Professions. At the initiative of the OCAT committee, arrangements have been made for the past two years to have its members (or representatives of ASCO) attend and make a presentation at each of the four annual regional meetings of the Association of Advisors for the Health Professions (AAHP). The annual regional meetings allow interaction between persons representing the various health professional schools and AAHP members who counsel undergraduate students. Sadly, until the OCAT committee assumed the initiative, there had never been participation by optometry at any of these AAHP meetings. Optometric education presentations before AAHP meetings have been well received and continued participation in these mutually profitable exchanges is planned.

One immediate consequence of the interaction with AAHP was an invitation to the chairperson of the OCAT committee to contribute an article to their journal, *The Advisor*, describing the profession of Optometry. An article entitled, "Optometry: The Profes-



sion Dedicated to Vision," appeared in the December, 1972 issue of *The Advisor,* describing admission requirements of the colleges of Optometry, and future trends and career expectations for optometrists.

Efforts on Behalf of Minorities. In 1972, at the instruction of the OCAT committee, the annual mailing to health professional advisors from The Psychological Corporation included the AOA brochure entitled, "In Sight, Out of Sight," for the purpose of attempting to increase minority students' interest in the profession of optometry. In the fall of 1974, the OCAT committee was pleased to cooperate with the National Optometric Association (NOA) in extending these recruitment activities in behalf of minority persons. An NOA-prepared booklet containing minority recruitment information was included in the packet distributed to some 2,500 college health professional advisors.

A consequence of the presentation made to the Western Regional Meeting of the Association of Advisors to the Health Professions by the chairperson of the OCAT committee was a request for circulation of optometric informational materials to all five regional directors of Project 75, the medical profession's large and well-funded minority recruitment program.

One index of the success of all these recruitment-centered activities conducted by the OCAT committee is provided by the number of information requests at the AOA national office in St. Louis. All informational brochures, announcements, and posters distributed by, or at the instruction of, the OCAT committee to students and advisors give the address of the St. Louis office of the AOA as the appropriate agency to contact for additional information. During the 1973-74 academic year, the AOA office received over 4,000 inquiries for additional information, compared to an annual rate of inquiry of less than 2,000 before the institution of the OCAT programs.

ADMISSIONS CONFERENCES

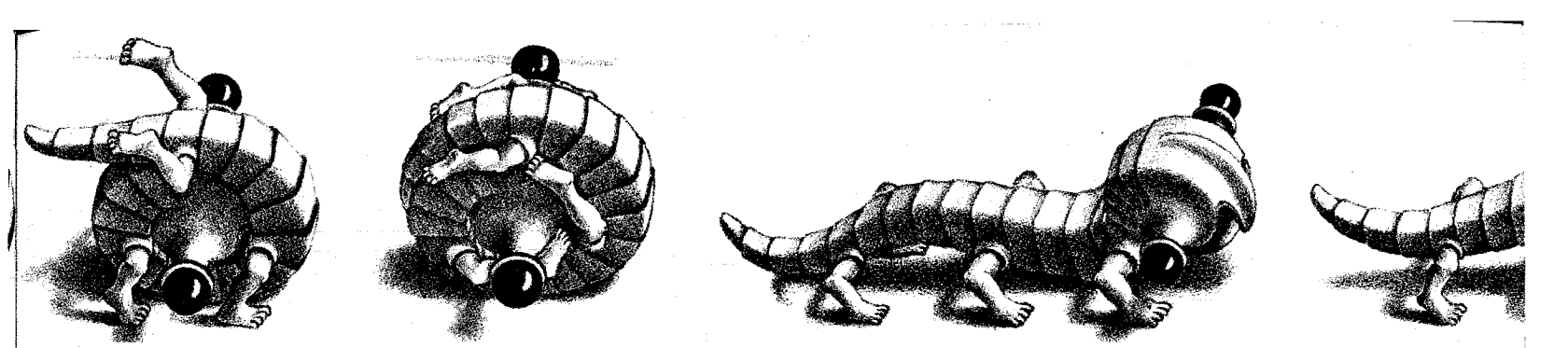
Because of the newness of the OCAT and the increasing number of applications being received by the colleges of optometry, the OCAT committee strongly recommended to ASCO in the fall of 1972 that there be sponsored a national conference of admissions officers from all ASCO-member institutions. It was felt that a conference would provide an optimal format for explanation of the OCAT, with full discussion on the meaning of its several parts, manner of reporting scores, how the data supplied might be used in the selection process, and a critique of the strengths and weaknesses of the OCAT program. Additionally, participants were to be provided with opportunities to compare admissions practices at their several colleges, and to discuss approaches to coping with the large and increasing number of applications. A first such conference was authorized by ASCO and held on the campus of the Ohio State University in the spring of 1973.

A detailed report of the conference was presented to ASCO at its June 1973 meeting by Dr. Michael Heiberger, who had served with distinction as chairperson of the committee responsible for organizing and conducting the meeting. ASCO responded favorably to the recommendation for a second conference of admissions officers to be held the following April, in Atlanta. This second meeting was equally successful, and it has been recommended that such conferences be continued on an annual or perhaps biennial basis. Most of the areas considered at these forums represent matters of continuing concern, requiring ongoing reassessment and updating: exchange of information on institutional admissions procedures, selection criteria and their priorities, progressive development of the OCAT, minority (including women) recruitment and admission, financial aid policies and programs, biographical/demographical data collection of applicants for statistical purposes, and other related matters of common interest or concern to the admissions operations.

INFORMATION BOOKLET

A recurrent theme at many OCAT committee meetings was the inefficiency of the existing mechanism for getting specific and current information about all of the colleges of optometry into the hands of potential applicants. The existing situation meant that students with an interest in optometry had to identify the names and locations of all the colleges and write separately to each to request current catalogs and application forms. For the college admissions offices, it meant having to respond to a large number of inquiries, which was expensive in person-hours, postage, and costs of bulletins and application forms. Many of the inquiries received at a given school did not generate an application to that school, or perhaps to any school. Consideration of the repetition of this situation at the several colleges to whom each inquirer wrote points up the inefficiency of the arrangement.

As a result of discussions on the foregoing concerns, the OCAT Committee recommended that ASCO subsidize the annual publication of an informational booklet compiling data on all of the colleges of optometry in the United States, for widespread distribution to potential applicants. This recommendation led to the publication in August, 1974 of a 16-page



booklet, "Information for Applicants to Colleges of Optometry, Fall, 1975." The booklet, containing a brief general description of the professional training of an optometrist and a summary of admissions information, devotes a full page to discussing each of the 12 optometric institutions. In addition, a single, at-a-glance chart summarizes for each institution all pertinent data on tuition, fees and entrance requirements.

For students who wish to enter the profession, the booklet provides a complete synopsis of the pre-optometry program which they should follow to meet the minimal requirements of each school, what the application and selection process entails at each college, and some data which should provide a realistic appraisal of the applicant's chances of gaining acceptance. With this informational booklet in the hands of potential applicants, a considerable volume of the "inquiry" correspondence to admissions offices should be eliminated, and the comparative information, conveniently summarized, should facilitate intelligent decisions as to which colleges to choose.

The first printing of this booklet ran to 15,000 copies — all of which will have been distributed by the time this article appears. Copies of the booklet were sent to the admissions offices of all of the colleges of optometry, to approximately 2,500 health professional advisors (along with the other materials in the packet described previously) and to the AOA office in St. Louis as well as the ASCO national office in Washington, D.C.

The first edition of this informational booklet is both well-produced and informative, and should earn ready acceptance of the original recommendation that this be published under the sponsorship of ASCO on an annual basis.

DATA COLLECTION

Just as a national census is a necessary and important information-gathering exercise to yield valuable demographical data on a nationwide basis, so too, in the judgment of the OCAT committee, is there merit in having a comparable resume of the type of students seeking admission to optometry colleges. Such statistical summaries enable a comparison of all applicants, and among the accepted ones, with practicing optometrists. As an ongoing activity, the existence of such a data bases will permit the identification of similarities/differences in the type of persons seeking admission to optometry colleges over a period of time, so that any consistent trends or sudden changes may be revealed and appropriate planning or action taken in response.

At the request of the OCAT committee, beginning with the administration of the 1973-1974 OCAT, all applicants were requested to complete a 36-item questionnaire. Information on this questionnaire is processed statistically by The Psychological Corporation and the results made available to ASCO and its member institutions. This marks the first time in optometric educational history that such a complete analysis of applicant background will be available on a national level.

The biographical/demographical census provides such personal data as: marital status, family size, educational attainment of parents, primary occupation of parents, family income, size of home town, citizenship, racial or ethnic background, religious preference, military service, size of undergraduate college, grade point average, existence of relatives in the field of optometry, influences in choosing optometry as a career, size of community in which the applicant intends to practice, financial need, and interest in other health professions. It should be stressed that the data collected on each applicant in this survey is maintained confidentially by The Psychological Corporation, and is *not* provided to, nor made available to admissions personnel. Data is available only after selection processes are completed, and only in the form of statistical summaries for use by the profession as a data base from which to identify present trends and future needs.

PROFESSIONAL LIAISON

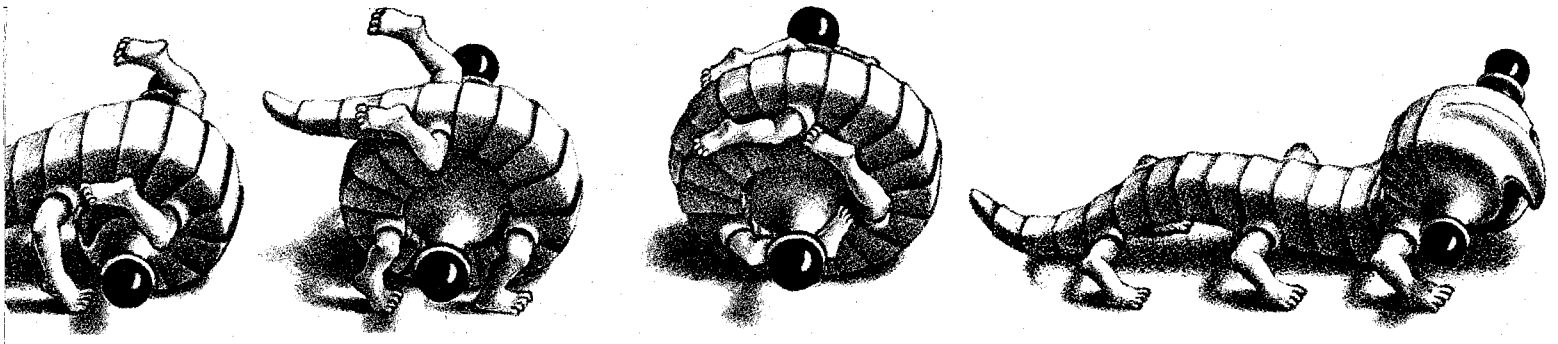
The OCAT committee accepts that optometry represents an autonomous and unique profession, and that it must preserve, protect, and defend its professional individuality. In the committee's judgment these considerations, as well as the public health, are best served not by isolating optometry, but by encouraging it to interact in a spirit of cooperation and mutual respect, with the other health-related professions. In accordance with this view, the OCAT committee has actively sought interdisciplinary involvement in those areas which fall within the scope of its mission.

The present chairperson of the OCAT committee has been encouraged and supported by ASCO to affiliate and participate in the meetings of the following multidisciplinary* health professional societies:

Association of American Medical Colleges

Society for Health and Human Values

Workshops on Longitudinal Studies in Medical Education



Association of Advisors for the Health Professions
American Educational Research Association: Health Profession Educators Special Interest Group.

*The names of some of these organizations require alteration to reflect their present multidisciplinary interests and character.

With respect to most of these involvements, formal liaison was established for the first time between optometry and the various other health groups. In the case of the last-named association, the chairperson of the OCAT committee has been invited into membership on the editorial board of the publication of this society, "H-PEER (Health Professional Educators Exchange of Reports)."

It is the judgment of the OCAT committee that these new contacts have already been successful in bringing optometry onto ground not previously explored, and in a way which has served to further the cause of optometry's uniqueness and individuality.

SUMMARY

Colleges of optometry in the United States do not have an "open-door" admissions policy. On a purely pragmatic basis, there are simply too many applicants and too few doors. As long as this is so, admissions officers and committees will face the difficult and largely thankless task of having to identify the relatively few candidates who will be accepted, and the very much larger number who will need to be turned away. The problem is more severe than it may at first appear. For given not only the number, but also the level of credentials being submitted for consideration, the selection operation must establish criteria by means of which a group of well-qualified applicants may be evaluated and judged better prospects than other applicants who are also well-qualified for the study of optometry.

The present paper outlines some of the ways in which the OCAT committee, appointed by and responsible to ASCO, has been engaged in activities which have direct bearing on these concerns. A valid and reliable Optometry College Admissions Test (OCAT) has been developed, along with a mechanism for its administration, grading, and reporting of scores. The OCAT is the only item available to admissions personnel which represents an objective, appropriate, national, and equitable measure of all applicants. It is the single inclusion in all application folders which enables comparison of a given applicant with any other applicant, and which avoids some of the problems associated with assessing candidates from different geographical regions or from different undergraduate colleges, as encountered, for example, with use of grade point averages. Admissions personnel have OCAT scores of all applicants available to them for use as selection criteria, as they or their procedure determine. The OCAT committee does *not* recommend use of the OCAT as the single criterion for acceptance, but rather takes the position that it should be used intelligently along with all other information available, both cognitive and non-cognitive, according to the unique selection criteria judged best at each of the colleges of optometry.

Also presented briefly in this paper are some of the ways in which the OCAT committee is involved with continuing research and development of the OCAT, in order to make it an increasingly better instrument. Additionally the OCAT committee, in cooperation with The Psychological Corporation, has been exploring non-cognitive approaches, in the hope that a suitable instrument might be developed which would serve as the non-cognitive counterpart to the OCAT.

Because of the need to publicize the OCAT, several activities undertaken by the OCAT committee are discussed which have had a considerable consequence for recruitment of applicants for admission to colleges of optometry. Efforts in recruitment of minority students is one of the specific promotional activities outlined.

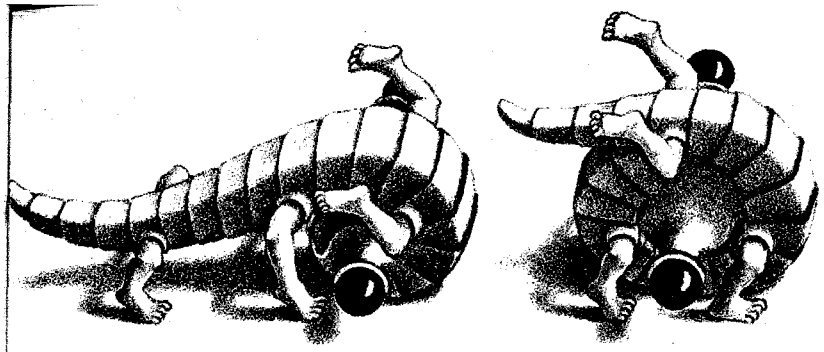
Other OCAT activities reviewed in this paper include:

--The OCAT committee has organized and conducted two national conferences of Optometry Admissions Officers for Informational and idea-exchanging purposes;

--At the recommendation of the OCAT committee, ASCO has sponsored the publication of an annual informational booklet for applicants to colleges of optometry, which summarizes, under one cover, salient information about pre-optometry requirements and admissions procedures and practices for each of the colleges;

--A biographical/demographical data collection program was initiated to provide a national statistical census of all applicants to colleges of optometry each year;

--The OCAT committee has cultivated and is maintaining liaison with a number of health-related professional societies, especially of multidisciplinary character, as a means of identifying admissions and related matters of common concern, as well as communicating the areas of unique optometric interest.



By its several activities the OCAT committee is hoping to make a significant contribution to improving the quality of the selection process which will basically determine the quality of the practitioners of optometry in the future. When the very large number of letters, beginning with the words quoted at the beginning of this article, are mailed, along with the much fewer letters that begin, "It gives me great pleasure to be able to inform you that your application for admission to the College of Optometry has been approved," it is time for persons concerned with admissions to begin work on next year's goal: improvement in choice and use of selection criteria, so that decisions will be reached with greater confidence that all applicants have received fair treatment, and that those students accepted represent the best for the profession of optometry. JOE

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Qualifications for the position include the Doctor of Optometry degree, appropriate additional graduate degree(s), demonstrated excellence as an educator, experience in optometric education and administration, interest in clinical optometry with a sensitivity to the need for optometric research and basic investigation, knowledge of optometric curriculum development, knowledge of current trends in optometry and other health care disciplines.

The candidate should have experience at more than one academic institution, should be free to devote unencumbered effort to the duties of the position and should possess good health and vitality.

All qualified individuals are encouraged to submit their curriculum vitae to: Richard D. Hazlett, O.D., Chairman, Dean Search Committee, Southern College of Optometry, 1245 Madison Avenue, Memphis, Tennessee 38104.

Nominations and curriculum vitae should be submitted by April 15, 1975.

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to differentiate insightful problem solving from what Maier[10] has called reproductive thinking that provides answers by applying familiar rules."[11]

It is this aspect of the process that differentiates the student or novice from the experienced practitioner. Here the practitioner is able to relate data on a level other than an established cause-effect relationship, because his previous clinical experience has demonstrated to him that it is productive in terms of problem solving to make such relationships. Often it might be a "gut-level" reaction.

This aspect is the reason why health-care professional schools seek master clinicians for teaching roles. It is their proven ability to go beyond the apparent clinical data that makes them the most effective clinical teachers. There is no mystery about this type of ability; the teacher is able to explain the reasons for relating the data and to identify the relationship as a hypothesis. This process (Categorization of Data Utilizing Insightful Relationships) also allows the practitioner to use flexibility in terms of which model of the visual process he wishes to use. His reason for relating certain data might, e.g., be supported by the functional model of vision but not by the anatomical model.

The important point is that by thinking along the lines of the clinical model proposed in this paper, the clinician realizes that while one model of vision supports his analyses another model of vision might reject it, or at the least might not be supportive; thus there is flexibility, and the clinician becomes aware of the hypothetical nature of the relationship. The clinician might relate a child's inability to reproduce certain forms on a pegboard with difficulty in learning math on the basis of a developmental model of vision; but he must realize that the anatomical model of vision is non-supportive in this case and, further, be willing to admit the fact that there is not a well established relationship between form reproduction and mathematical learning. However, he is still free to clinically make this relationship on the basis of the developmental model and/or his clinical expertise and/or published case reports, etc., as long as he represents it to himself and his students as an insightful relationship as opposed to a well established relationship.

4. **Decision**

This process is the logical conclusion of the previous three processes that represent the horizontal axis of the proposed model. If no relationships, established or insightful, can be established between the patient's chief complaint or the reason for his referral or a particular condition of factual or potential visual malfunction with the data accumulated by the appropriate clinical probes, there is then a contra-indication for vision training.

On the other hand, if one or more relationships can be presented, the possibility of vision training must be considered. Other factors that must be weighed before the decision is made are

a) Prognosis;
b) Estimated length of time to complete treatment;
c) Patient awareness of the problem;
d) Patient motivation;
e) Parental cooperation.

The last phase of the decision-making process involves applying all the relationships and other factors to the questions posed earlier in this paper: will vision training solve the problem that was responsible for the patient seeking optometric care in the first place, or will vision training prevent a problem in the future?

The Time Factor

The third dimension of the Proposed Model represents time, which affects each process on the horizontal axis. The time factor, or age of the patient, might dictate that certain tests that probe the "knowledge areas" on the vertical axis are not feasible on the particular patient; Keystone Skills are frequently beyond the cognitive abilities of 3-year-olds, but the Stereo-Fly and accompanying Animal Stereo Test can usually be used to gain information about the 3-year-olds' binocular status. Often it is not possible to obtain information about a youngster's ACA ratio in the usual way, but any of the Dynamic Retinoscopic Tests can give the clinician information about the relationship of accommodation and convergence. The time dimension then would be instrumental in determining the most appropriate clinical tests for a given patient.

Time would affect the second process (Categorization of Data Utilizing Established Relationships). A condition of 1.25 D. of uncorrected hyperopia is usually considered to be at least a possible causative factor of asthenopic complaints in the 45-year-old patient while this type of cause-effect relationship is far less accepted for the 5-year-old. In general, a number of established relationships between clinical data are subject to modification on the basis of the patient's age.

The third process (Categorization of Data Utilizing Insightful Relationships) is similarly effected by the time dimension. A clinician might establish a relationship between Gross Motor Skills and learning disability on the basis of the developmental model of vision, philosophies of other disciplines, published case reports, etc. However, he might modify the hypothetical strength of this relationship on a cause-effect basis according to the patients' age; thus, he might feel there is a strong cause-effect relationship between poor gross motor skills and learning disability in a 7-year-old patient, but might conclude that the relationship is far less significant in a 16-year-old patient.

In terms of the last process (De-

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10. Maier, N. *Problem Solving and Creativity in Individuals and Groups,* **Brooks-Cole Publishing Co., Belmont, California, 1970**

11. Shields, M., 1972. p. 784

Continued from page 42

cision), the time factor affects the relationships the clinician is able to establish. Beyond this, patient age is an important consideration in motivation, awareness of the problem and the other "factors" that are considered here. Further, time per se (as opposed to patient's age) is crucial in clinically judging whether a particular condition might negatively affect a patient's functioning in the future. In this vein, a convergence insufficiency might not cause subjective complaints or retard functioning of a 5-year-old patient; however, the possibility of its adverse effect in the future, particularly with regard to prolonged reading, might make the clinician decide to institute a program of vision training. Time then is significant in the Decision process not only in terms of the patient's age but in terms of anticipating potential cause-effect relationships in the future.

Application of the Proposed Model to Clinical Teaching

The proposed model has been utilized as a teaching tool at the State University of New York College of Optometry in the Visual Training Residency Program. Each of the four residents comes from a different optometry program and consequently a different approach to patient diagnosis and disposition. The format of the model facilitated clear communication among the residents and between the residents and involved teaching personnel without destroying the uniqueness of either groups' clinical thinking processes. Initially, cases were outlined utilizing the physical model; pertinent data was placed in the Collection of Data column and if relationships could be made between various items, they were carried across to the appropriate column (Established Relationships or Insightful Relationships) by marking an "X" in the provided lines, and the "X's" were joined by a vertical line to indicate the relationship or relationships.

These relationships were mentally or verbally brought to the Decision column and considered in the context of the appropriate factors such as prognosis, motivation, etc. and amplified or modified by temporal considerations. After a time, it became evident that the model could be utilized in clinical discussions wholly on the verbal level, when all the involved clinicians were thoroughly familiar with the model.

Plans are being made to present the model to the third year O.D. class during the 1974-75 school year during the first academic quarter. Currently, they are introduced to clinical vision training both didactically and in a laboratory methods course. The model will be used to explain teaching strategies in terms of sequence and educational objectives for any given quarter during the third and fourth professional years. At the appropriate time in the clinical curriculum the model will be utilized to provide a permanent record of how cause-effect relationships and — ultimately — decisions are made by the student for a particular patient. JOE

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to more scrutiny by the students, or their parents about whom decisions are being made, and to give them the opportunity to challenge and to correct--or at least enter an explanatory statement-inaccurate, misleading, or inappropriate information about them which may be in their files and which may contribute, or have contributed to an important decision made about them by the institution..."

..."There has been much concern that the right to a hearing will permit a parent or student to contest the grade given the student's performance in a course. That is not intended. It is intended only that there be procedures to challenge the accuracy of institutional records which record the grad which was actually given. Thus, the parents or student could seek to correct an improperly recorded grade, but could not through the hearing required pursuant to this law contest whether the teacher should have assigned a higher grade because the parents or student believe that the student was entitled to the higher grade..."

Procedures for Granting Access

The proposed regulations leave the establishment appropriate compliance of procedures to each educational institution, stipulating, however, that access to records must be made available "within a reasonable period of time, but in no case more than forty-five days after the request has been made."

The far-reaching implications of complying with the new privacy rights law will not be immediately apparent. Some complications and potential pitfalls are already known and in dispute, but the reality of incorporating the regulations into the record-keeping processes of educational institutions cannot be underestimated. Whenever final regulations are implemented, significant changes will undoubtedly be seen in administrative offices of all educational institutions in this country. JOE

Continued from page 13
stitute of Medicine and the Optometric Constructed Cost studies. The State University of New York figures are based on 90 students.

The State University of New York's figures, though tentative, give striking evidence of the gross underestimations of the IOM study and make apparent the close correspondence of the FORE projection. These studies demonstrate conclusively that optometric education cannot maintain its standards of excellence, progress, and community service unless the errors of the IOM study are corrected, and a proper level of external support for optometric education is assured.

	SUNY	IOM Average	FORE Constructed Cost
Instruction Cost per student	$9,847	$4,050	$8,702
Research Program Costs	1,536	200	2,165
Patient Care Program Costs	4,501	Included in Instructional Costs	4,618
Total Costs per Professional Degree Student	$15,884	$3,250	$15,485

The FORE study thus provides a yardstick for future planning as the profession strives for excellence in optometric education. It is hoped that legislators and government officials will examine these plans to assure appropriate funding to support the development and maintenance of quality programs in optometric education. Not to do so would limit optometry's future growth and potential and threaten the visual health and welfare of the American people. JOE

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APPENDIX I

OPTOMETRIC CONSTRUCTED COST – 1972-1973

CONSOLIDATED

	Doctor of Optometry		M.S. & Ph.D.	Totals	
Students	300		30	330	
Clock Hours	4,464		1,512	5,976	
Contact Hours	38,664		7,560	46,224	
FTE Faculty	36,988		11,249	48,237	
Viable Faculty	40		12	52	
	Total Cost	Per Student Cost	Total Cost	Combined Cost	Constructed Cost
1. Faculty Salary	1,305,500	4,351.67	$398,330	1,703,830	5,163.12
2. Exec. & Adm. Salary	671,308	2,237.69	52,640	723,948	2,193.78
3. Instr. Staff Support	647,576	2,158.59	–	647,576	1,962.35
4. Non-Instr. Support	231,800	772.67	–	231.800	702.42
Sub-Total	2,856,184	9,520.62	$450,970	3,307,154	10,021.67
5. Travel	92,000	306.67	20,000	112,000	339.39
6. Adm. Expense	181,000	603.33	–	181,000	548.48
7. Student Services	34,950	116.50	–	34,950	105.90
8. Financial Aid	96,000	320.00	11,500	107,500	325.75
Sub-Total	403,950	1,346.50	$ 31,500	435,450	1,319.52
9. Amortization	597,039	1,990.13	38,165	635,204	1,924.86
10. Oper. & Maint.	488,116	1,627.05	29,950	518,066	1,569.89
11. Equip. Repair & Repl.	89,301	297.67	9,663	98,964	299.89
12. Expend. Mat/Sup	105,000	350.00	10,500	115,500	350.00
Sub-Total	1,279,456	4,264.85	$ 88,278	1,367,734	4,144.64
13. Total Dollars	$4,539,590		$570,748	$5,110,338	
14. Unit Constructed Cost		$15,131.97			$15,485.83

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Subversive Activity. Epstein (1970) is concerned about the approach in liberal arts colleges. In a fascinating account of the legal profession, U.S. Supreme Court Justice William O. Douglas decries the trade school approach in schools of law. His comments are based on his experience on the faculty of the Yale Law School — some thirty-five years ago.

Conclusion

The ancient idea of a university as a place to prepare for a life of scholarly pursuits is in conflict with contemporary educational goals. In the health care professions schools, practitioners being trained and educated are people who will be doing things and applying knowledge. In the tradition of John Dewey (1938), students must begin by doing things and applying knowledge while they are in school. JOE

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Manuscripts are accepted for publication on the condition that they are contributed solely to JOE. Authors will be notified of receipt of papers.

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Address manuscripts and other correspondence to: Editorial Council, JOE, Assn. of Schools and Colleges of Optometry, Suite 411, 1730 M St., N.W. Washington, D.C. 20036.

A SALUTE TO THE NEW JOURNAL

"HELLO JOE!"

ASCO President Dr. William R. Baldwin has brought a number of important projects to fruition during the past year and a half. The creation of the *Journal of Optometric Education* is a significant one. Establishment of the ASCO National Office and JOE are milestones in optometric education — necessary developments which, in my estimation have come about not a moment too soon.

The need for communication and coordination within the profession has become increasingly evident — today optometric educators are no longer isolated in their respective colleges. We are now seeking to know what our colleagues are doing. We are organizing specialty groups such as contact lenses, practice management and vision therapy.

This splintering of optometric education into specialty groups is truly a sign of the growth of optometry and optometric education — with each group seeking to establish an identity and make its concerns known to the profession at large.

Historically, the need for communication in optometric education has been met by various forms of newsletters, including the recent ASCO EDUCATOR and ASCOPE. These newsletters are an adequate means of communicating brief informational items but are an unsatisfactory method of communicating information which requires more than a page. The new *Journal of Optometric Education* provides the medium needed for the presentation of theoretical and informational articles worthy of wide distribution — many of these heretofore were given narrow distribution by means of photocopies.

The federal support of health manpower education received by the schools and colleges of optometry in the past decade — albeit questionable in the future — helped us to assume a more responsible role in determining the scope of optometry in the future. In short, we have "come of age," taken our rightful place in the profession. The existence of JOE symbolizes the emergence of optometric education to the front ranks of the profession.

From the previous conditions of bare survival, we in optometric education have progressed to a level which promotes the highest professional standards and makes possible advances in our knowledge of vision care. Lower faculty-student ratios, more full-time educators and more faculty time available for research — all of these existing conditions help elevate "the state of the art" and produce more optometric practitioners of excellence than ever before.

Yes, JOE is representative of these important changes in the profession and we will be reading about more innovative programs and new advances in this *Journal* in the months ahead. ASCO now has central staff support to accomplish many of the tasks we found practically impossible before — but each of us still has work to do to make the national effort a success. Most specifically, we have a responsibility to make the *JOURNAL OF OPTOMETRIC EDUCATION* a respected professional periodical. The challenge is one that I hope each of you will accept as I do. Join me in welcoming JOE. Contribute to this new JOURNAL for the benefit of all of us.

Chester H. Pheiffer, O.D., Ph.D.
Dean, College of Optometry
University of Houston

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The Seal of the Association of Schools and Colleges of Optometry

By
John R. Levene,
O.D., D. Phil. (Oxon.)
Division of Optometry
Indiana University

A number of facets had to be considered before actually attempting to design the ASCO seal. For example, contemplation of the purpose, ideals and objectives of the organization as well as its heritage and future was necessary. The conceptual visualization task became one of producing a sophisticated design, appropriately befitting the organization, and yet exhibiting a certain simplicity of line. The only specific requisite was inclusion of the title of the Association. Additionally, it was considered desirable, although by no means necessary to the design, to incorporate a motto which might epitomize the concepts embodying the diverse ramifications of the Association's activities.

With these basic thought processes in mind, the seal, here illustrated, evolved. An analysis of the seal is presented in the following manner:

First, an explanation of the rationale of the motto is given, namely, LUX, DUCO et VERITAS--freely translated as Light, Leadership and Truth. LUX seemed highly acceptable, as in addition to the usual meanings of the word, that is, light and source of illumination, there can also be the implied connotations of "sight," "insight" and "enlightenment." DUCO may be defined as "to lead," but it can also have the connotational overtones of "guidance" and "to march forward." Finally, VERITAS, in addition to its meaning of "truth," as in the quest for knowledge, has the further implication of "integrity." It was felt on the basis of the above multi--subtly-implied meanings, that the motto symbolized, appropriately, the essence of the aims of the Association.

As for the Seal itself, a decision was made not to have the seal confined within a closed ring, but instead to leave openings in the outer rim. These openings represent the limitless boundaries of Knowledge and Truth as well as the organization's aims and functions. Within the outer circle, are a series of multicurved reflectors. These reflect light from the source of light, the sun (seen in the upper hemisphere), and also the multi--reflections exhibited philosophically by the organization's members. The open book is obviously symbolic of education, knowledge and learning. Placed upon the book is shown the earliest, and hence rather crude, type of thirteenth century eyeglasses. These act as a constant reminder of the profession's historical heritage and development (and may prove to be even more so if, at some time in the future history of optometry, eyeglasses should become a thing of the past!).

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