THE EVOLUTION OF A MODEL
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Throughout my optometric education, I was presented with many different concepts, models and ideas of vision. These ranged from the early model of the eye as a camera to that of conventional wisdom, and to what some term the functional model. I was also exposed to many different ways of performing diagnostic testing batteries and many different ways to analyze the data collected. In many aspects my model or concept of vision evolved as did the model of vision of the profession as a while. This model has continued to evolve since my graduation and is now moving into an exciting new area termed the behavioral concept of vision. I want to share with you the mechanism that has facilitated this evolutionary process.

First a little background about myself. I am from an eye care family. My grandfather was an optician and my father is an optometrist. During my childhood my father and grandfather worked together in a professional practice that stressed service to the patients and delivered vision care in a caring way. My undergraduate work was done at Northwestern University whose psychology department was oriented towards behavior modification. I should mention that I was not a psychology major; however, the psychology courses had the most application towards my upcoming professional career in optometry.

After completing three years of undergraduate work, I moved on the the State University of New York, State College of Optometry (SUNY) from which I graduated in 1979. Upon graduation I practiced with my father in New York for two years before moving to Maryland and opening my own practice. It became evident through my involvement with the American Optometric Student Association, of which I was national president in my senior year, and from observations of other practices, that optometry was taught and practiced very differently in different optometric institutions and in different regions of the country.

Through the optometrist I had met and from what other students had told me, I became confident that my education as regards the area of understanding vision and its relation to how people perform, along with the areas of remediation through lens treatment and vision therapy was unsurpassed at any other optometric institution. Rather than being taught one school of thought for each aspect of optometry, I was very happy to be at a school that presented what I believed to be all theories, concepts and models and that allowed be to choose the method with which I was most comfortable.

Courses were taught in graphical analysis. The Skeffington analytical sequence and case analysis methods were taught and some of the original Skeffington papers were required reading. Conventional wisdom approaches were discussed and even what has come to be called the functional model of vision was presented. Some courses were also taught from the ideas derived from the fruitful time that Dr. Gerry Gettman and Dr. Arnold Gesel spent together.

As a student I was left to derive my own concept and to build my own model of vision. As many students of optometry must feel upon graduation, I felt that I had been exposed to it all and that I was ready to conquer the world with my new found knowledge and skills. As previously mentioned, I spent my first two years in practice with my father where I added office-centered vision therapy to his existing general optometric practice. During my practice there I had my successes and also my failures with patients. The model of vision that I had constructed based upon my education allowed me to help almost 90% of my patients meet their needs. However, there were those patients whose needs were not being met and who had needs that I couldn't identify.

Only a few months after I began practice I attended a weekend conference called the Shelter Island Seminar, organized by Dr. Arnold Sherman, at which Dr. Robert Kraskin spoke for 12 hours about posture and vision. In the audience were many of those practitioners who not only were my teachers but were also role models. It was evident that much of what was being shared by Dr. Kraskin was not understood by me and I did not feel that I was alone. My education hadn't given me any substantial basis from which to understand the substance of what Dr. Kraskin presented. It is only now that I understand that I did not have the proper frame of reference from which to understand. Instead of dismissing these new ideas, I filed this information away in the back of my head. From time to time questions posed by Dr. Kraskin came to me. These questions came mostly when I was having difficulty in meeting the needs of my patients.

The unanswered questions and information from OEP about the existence of study groups and their value led me to try to get involved in a study group or to find a mentor. To my dismay the prevailing attitude in the area in which I was practicing (Long Island) did not allow either of these alternatives to become a reality. For a while then I was content in helping those I could with the knowledge I had at that time, but I still had some unanswered questions and had patients with unmet needs.

When it became time for me to leave the practice with my father and to start one of my own, one important consideration as to location was the fact that there was a strong study group supported and nurtured by the leading practitioners in the Washington D.C. area. I became friends with Dr. Bernard Saltysiak and we traveled the 60-75 minutes each way together to the monthly IBO (Institute for Behavioral Optometry) meetings engrossed in discussion.

In the beginning it must have been frustrating for Dr. Saltysiak to talk with me as he was talking apples and I oranges. With the typical cockiness of a new graduate it was hard for me to see that really his apples were simply further along on the evolutionary process than my oranges.

For the first six months of meetings much of what was said went in my one ear and out the other. At times I challenged the concepts raised or brought up solutions that were derived from the model of vision that I had at that time. Other members of the group also seemed to be at my level at times. Only now can I look back to the discussions and realize that although we were using many of the same words in our discussions, that the meanings behind the words were vastly different.

As I have mentioned, my formal optometric education did not give me the frame of reference to understand the behavioral concept of vision. Only through constant interaction with with optometrists who practice from a behavioral base did I begin to change my frame of reference and to understand and assimilate the behavioral concept of vision.

I would like to present to you some of the major differences that I see between what I was taught and what I now understand. The single biggest difference is in understanding the relative importance of the 20% of the visual pathway that goes to the balance centers of the brain. Understanding the role of these fibers is the key to the behavioral approach. It is what takes optometry out of the eye and into the entire body.

In school I had been exposed to many of these concepts but not to their underlying physiology or rationale. Certain techniques had been advanced by certain members of the clinical staff as methods that work with little or no rationale. The use of walking rails, balance boards and chalkboard work was all presented in this light. Since these techniques did not fit into the model of vision I had built, I did not use them. I have always been a person who needs to have a rationale and a basis of understanding in order to do something.

I now understand that what I assimilated from my education was a model that very closely related to an accommodative convergence model of vision or what has been termed a skills approach to vision. Emphasis was in the two circles of identification and orientation but did not address the antigravity or the auditory circles of Skeffington. Even the time spent in identification was really thought of as accommodation of the lens of the eye and centering was strictly convergence and divergence. According to the Skeffington four circles of vision, I was really not at any time working with the emergent vision but was locked in at a skills level of accommodation convergence.

Here I have introduced a word that has caused much discussion -- "Skills." In a way I felt that I was working with a patient in order to help him acquire a new skill. However, a skill implies something that is turned on or off. In order to be a lasting change and in order to really change how someone sees, one must set up situations to allow a patient to acquire a new visual ability.

Although I was taught to identify needs of patients and to relate my testing to those needs, there appeared to be too much emphasis on specific tests or numbers from the examination process. Conditions had to labeled as being a "convergence insufficiency" or an "accommodative infacility" or a "divergence excess." Once the diagnosis has been made then a specific treatment plan was laid out for that diagnosis. This approach placed a lot of weight on individual probes of the visual system and was limited in scope.

The behavioral concept of vision, as I now understand it, is an evolutionary stage above or more advanced from that which I assimilated from my education. Both view vision as learned, although I was taught that much more was really genetic or expected than is truly the case.

In order to make my point I would like to discuss my own optometric treatment. As a child when confronted with my first visual stress, I made the most popular adaptation towards reduced visual efficiency (RVE). I remained an RVE for many, many years, simply compensating for poor reading ability and lack of speed with very good auditory ability. I have always been able to learn much more from hearing than from reading. To this day, this is my preferred mode of acquiring new information although I now can process information from reading more easily than before.

My family are basically all hyperopic. My father and sister both have significantly unequal hyperopia with the left eye being greater (OD +2.50 OS +6.50). In my junior or senior year of high school I got my first pair of single vision glasses (+0.75). These I used on and off for close work but found that I could see just fine out of them at distance also. When I was tired or felt bad I wore the lenses more. As I began to have to read more I required even stronger lenses for near. This cycle went on for a number of years with both distance and near dioptric powers increasing regularly. My vision was always good in the morning without my lenses but as soon as I had had them on for a period of time I couldn't comfortably remove them.

Conventional wisdom and my education had me believe that I was simply a latent hyperope and that over time this hyperopia would become more and more evident and require "correction." Up until a year ago I was wearing for constant use OD +2.00 OS +2.25 with a +1.25 add in bifocal form. A quick look at any examination of me over the years shows that, through either no lens or my habitual distance lens of the period, my near phoria was very high esophoria (14-16 esophoria was the norm). A cross cylinder test (14B) or a gradient test always showed a very significant drop in the esophoria. Usually my ACA ratio was measured at near 14 to 1. I was taught that in order to treat someone like myself, the most desirable way was to use the maximum acceptable plus and that over the years this plus would be increased. I was then and had been for close to ten years dependent upon spectacles. It should be noted that these spectacles did facilitate my ability to get through undergraduate and optometry school with excellent grades.

As a result of the evolutionary changes in my thinking of vision, what I came to understand was that I had developed this adverse hyperopia in response to my optometric treatment. I had developed a new way to see with those "reading lenses" that allowed me to see clearly at distance. Confronted with the same or increasing visual stress, I developed more and more hyperopia. The lenses, although making me more comfortable and increasing my ability to handle close work for sustained periods of time, became a crutch that was needed all the time.

Through the use of yoked prisms, visual training based on the behavioral concept of vision, and an understanding of the erroneous ways in which my visual system was computing distance in space, and through the guidance of having complete and thorough visual analysis done by a behavioral optometrist (Dr. Bernard Saltysiak), I have been able to totally eliminate my need for a compensatory lens. Not only have my visual abilities been increased so that I am seeing better than ever, I am much more relaxed and am accomplishing more than ever before through my visual system. I am presently wearing plano with a +1.25 add as a stress relieving lens selectively for sustained near visual tasks.

Only through the evolution of my understanding away from my original skills approach and towards the behavioral concept of vision have I been able to gain insight into the real visual process. The behavioral concept of vision is not a new concept but is rather an upward step in the evolutionary ladder and encompasses all those ideas and principles previously thought or presented. From the understanding of the most primitive portion of our visual system comes the most powerful tools available to the optometrist today to alter human behavior.

The use of stress relieving lenses and yoked prisms along with an education program of in-or out-of-office vision training based on the behavioral concept of vision is the most effective system of treatment known to optometry today. I strongly urge those who cannot see the difference nor who cannot understand the behavioral concept of vision to hang in there and try and try again to learn. As you learn you will be carried upward in the evolutionary process and you will be a more effective optometrist.