

Structured-Discovery Learning

What It Is and Why It Works

by Dr. Ruby Ryles
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From the Editor: The following presentation was part of a panel discussion at a conference sponsored by the Rehabilitation Services Administration in Albuquerque, New Mexico, in 2002. The other members of the panel were Dr. William Weiner, Donna Sauerburger, and Dr. Edward Bell. At that time Dr. Ryles directed the orientation and mobility graduate program at Louisiana Tech University that Dr. Bell directs today. Dr. Ryles now directs the programs for teachers of blind students. Those interested in learning more about teaching orientation and mobility or teaching blind students should contact the Professional Development and Research Institute on Blindness at (318) 257-4554. What Dr. Ryles says here is as true today as it was when she delivered these remarks. This is what she said:

Ruby Ryles In this session we are looking at two models of instruction in the teaching of orientation and mobility: (1) the historically dominant model based on what Richard Mettler and other authors term the vision paradigm, which uses guided learning, and (2) the more recent instructional model based on the cognitive paradigm that employs structured-discovery learning.

The vision paradigm of the traditional model is characterized by the necessity to operate from a visual model of the world in order to travel independently. In this paradigm vision is synonymous with safety; vision loss is synonymous with danger; and specifically without vision is considered difficult and hazardous. O&M instructors approximate the visual experience through verbal reports of the instructor's own visual observations of the environment. Two clear commitments arise from the conventional model of O&M instruction: (1) that travel students need constant and ongoing monitoring throughout their training, and (2) that it is necessary to conduct that monitoring visually to insure that students receive accurate visual information about the environment. An awareness of the fact that this model relies strongly on a visual understanding of the environment answers many questions.

In the cognitive paradigm of the structured-discovery model, the role of the instructor is not to approximate the visual experience and constantly monitor the student during training, but to assist the student in becoming increasingly able to relate the physical mechanics of cane travel to the cognitive skills that define independent travel. Richard Mettler sums up a basic commitment of the discovery-learning model for us: travel instruction doesn't begin until the student no longer thinks he requires external monitoring. Up to that point in the discovery-learning method, learning has been guided. But structured-discovery learning depends on a Socratic method of teaching. From this point forward in training, learning is structured so that the student discovers critical travel concepts rather than having them presented by an instructor. In the early lessons the student is placed in such a secure environment that concerns for safety are actually issues for counseling rather than genuine safety concerns. At the very heart of the structured-discovery method of teaching travel is an unwavering belief in the ability of human beings to travel independently without sight.

Dr. Kenneth Jernigan defined independent travel as ♦ the ability to go where you want when you want, without inconvenience to yourself or others. ♦ In order to instill the kind of confidence that underlies true independent travel, orientation centers and university O&M training programs must cast aside the ideology that travel without sight is inherently dangerous; in other words, we cannot teach fear.

The travel environment is designed for and by sighted people. A fear of navigating the environment without sight is a key issue that instructors should address before the first travel lesson begins. Independent travel means the blind student takes responsibility for his own safety and does not feel the need to depend on sight—either his own nor someone else ♦s—for safety. Independent travel means that the average blind person who has good training can navigate any pedestrian situation that the average sighted person can navigate. It means that, once training is completed, a blind person does not need an O&M instructor to orient him to a new campus, community, or job site; rather he is capable of orienting himself to his new environment.

Because the structured-discovery method is a nonvisual method of learning to travel, travel students in training wear sleepshades during all lessons. Why not use residual vision during training? After all, when training is completed, no one will wear sleepshades to travel, right? People seek O&M training because using their vision to travel no longer works for them. They come to us for help because they feel limited in the daily routines of their lives; they feel unsafe and unwilling to travel alone in new environments. Instead of using magnifiers and gadgets that depend on fluctuating and often failing vision, why not teach nonvisual travel? By simple definition; if you are learning nonvisual techniques of travel, you can ♦t use your vision. Therefore it is reasonable and necessary to occlude vision to learn nonvisual techniques.

Here it should be noted that a little sleepshade use is worse than none at all, because what you have really taught is fear. When you decide to teach nonvisual techniques, you need to commit thoroughly to it. If the instructor understands the need for nonvisual training, then sleepshade use is not even an issue to be discussed. In other words, you let students know that sleepshades are a part of the curriculum and why. And, as I ♦m sure we all know by now, informed choice does not mean that students can choose not to use sleepshades. Sleepshades are a part of the curriculum. They cannot be used for a few hours or a few weeks. Because students don ♦t have enough time to get over the fear of thinking of the world in nonvisual terms, the entire curriculum should be taught under sleepshades. If we agree that blind people need to learn nonvisual techniques, I don ♦t know how it can be done without using sleepshades.

Instructor Competence: It is truly embarrassing even to state this principle because it is simply common sense. It is foundational to this method of teaching travel: the instructor must be a model of nonvisual travel skills for students. Blind instructors must be excellent cane users and independent travelers; sighted and partially sighted instructors must be excellent cane users and independent travelers under sleepshades. That shouldn ♦t be hard to understand. In no other field do we endorse teachers who are personally unable to perform the tasks they are hired to teach. The teacher who can do only basic math would not be hired by a school district to teach algebra; none of our own children were taught to read by individuals who themselves could not read. Blind people deserve no less from their mobility instructors.

Blind Mobility Instructors: Because structured discovery is a nonvisual method of learning to travel, blind instructors often have an advantage. A skilled blind traveler has typically encountered and solved normal travel situations that sighted instructors often view as travel problems to be avoided by the blind—large parking lots; bus, train, and subway stations; airports; wide streets with various turn lanes and islands; street and sidewalk construction sites; and on and on—all are a part of daily travel for skilled blind travelers and sighted pedestrians alike. How totally effective from an educational standpoint for an instructor to teach by sharing travel experiences with his students—any teacher does it. It is simply good teaching.

But can a blind instructor both teach and monitor travel students? A large percentage of us in this room know the answer to that. Prominent agencies for the blind in the United States have sought out blind instructors for decades. The Nebraska agency has a long and distinguished history that spans years of recruiting qualified blind instructors; Colorado, Minnesota, Iowa, Louisiana, and more recently Texas are just a few of the agencies providing excellent travel training to their states—blind citizens using blind mobility instructors.

But, when you hire a blind mobility instructor, two issues are paramount. First, the instructor must have outstanding personal travel skills—meaning that, if he is not totally blind, he must be an excellent traveler under sleepshades. This is an absolutely fundamental part of structured-discovery learning for sighted and blind instructors alike.

Second, it is absolutely critical that blind and low-vision instructors understand and use the alternative techniques of blind instructors while teaching and monitoring O&M students. In the conventional model of teaching O&M, blind instructors who have residual vision are taught to use their sight to teach and monitor students. Infinite travel situations arise daily in which a blind instructor's partial vision is simply dangerous to depend on, specifically in the early stages of training when their students cannot be expected to be responsible for their own safety and must depend on the skills of the blind instructor.

This brings me to an example of the primary problem in the university training of blind instructors. I am very concerned about the implication of a statement made to me by the head of a university O&M degree program. University O&M programs know they cannot refuse to accept otherwise qualified blind applicants for O&M programs. The Louisiana Tech program actively recruits blind and sighted candidates. About three-quarters of our students are blind—and yes, all graduates have multiple job opportunities. This director said to me, “Ruby, because of ADA and other civil rights laws, we know we have to [admit blind students to our degree program], but, we don't know what to do with them. We don't know what to do with them—his concern about the safety of blind mobility instructors was correct. His university program uses the traditional model of training—a visual model—and he was just being honest. He had no idea how a blind instructor would safely monitor students. The director of this university program was right on. A blind instructor must know and use the alternative techniques that are specific to blind instructors, and those skills depend on the blind instructor's own personal level of travel skills. We cannot jeopardize the safety of blind people for politics.

Canes: The Louisiana Tech University O&M program teaches the structured-discovery learning method of O&M, and like the orientation centers that use this method, our students learn to travel using the long, rigid fiberglass cane. We have found this cane to be a better fit for the structured-discovery method of learning and teaching for several reasons. (1) It is lighter than traditional aluminum canes, making constant use of a cane less tiring (2) This method of learning depends on senses other than vision, so the cane needs to provide good tactile and auditory feedback from a wide variety of surfaces. These canes were designed years ago by blind cane users to do just that. Aluminum canes with nylon tips, particularly the folding ones with joints and elastic cord through the shaft of the cane, tend to mask tactile feedback, and they make the teaching of tactile cues very difficult and limited. We find that longer, lighter canes with metal tips provide pronounced tactile feedback, allowing the user to discern (with practice) far more subtle differences between tactile surfaces than traditional heavier aluminum canes allow. Being able to tell the difference between concrete and asphalt surfaces gives the student valuable information about the environment. (3) Because of the design and composition of the tip—called a glide tip—this type of cane provides good auditory feedback to both users and instructors. The clean click of the cane tip on various hard surfaces and its ability to glide easily over minor cracks provides not only valuable information to the traveler, but also greater ease of use. As with the cane, the tip too was designed by blind cane users.

The fiberglass cane is designed for use as a long cane—measuring from a person's chin or nose, depending on the individual. This length allows for a more natural stride and walking speed because the length of the cane increases reaction time. The long cane eliminates the need to extend the arm in order to use the cane because the cane itself provides the extension and allows a more relaxed grip on the cane and position of the hand and arm. Centers and instructors using discovery learning insist that students use the long rigid cane and not folding or collapsible canes while they are in training.

It could be said that one drawback of the structured-discovery method is that it takes longer to learn. Remember that Mettler says that travel instruction doesn't begin until the student no longer thinks he requires external monitoring. Before getting to the point where O&M instruction can begin, students need an entire curriculum of skill training, much of it guided by the instructor. Probably six to nine months with daily hour-and-a-half-to-two-hour travel lessons will allow for the development of the student's ability to solve travel problems set up by the instructor. The instructor provides observed and independent travel assignments that contain increasingly difficult travel problems as the student's ability to handle these situations increases.

I need to interject here that an independent travel assignment is meant to be just that—independent. The student has reached a point where the instructor has confidence in his or her skills and ability to work through travel problems independently. The instructor does not covertly follow the student on an independent travel route, lurking behind bushes to appear and rescue the student from confusing travel problems. Independent means solo, alone, unmonitored, unaccompanied, by yourself.

There is a great deal of misinformation about the structured-discovery method of learning and teaching O&M. One is the concept of teaching multiple students. Structured-discovery learning recognizes the value of teaching multiple students, but normally two, and no more than three in a class. And it is the responsibility of the instructor to know the skill levels of his students because student skill levels must be comparable or teaching is not possible. Teaching multiple students is a wonderful way to encourage the development of problem-solving skills among students. Again students learning from one another is and always has been good basic educational practice.

Structured-discovery learning is as much about what we don't teach as it is about what we do teach. We don't teach sighted guide. Not because it isn't useful—it is. We teach nonvisual independent travel; sighted guide is neither nonvisual nor independent. I guess that really isn't true. Roland Allen is Louisiana Tech's award-winning program instructor. He is certified NOMC and did tell me he spends about fifteen minutes of his total curriculum time teaching students sighted guide. With or without instruction, blind people use sighted guide at various times—we don't need to spend valuable program time teaching our O&M students something most blind people have been using all their lives.

We don't teach task analysis. You know what that is—when common activities, such as finding a chair or turning around in an elevator are broken into numerous unnecessary steps. O&M is not a science; it is common sense.

We also don't teach O&M through distance education. In most universities today professionals can obtain degrees never having even met a blind person until they are ready to begin teaching. You can learn about blindness from textbooks, professional literature, and lectures, but to know blindness, you need to learn with and from blind people. We do not want our O&M students to be in a position of authority over blind people until they have learned from blind instructors, spent countless hours with blind acquaintances and blind professionals, and know quite literally hundreds of blind people. The Louisiana Tech O&M students spend much of their program time immersed in the Louisiana Center for the Blind doing those very things. The respect that the students gain for blind people—both as a class and as individuals—cannot be taught in a standard academic setting. The lessons they learn from the immersion experience change their attitudes and expectations in a way that is impossible to achieve in any way other than getting to know blindness by knowing blind people.

If to you independent travel means the ability to go where you want, when you want, without inconvenience to yourself or others, your students will not need to call on an O&M instructor to show them how to get around a new campus, new community, or new job site. Not only are problem-solving skills transferable, but by design the locus of control is transferred early from the instructor to the blind student. If this is your definition of independence, your students will not need to return for more training when additional vision loss occurs because they already know how to handle travel problems with no vision.

Independent travel—those words are probably the most commonly used phrase in the field of O&M, but it is our definition of independent travel that determines our expectations for our students. Probably the next most common phrase is but we do that, which is often said by those not trained in the structured-discovery method and who just don't get it. But then the O&M field is very territorial, and some people just don't want to get it. Structured-discovery-trained instructors are providing agencies and consumers with a choice. The blindness field has always had choices of types of training in various centers and agencies across the country. Now the O&M field offers a choice of instructor training.

In this amount of time it is impossible to do even an adequate job of explaining the structured-discovery method of learning and teaching travel. At the very heart of this method is an unbending, unshakeable, gut-level, resolute belief in the abilities of blind people. You can't understand and certainly can't teach this method without it because that belief is the very spirit that drives structured discovery and the professionals who use it. The structured-discovery method of teaching travel is like the definition of independent travel—either you get it or you don't. I know a lot of you in this room get it, and I know Ed Kunz gets it. Thank you for listening.