Building a Bridge to Success

For a Dyslexic Reader, accommodations represent the bridge that connects him to his strengths and, in the process, allows him to reach his potential. By themselves accommodations do not produce success; they are the catalyst for success. Accommodations grow in importance as a dyslexic progresses in his schooling. As he advances, his strengths mature – in thinking, reasoning, vocabulary and analytic skills; at the same time his academic challenges increase. Consequently, it becomes even more crucial for the dyslexic reader to access his strengths in order to bypass his phonological weakness.

Far and away the most critical accommodation for the dyslexic reader is the provision of extra time. Dyslexia robs a person of time; accommodations return it. Studies carried out over the last two decades confirm a dyslexic readers' absolute "physiologic" need for extra time. For him additional time is obligatory, not optional. It is the dyslexic's unique constitution that makes it possible for extra time to exert a positive effect. For this kind of reader, learning capacity is intact; he simply needs time to access it.

Accumulating scientific evidence shows that good readers and dyslexic readers follow very different pathways to adult reading. For good readers the route is smooth, straight and orderly: Their phonologic skills increase with age, they become more accurate and more automatic in their reading, and they identify words without any need to rely on context around the word. By fourth grade good readers are no longer using context to figure out a word. The dyslexic, however, encountering a bottleneck created by his phonological weakness, must take an alternate, indirect and demanding route. This secondary pathway will get him to the same destination, but it will take a lot longer. He learns to read accurately, but to achieve the same level of reading accuracy as his nondyslexic classmate, he must read much more slowly and with great effort. The automatic route to reading is unavailable to him. Consequently, if he is to identify many of the words on the page, he must pause and rely on the support of his higher-level thinking skills. He must survey the context and get to the word's meaning by this slower and more indirect pathway.

David Boies, a brilliant litigator, is dyslexic. He tries not to rely on notes in court because as a dyslexic he is not automatic in his reading. If he needed to refer to his notes, he would not be able to capture the words on paper instantly. He would need to take time. This is the impact of a lack of automaticity in reading in this highly gifted man. That lack sometimes manifests itself in such unexpected ways in others. John Irving, for example, finds it frustrating that in an airport he cannot rapidly locate his flight on the departure monitor, though he tries very hard.

> I look at that thing and I am the only one who is competitive about it. I think, God damn it, I'm going to find that city and flight and gate number before [my wife] Janet. And Janet's…not paying attention to this. I'm just killing myself to find the flight to Deusseldorf or Paris or Helsinki. And Janet will look up and say, "Oh it's B-9," like that. Instantly. I can't do that.

What his wife, an automatic reader, can do at a glance, Irving must do manually and therefore much more slowly.

Extra Time and The Need For Quiet

Brain imaging studies are providing us with a new level of understanding of the path that dyslexic readers must take. To review briefly, in these readers all features of the word have not been properly integrated, so they do not develop the automatic word form area. As a consequence, they must rely on the other brain systems to figure out the word manually and get to its meaning. This process takes a much longer time. As mentioned earlier, the results of brain imaging studies of children and adults show qualitatively different brain activation observed in the back left side of the brain of good readers, there is a more diffuse activation pattern, and it is seen in the right hemisphere and front of the brain. An auxiliary team of neural systems is trying to take over for the disrupted primary reading system, and it requires extra time. Dyslexic adults who are able to achieve average levels of accuracy have to do so by resorting to these backup, slower, secondary neural routes to reading.

From these and other studies of students, older adults, and children we know that, as Maggie Bruck, a senior researcher at Johns Hopkins Medical School, said:

> The patterns of deficits that characterize dyslexic children are the very same patterns that characterize adults with these childhood histories. Despite the fact that many of the students have been educationally successful, and despite the fact that as adults they have increased their level of word recognition skills, these data suggest that the primary deficits have not dissipated. The mechanisms and the processes do not seem to change or to mature.

Observations in university students who are accurate but slow readers – in the United States, the United Kingdom, France and Italy – indicate that the phonologic deficit and the neural disruption persist. If the dyslexic reader is going to decipher the print before him, he has to rely on higher-level sources of knowledge – vocabulary and reasoning – and slower, secondary neural pathways. The equation for adult readers who are dyslexic goes something like this:

Higher-level thinking skills + context + extra time = meaning.

The bright dyslexic reader's reliance on context is both absolute and unique. Children who are poor readers but not dyslexic – for example, those who have across-the-board language difficulties – are generally not benefited by context. They do not possess the verbal skills, particularly the vocabulary and reasoning skills, necessary to help bootstrap the identification of unknown words. It is only the dyslexic who possesses a sea of strengths she can apply to the surrounding context to help figure out the mystery word.

Aided by their intellectual and verbal abilities, highly able dyslexic readers have the desire to go on to higher education, but they face the barrier of standardize tests, on which they perform poorly. They are particularly penalized by multiple choice exams that typically provide sparse context and time constraints. These tests are not a fair estimate of a dyslexic individual's grasp of knowledge.

Writers John Irving and Stephen J. Cannell both scored poorly on the verbal SAT. Renowned academic physicians Drs. Delos M. Cosgrove and Graeme Hammond scored so low on their Medical College Admissions Test (MCAT) that were it not for unique circumstances in each of their cases, neither would have been admitted to medical school. David Bois, the legal scholar Sylvia Law, and the financier Charles Schwab join the illustrious circle of highly gifted individuals whose performance on timed standardized tests underestimated their abilities – and almost kept each from pursuing and succeeding in his or her life's ambition.

Then there are the stories of everyday citizens. Hannah, a dyslexic born in a tiny community in the South, suffered through years of all-too-familiar misdiagnosis and despair. When she turned eighteen at the end of her eleventh grade year, with her grades dreadful and no help in sight, Hannah dropped out of school. Still, she loved to think and to imagine, no matter what her reading skills. Once free of the burden of an ungiving school environment, she started working on a laptop computer and spent the next three years trying to become a writer. No longer stressed by having to handwrite her essays or race through her papers, she took pleasure in crafting her essays. Her confidence returned, and she set about earning her GED. A local community college, when apprised of the relevant facts, allowed her the accommodations she had been denied in public school (mainly extra time and a separate room for exams). In a remarkably short time, she passed her examinations and was awarded her general education development (GED) degree.

When granted similar accommodations, Hannah scored very well on her ACT examination and was admitted to a small state college where she continued to receive accommodations and earned a perfect 4.0 average. Today, Hannah is pursuing a law degree at a prestigious school where she continues to receive accommodations.

As is typical for dyslexic readers, Hannah still requires extra time and a separate room for her testing. Since her reading is quite fragile, she continues to require a quiet room of her own so that she can focus her full attention on the task at hand. To ensure, quiet, she uses earplugs during testing. Any noise or distraction will likely disrupt her reading, siphon her attention away from reading, and interfere with her performance on the test. These accommodations are hardly onerous on any school, and every dyslexic student should have access to them.

Satisfying the Goals of a Foreign Language Requirement

As I have already mentioned, students who are dyslexic struggle with foreign languages. Since these students have yet to master the basic phonology of the language they have been immersed in since birth, they are hardly likely to become proficient in a new language when they are young adults. In secondary schools students can and often do slip by through remote memorization, diligence, and pleasant personalities, receiving passing grades without having the slightest ability to converse in that language. But in college, students are expected to become proficient in a language, able to converse in it and read its literature.

Sometimes students realize the futility of their quest and request a partial waiver of the foreign instructor may be the first to appreciate the depth of a student's difficulties and recommend a waiver. At Yale, after careful review, a partial waiver may be granted with the stipulation that the student is expected to take six course credits in the study of the culture, history, politics, or literature of any specific non-English-speaking culture or society. This model policy reaffirms the importance that the university places on the foreign language requirement and its desire to have students meet the spirit of the requirement rather than solely passing a course. This is a very useful and proper accommodation. Furthermore, it prevents needless suffering and waste of a student's time and energy while allowing him to focus on courses that he has a real chance of mastering.

Recorded Tests

In the spring of 2000, Seth Bursetin, a Yale freshman, was awarded the Recording for the Blind and Dyslexic (RFB&D) Marion Huber Learning Through Listening Award at a ceremony held at the Essex House in New York City. Seth, who is dyslexic, endured years of struggle until he heard about RFB&D as he began high school and ordered tapes of his course textbooks. The recorded books soon became a positive force in Seth's life.

> I could remember just about everything I heard, but read too slowly to keep up, and so much effort was put into trying to get the words out that I had little comprehension afterwards. Once I began the tapes, everything changed. I was able to read along with the book at my leisure, absorb nearly everything I was reading, and no longer be reliant on my parents to read to me. I started

> to feel much better about myself. I really was learning the material, and I no longer made excuses to avoid doing my work because it made me feel bad. The tapes have changed my life. For the first time ever, I got straight A's.

Beyond school work, dyslexia tears at the very independence of the maturing adolescent. Having his texts on tape can mitigate that. As another dyslexic student said, "What it means when you can't read for yourself is that you have to totally rely on your parents and your friends who do it at their convenience."

Parents and students should contact RFB&D of Princeton, New Jersey, as soon as a reading difficulty is detected. The recordings can be a student's passport to the world of the reader. Listening to books on tape or CD-ROM allows the student to participate in courses and study at his level of understanding rather than be held back by his slow reading. Furthermore, tapes introduce him to vocabulary words that he may not have encountered in his otherwise limited reading. Listening and following improves reading itself and allows a student to actively dig into his reading by underlining, taking notes, and highlighting – important reinforcement activities that were not even considered when he was totally focused on deciphering the words on the page.

RFB&D's library contains more than ninety thousand books on a wide range of subjects including science, literature, history, and women's studies, and extends across all academic levels, from kindergarten through graduate and professional school. If a particular book or text has not already been recorded, RFB&D will record it on request. If it is a new textbook, it may need to be given to a reader to be taped, so try to obtain a book list as early as possible, ideally before the school year or semester begins.

Joining RFB&D involves completing a membership application and obtaining a signature from a professional in the field of disability services. RFB&D can be reached at its web site www.rfbd.org.

Currently, RFB&D is making textbooks available in a digital audio format on CD-ROM through the conversion of its existing analog library and by digital mastering of new titles. Happily, this new digitized format, called AudioPlus, still presents the natural human voice rather than a synthetic one. The versatility of having digitized books on CD-ROMs means that the reader can instantly go to the exact chapter, page or section that he wants to read or needs to re-read and listen to it on his home computer. With the new digital format, the recordings have true portability; a student can also listen to a page or a chapter on his portability; a student can also listen to a page or a chapter on his portable CD-ROM player as he rides the bus or jogs. According to plans, the recordings may soon be accessed over the internet.

And so for the dyslexic student, building a bridge to success requires three basic ingredients: (1) extra time and a quiet separate room for examinations, (2) some

form of waiver of the foreign language requirement and (3) recorded texts for listening. These are all passive accommodations; rather than giving something to the dyslexic, they provide a bridge that allows his strengths to emerge and his potential to express itself. In addition to these three, there are other useful accommodations: alternate testing formats (short essays, oral reports, projects); recording lectures; and the use of a laptop in class and for tests. Dyslexic students also benefit from materials that provide visualization (figures, graphs, illustrations) to accompany print; courses and grading that emphasise concepts versus isolated details, content versus form; and the use of advanced computer technology.

To offer practical guidance for integrating these and other accommodations into a student's educational program, I am going to focus on Andrew and Gregory, and on the plans I have developed for each of them.

From Theory To Practice

Andrew's Plan (High School and College)

Andrew Bennett was fifteen years old and about to enter his freshman year of high school. After he was evaluated at the Yale Center and diagnosed as dyslexic, I met with Andrew who will soon be expected to function independently while attending college, it is particularly important to understand at a very basic level what dyslexia is and how it might affect his everyday life. Then Andrew would be better equipped to figure out how to deal with it in a range of situations. He gains autonomy and in the process becomes a powerful advocate for his own needs.

I gave Andrew the following summary outlining the predictable consequences of dyslexia and the most appropriate accommodations for each. Because students who are dyslexic learn best by first understanding the big picture, I began by providing Andrew with a conceptual framework that summarized the overall rationale and goals of the plan.

Understand How You Learn: Your Strengths and Your Weaknesses

Visualise an encapsulated, circumscribed phonologic weakness surrounded by a soaring sea of strengths (excellent reasoning skills, vocabulary, the ability to understand concepts).

Remember the Goal: Maximise Your Strengths, Minimise Your Weakness

Your plan is based on understanding that dyslexia is a language-based problem that affects reading, writing and speaking. Here are the five basic consequences of dyslexia for you and what you should do about each.

1. Reading Is Slow and Laborious

Request extra time on examinations. Extra time on examinations is a necessity. The amount of time cannot be determined from testing but should be based on your own experience. The first time you request this accommodation, request double time. Based on how well this timing works for you, you can request more or less time on subsequent occasions. Since your decoding skills are not yet automatic, it takes you longer to read each word. In addition, many bright dyslexics like yourself use the context of a paragraph to help identify a word they cannot decode. For example, you may not be able to read a specific word in a paragraph but often you can read enough of the surrounding words to get the point of the selection. This allows you to fill in what the unknown word probably means even if you can't pronounce it. This

rather indirect route to word meaning takes extra time. You absolutely need this extra time if you are to show what you really know. Never feel guilty about requesting extra time. A dyslexic needs extra time the same way a diabetic requires insulin. A quiet, separate room and earplugs help minimise distractions and allow you to concentrate as you read the test questions. So, although you read words slowly, your comprehension is at a high level because you can apply your skills in vocabulary and thinking to figure out the meaning of a passage.

Avoid taking too many courses with large volumes of reading. You should limit yourself to no more than two "reading" courses per semester; if necessary, take a fifth year of high school (and, later, college). When you begin college, try to take a reduced course load the first semester (or even in the first year) until you adjust to the academic and other demands of university life.

Pace yourself when you read. Read for twenty minutes, take a break, exercise, and return to your reading. Since your reading is fragile, read in a quiet room. Listening to background music such as jazz or classical – as long as it does not have lyrics – helps to block out or mask any distractions.

Many students do not know how to get the most information out of a passage they are assigned to read – they focus on all the details and remember few – but there is an approach that has worked for many students. It encourages active reading, which is the basis of remembering what you have read. This approach is called SQ3R; each letter stands for a process that will help in your reading:

S – survey. Look over the chapter before you read it. Look at the title and subheadings of each section, and read the introduction and the summary at the end. It helps to know what to expect from your reading; this puts you into a mind-set for receiving the information.

Q – question. Change the headings into questions and then let these questions guide your reading. For example, if the section heading in a biology text book is "Functions of the Stomach," change that into "What are the Functions of a Stomach?"

R – read. Read the text to search for answers to the questions you have created. Highlighting or underlying the key sentences helps you recall the information. Taking brief notes on the highlights of each section will also help you remember the important points.

R – recite. Say your answers out loud.

R – review. After completing SQ3R for a section, go over the main points of your highlighted sections or your notes by reciting the information out loud and making sure you are correct.

This very simple process will help you organise your reading and gain more from it. Dyslexic students frequently find that taking short notes on a computer is very

helpful in their studying. In fact, many distill things even more, taking notes on their notes until they are left with a very small amount of notes. Rewriting the notes is helpful in remembering and also creates a concise, abbreviated set of information from which to study for a future examination.

Active leaning along with repetition and practice are the keys to remembering. Actively engaging with the material by highlighting, underlining, and even enlarging the print, if it is on a computer, are all helpful in making the material salient for you. Explaining or rephrasing specific ideas or concepts aloud and also reading your notes aloud over and over again will help you keep information in your memory and be able to retrieve it when needed. Visualising what you read may be especially helpful to you. Creating an exaggerated or ridiculous visual image or any image that is meaningful to you in some way, will be remembered more easily.

Obtain books on tape or in digitalized form. Obtain recorded versions of your textbooks from Recording for the Blind and Dyslexic. Ask your instructor for a book list before the start of the semester so that you can be sure of having the recording in time for class. Listen to the recording as you read the book. Hearing and seeing the words will help you pronounce and remember difficult words. Listen actively; for example, you can highlight and underline important parts as you read along. Use this source for pleasure reading as well. This way you can get to enjoy the stories and literature you might not read in their printed form. Magazines are also available.

As an alternative, you might consider the Kurzweil 3000 (Kurzweil Education Systems, www.kurzweiledu.com) or WYNN 3.1 (What you Need Now; www.freedomscientific.com), software programs that will convert scanned printed material into a computer text file that can be read aloud by your computer. The system requires certain hardware (a scanner) plus specialized Kurzweil or WYNN software to be installed in your computer. (Kurzweil will run on either a PC or Mac; WYNN on a PC). Scanners are relatively inexpensive, and many schools own one. Scanning the lengthy text book chapters takes quite a while, but once the text is digitized, there are many options available to help you in your reading. The software reads the text out aloud for you (you can select the rate); it highlights each section in colour as it is read; and it features a second colour to highlight each word as the computer reads it, helping you read along or take notes. You can also enlarge the print, change the font style, increase the white space between lines, and move the text around. A search function allows you to locate a particular word within the text rapidly. Specific sections of a text can be “clipped out” and saved as a separate text file. In addition, these programs provide bookmarks, dictionary functions, voice notes (you can dictate short notes to be attached to specific text sections and play them back when needed), spell checkers and they will create an outline from any text. They also link up to and read web-based e-mails and other internet text. Hardware requirements include a PC, a Pentium IV or faster processor, 256 megabytes of memory, a 120-150 megabyte hard disk, and a high-quality sound card. This software can also be adapted for use with a Mac, only with the addition of Virtual PC with Windows from Connectix (www.connectix.com).

Alternatively, digitized text (also called e-text) can sometimes be assessed online via Bookshare.org and then linked to the Kurzweil or WYNN software and read aloud for you.

There is a continuing stream of computer products that can help you via speech recognition, spell checking and voice feedback. Speech recognition software such as *Naturally Speaking* (ScanSoft, PC only, www.scansoft.com), *Via Voice* (PC and Mac, www-3.ibm.com/software/speech) and *iListen* (MacSpeech, www.macspeech.com) allows you to dictate into a headset microphone, and your speech is automatically converted into print that is visible on your computer screen. This requires you to train the program to recognize your voice. Such programs work much better for people who speak clearly; they are not magic and will not turn mumblings into erudite essays. A complimentary software program, KeyStone *ScreenSpeaker* (www.keyspell.com), permits a student to listen to what the computer has just transcribed from his voice dictation. Thus, *ScreenSpeaker* used in conjunction with *NaturallySpeaking* will read aloud back to the student what *NaturallySpeaking* has transcribed. So with this system a student can dictate and essay, have it transcribed into print, and then listen as it is read back to him. This allows him to refine his essay and correct any spelling errors or homophone confusions.

Speech recognition programs require the same topflight computer hardware that the Kurzweil and WYNN systems demand. Speech recognition programs can be complemented by still other software programs such as *WordSmith* (www.textHELP.com) or *Co:Writer* 4000 (www.DonJohnston.com), which reads aloud and pronounces words that you have typed, making sure you typed the word you intended. An especially welcome feature is homonym support provided by *WordSmith*. In this program the computer will read aloud whatever word you have written and provide a definition so that if you wrote, “I want to heel the sick,” it will read aloud the definition of heel and provide the spelling and definition of other like-sounding words. Once you see and hear the word heel read aloud with its definition, you can correct your spelling. *WordSmith* and *Co:Writer* 4000 also help to formulate complete sentences by predicting what common words should logically come after the first few words you type. This feature can be helpful in developing essays and written reports.

Computer aids are also available from Franklin Electronic Publishers (www.franklin.com), which is known for handheld products, including spell checkers and homonym checkers. For example, the Speaking Spelling Ace will pronounce and define a word that you type in. Software programs such as *Home Page Reader* (www.3ibm.com/able/hpr.html) and *eReader* (www.CAST.org) will read the text on Web pages. Of course, much of the information on these pages is in the form of graphics, cartoons or other non-text forms, which cannot be read by these programs.

All of these sophisticated tools require understanding, guidance, time and practice. For these and other new products that come on the market, it is helpful to locate someone who can give you expert advice. Computer products for education require

care and fine tuning. Computer consultants charge for their services, but they help ensure that your new program will be used to its fullest capabilities. Schools, computer stores, and your state's Department of Vocational Rehabilitation are knowledgeable and can refer you to the most helpful computer consultants in your community. Similarly, if sophisticated technology is to be used effectively within a school setting, the staff must be fully trained in its implementation. If the staff is uncomfortable with it or doesn't understand how to run it, even the most promising technology will lie unused.

Find alternatives to reading the originals. If you have to read a book for a literature class, you might try to first find an alternative version; for example, Shakespeare's *Hamlet* and Theodore Dreiser's *An American Tragedy* have been made into movies. A very useful Web site for movies is www.imdb.com; it provides a complete catalogue of just about every film ever made so that you can check to see if an assigned book has been made into a movie. Watching the movie version as a preliminary to reading the novel introduces you to the plot and the names of the characters and places, making it easier to then read the book.

Both Charles Schwab and David Boies told me that they learned a great deal from Classic Comics when they were younger. In a similar way you can read a series of books called Streamlined Shakespeare, which features works of Shakespeare rewritten so that someone reading at a fourth grade level and up will be comfortable; there is also Conerstone Classics, which includes *Great Expectations* and *Gulliver's Travels* written at a third to fourth grade reading level. Both of these series are available from High Noon Books, a division of Academic Therapy publications (www.academictherapy.com). Or you can listen to audio books; these books can be downloaded from the Internet to your personal digital assistant (PDA) such as Palm, or MP3 player, or burned to a CD. A company called Audible (www.audible.com) provides this service on a subscription basis. Newspapers, magazines, and public radio shows such as "All Things Considered" or "Car Talk" are also available.

Preview reading to identify words you can't pronounce. If you can't pronounce a word, chances are you won't recognize it in a text book or in a lecture the following day. Obtain a pocket dictionary and take it with you everywhere. Get in a habit of looking up words, especially their pronunciation. Pronouncing the word out loud helps you get into its phonologic form, a route to a word's meaning. This is particularly important in courses such as biology and chemistry where complex new words often appear (such as *oxidative phosphorylation*). New assistive technology like the Quicktionary Reading Pen II (www.wizcomtech.com) can help you. This computerized pen first scans a troublesome word in the text and then displays it is a reasonable sized window on the pen; it can read the word aloud and define it for you. Both Kurzweil and WYNN software will develop a cumulative list of words that gave you difficulty so that you can review them later. The American Heritage Dictionary on CD-ROM will also pronounce words that are giving you a problem, as will the Encarta Word English Dictionary, which is available free online.

Talk through the material with your teacher or a tutor on a one-to-one basis. Since you have trouble getting information from printed material, you will benefit from meeting with your teacher or a tutor and talking through the material. This usually works best after you have read the required pages. An active, one-to-one oral interchange will help you get at the concepts and remember them. Using new terms in such a dialogue allows you to get to know unfamiliar words and to recognize each one more easily the next time you see it in print or hear it in lecture. You will remember what you have *heard* much better than material you have *read*. In addition, try to join a study group when preparing for a test. Talking through the material and listening to the group often helps much more than sitting alone in your room trying to read volumes of material.

Avoid multiple choice tests; instead, request tests that are based on short essays. You use context to get at words you can not decode. Multiple choice tests do not provide enough context to help you get to the meaning of difficult to decode words. Short essays (or oral presentations) are the best test format for you; they allow you to demonstrate the true level of your knowledge.

Avoid speed reading classes. They will not benefit you or any other dyslexic reader. Don't waste your time.

2. There is a basic problem in language.

Obtain a waiver from foreign language requirements. Remember, dyslexia reflects a deficit in your most basic level of language processing: getting to the sound structure of words. Given your problems with learning your own native language, you will invariably experience even more difficulty in acquiring proficiency in a foreign language. The goal of studying a foreign language is to learn about another culture. Request a partial waiver and substitute instead a course (or independent project) on the culture of another country. Many colleges now accept students who have submitted culture for language courses and allow students to obtain partial waivers at the postsecondary level.

Visualise the material. Visual imagery and visual study guides can be especially helpful to you. You will learn best when you can picture what is on a page or are able to convert the printed information into a visual format such as a chart or graphic. *Inspiration V6* (www.inspiration.com) software helps you organise your ideas visually; with it you can create flowcharts, idea maps, tree charts, diagrams and outlines.

Do not allow language problems to influence performance in other academic areas. You may have problems on tests simply because of a language problem: You cannot read the questions or instructions. Having the problem read to you or listening to a tape-recorded exam can be very helpful in ensuring that a test really

measures your knowledge and not your reading skills. This is often the case when it comes to math word problems.

3. Handwriting is laborious and barely legible.

Get a laptop computer. Because you have trouble formatting letters and words, you often write very slowly and illegibly. The best cure for this is word processing. Purchase a laptop (notebook) computer and take it everywhere you go. Use the computer for note taking if the instructor speaks at a reasonable speed (otherwise see below) and to write assignments. Always try to write your essays and tests on the computer. This will free you from the labour of writing by hand and help you focus on the content of your written work. You can cut down on cost by using and AlphaSmart 3000 (www.alphasmart.com), a small, light, relatively inexpensive keyboard that has a small window that allows you to see several lines of text. With the AlphaSmart you can type notes in class and write essays; it stores whatever you write and links to just about all word processing software so that once you are home, you can download whatever you have written in school. Or if you already own a Palm OS handheld device, you can purchase a small collapsible keyboard that links to it and is useful for taking notes in class.

For taking notes from a book, the QuickLink Pen (www.wizcomtech.com) will scan sentences that you can download later on your computer.

Borrow someone else's lecture notes. Since you have trouble retrieving phonemes and writing them down as you listen to a lecture, make arrangements to obtain either your teacher's notes or those of a classmate and photocopy them. During class just jot down the most important points and get the rest from someone else's notes.

Record lectures. Record lectures on a pocket size digital recorder. Such machines are helpful as a backup in order to clarify specific point. If you listen just prior to going to sleep, it will help you remember things.

Record your own essays. It is often helpful to make a recording of an essay you are trying to compose. You can transcribe the essay with the assistance of a peer, an aide, or a teacher. Recorded essays can sometimes be substituted for written essays. Of course, if you are able to use speech recognition software easily, you can first record and listen to your essay, then modify it while producing a hard copy at the same time.

Your written work should be graded on content rather than on form, especially spelling. Like many dyslexic readers, you conceptualise at a very high level, but as a result of a phonologic weakness, you experience difficulty with handwriting and spelling. The same difficulties decoding words (going from letters to sound) show up when you try to carry out the reverse process, spelling, which relies on encoding

sounds and transforming them into letters. Because you are often unable to store the exact model of a written word (that is, its spelling), you will also confuse homonyms. You will notice that you wrote “heal” for “heel” or “sail” for “sale.” For these reasons I recommend that you have someone proofread your written work. Spell checkers are a great help, too, as are the software products mentioned earlier in this chapter.

4. Giving oral responses “on the spot” is slow and labored.

The same phonologic weakness that affects your reading can also affect your ability to come up with spoken words quickly. Oral language, too, depends on phonologic ability. You must go into your internal dictionary, select the appropriate phonemes, put them in the correct order, and then express the word. This explains why you may often jumble parts of words so that they come out in the wrong sequence. You may recognize these signs in yourself:

- You have trouble giving oral responses quickly
- You mispronounce words or phrases
- You have trouble finding the correct word, often talking around the topic
- You have a problem reading aloud
- People say you tend to use imprecise words such as “like,” “stuff,” “thing.”
- You tend to confuse words that sound alike.

If you have these exact difficulties, it explains why you cannot come up with the exact answer when called upon in class even when you know the answer. Once you understand the basis for your problem with answering oral questions quickly, you can take steps to remedy the situation. Your teacher is an important part in this; you must explain to her that your dyslexia impacts how you respond in class. Share these suggestions with your teacher (I’ve also included reasons for each suggestion, which you might want to copy and give to her):

Give prepared short oral reports rather than instant oral responses in class. As a dyslexic you have difficulty retrieving words instantly, but given time, you can prepare and deliver excellent oral reports. Computers can help enormously in organizing and delivering such presentations. Learn to use *Power Point* (Microsoft) software to prepare reports. This allows you to take advantage of your strong visual and thinking skills as well as use the slides as an aid during the presentation. You will also practice at home, of course. Preparing a *Power Point* presentation (or simply making an outline on the computer) is also an excellent exercise in organizing large amounts of material and learning how to select the most salient points. *Inspiration*, a software program mentioned earlier, is ideally suited for people like you who are visually orientated, and it can be an enormous help in organizing your thoughts in preparation for a class presentation. The software that generates graphic displays also creates traditional text outlines of the same information. You can even

switch back and forth between your diagram and your text outline as you modify and refine each one. Using the computer in this way gives you an opportunity to demonstrate your strengths and obtain positive feedback in front of your classmates. It's also an enjoyable way to learn the importance of preparation.

Phonologic slips should not be mistakenly interpreted as a lack of knowledge. If your oral response sounds off the mark, your teacher should consider that it may be a phonologic error and allow you to explain. Dyslexics often have difficulty finding the precise or specific word. You should be asked to elaborate or more fully describe what you are trying to say. Tell your teacher, "I misspoke. Let me explain what I mean."

5. Learning is by a top down approach, going from meaning to facts.

Select courses where the emphasis is on concepts, not on details. You will do much better in courses where the emphasis is on your strengths – understanding broad concepts and ideas, using reasoning and analytical skills – rather than on memorizing isolated bits of information. Rote memory (memorizing exact dates and places) requires strong phonologic abilities. *You* are the best at remembering information that is attached to meaning. Before selecting a course, find out if you are expected to memorise specific facts or instead can demonstrate your knowledge through projects and reports. The latter are much better for you. Before the course begins, don't be afraid to discuss with your instructor how you will be evaluated. Be your own advocate; explain what you need and why.

Andrew and his parents met with the principal of his high school and presented him with the results of my evaluation and recommendations. They were pleasantly surprised by his positive reaction. He seemed relieved. We had given him a plan of action. The new information produced a significant turnaround for Andrew at school. Andrew, as well as his teachers were surprised and pleased at what a difference extra time and a quiet room made in his test performance. Some of his teachers now offered to provide Andrew with copies of their own lecture notes for him to preview before class, and his classroom contributions improved significantly. He is substituting a course in French culture as a partial waiver of the foreign language requirement. He has purchased a laptop computer and is amazed how helpful word processing is to him. Seeing Andrew use his laptop on class has resulted in several of his nondyslexic classmates purchasing computers for themselves as well. Andrew is pleased because it makes him stand out less. Like many other dyslexics, more than anything Andrew wants to appear like everyone else and not be noticed.

On his last visit Andrew reported that things were going quite well. He was happy, and for the first time in many years his parents could feel optimistic about his future.

Gregory's Pan (Medical School)

You already know about Gregory, the bright young man whom I wrote about in *Scientific American.* He was experiencing frustration in medial school and knew it didn't have to be that way. I met the dean of student affairs at Gregory's medical school and told him that a few critical steps would make a significant difference. Operationally, this meant teachers had to recognize and attempt to accommodate rather than penalize Gregory.

In words that will now be familiar to you, I told the dean that a dyslexic like Gregory cannot provide instant answers, but he can learn – and learn very well – if given the opportunity to do so. I said it was important to separate the learning process from the evaluative process. During clinical clerkships, for example, a first attempt or response is often regarded as the final evaluation. But Gregory had to be given an opportunity to learn without fear: If he responded hesitantly or incorrectly on the first try, it would not be taken as an indication of a failure to learn. His evaluation must not confuse oral language facility with ability. Accordingly, Gregory must be evaluated on the basis of his knowledge and reasoning skills, not his glibness or speed of verbal response.

I said that for each course Gregory needed to meet regularly with someone knowledgeable with whom he could preview and talk through the content materials. This would help overcome Gregory's problem with rapidly retrieving words. Faculty members, fellows, senior residents or even retired faculty members have served effectively in this capacity. I said it was critical that this individual *not* be part of the evaluative process.

I also said it would make a real difference if there was someone who would function as a faculty advocated or mentor to Gregory, someone who would represent his needs to the clinical course directors. Such a person should be a member of the academic faculty who carriers the authority and respect of the institution, has an understanding of the nature and consequences of dyslexia, and is genuinely supportive. Having a respected faculty member run interference for the student makes a world of difference; otherwise, the student may say the same things, but with little effect.

Finally, I said the evaluative process must be a reflection of Gregory's ability and not a measure of his disability. I told the dean about how unfair multiple choice examinations were for Gregory and why. This had been demonstrated during Gregory's obstetrics/gynecology rotation. During the six weeks of this course, his performance was observed around the clock by a range of attendings and team members; the consensus was that he performed at an honours level. At the end of the rotation he was given two oral examinations by senior faculty; on one examination he rated an honours grade, on the other high honours. In stark contrast, he failed the multiple choice written examination, a result he had anticipated and spoken about with his course director. The extreme disparity between his

performance on the wards an on the oral examination, in contrast to the multiple choice examination, speaks for itself and clearly documents the inappropriateness of his type of examination to measure Gregory's knowledge.

A dyslexic medical student like Gregory who has had to adapt to and successfully cope with a chronic disability for virtually his entire career clearly has a great deal to offer as a physician, including many of the most meaningful yet least teachable qualities: compassion, empathy and sensitivity, as well as intelligence and motivation. With the kind of support and understanding I indicated, Gregory could not only survive, he would thrive.

Most of my recommendations were adopted. Gregory is now completing his residency.

Change starts small. The days when accommodations didn't exist for dyslexic children are over. And there are signs that the denying of accommodations will soon be a thing of the past. In Oregon, after prolonged efforts, students with dyslexia will now be able to use word processors with spell checkers on high-stakes exams. In addition, as needed, they are permitted to recite their answers orally, to have the test read to them, and to be given additional time to answer the questions. Many believe that this enlightened policy sets a standard for protecting the rights of children who are learning disabled and for ensuring that it is their abilities rather than their disability that is tested.

Our new level of understanding of dyslexia (and learning) and of the importance of accommodations is now being transformed – through the requests of individual students, through the insights of perceptive teachers, and through changes in public policy – into real and lasting changes in educational practices and policies. The scientific basis of the urgent need for, and the life transforming difference made y the provision of accommodations have been proven and are rapidly taking root in classrooms throughout the country. As a result of these much needed adaptations, dyslexic students will now have the opportunity to develop their full potential. Not only will the individuals benefit, but society as a whole too.

Answers to the Most Frequently Asked Questions

How is dyslexia identified in college and graduate students?

Dyslexia is a clinical diagnosis; it must be made by a clinician who knows the student and who is able to thoughtfully synthesize the pertinent historical information, clinical observations, and results of relevant testing. The diagnosis is based on a pattern of findings; it should never be made or ruled out on the basis of an isolated test result. Tests are just proxies; a person's lifelong history and the reality of how that individual reads aloud are the best measures of dyslexia in an accomplished adult.

The hallmark of dyslexia is unexpected difficulties in phonology and reading in relation to the person's other cognitive and academic abilities. In college (and beyond), the most valid approach relies on the person's accomplishments, such as his academic performance (outstanding grades in math, philosophy, or chemistry); educational status (attendance at or a graduate of a competitive college, graduate or professional school); or professional status (an attorney, physician, writer, engineer, or successful businesswoman). Within this context a college student, a law school graduate, or a physician who reads slowly and with great effort is manifesting an unexpected difficulty in reading. (The use and misuse of IQ testing is discussed in Chapter 11; it is important to keep in mind that by young adulthood the influence of a reading disability may have artificially depressed the IQ score.)

Reading accuracy should not be used as a measure of reading proficiency in a bright, educated adult. By adolescence a student who is dyslexic will improve his ability to read words accurately so that measures of word accuracy are expected to be in the so-called average range. Consequently, the finding of average word reading skills in an educated adult dyslexic is not very helpful in determining if he is experiencing difficulty in reading. Scientific evidence shows that adults with childhood histories of dyslexia who appear to be able to identify words accurately are reading those same words differently from others; they are reading them more slowly and using different brain systems.

Lack of fluency is the only try index of dyslexia in a bright adult. How the person reads aloud is the critical measure of fluency: Does he stumble over words or hesitate, mispronounce, omit or add words as he reads? In addition, timing a person's speed during silent reading or, alternatively, having the person read silently under time and untimed conditions and then answer the questions about the passage may provide some indication of how fluently that individual is able to read.

Are there other problems that could be confused with dyslexia?

In a bright postsecondary school student or in an accomplished adult, very few problems can reasonably be confused with dyslexia. If the pattern I have outline in this book has been established in someone, she is dyslexic. Only dyslexia produces the clinical syndrome characterized by the paradoxical pairing of a phonological weakness and higher level cognitive strengths expressing themselves throughout the person's life. If a person has a history of phonologically based speaking, reading and spelling difficulties going back to her childhood and now reads very slowly despite signs of her cognitive strengths – that person is dyslexic.

Sometimes ADHD is confused with dyslexia; it shouldn't be. As you know, dyslexia reflects difficulty getting to the basic sounds of language; ADHD reflects problems with the modulation of attention and activity. The symptoms, the neurobiology, and the effective treatments differ. At times, however, a person who is dyslexic may appear not to be paying attention to her reading because it is so demanding for her to decipher the words on the page. And so it's not that she had a primary attention problem but, rather, that reading for her requires an unusual outlay of attention.

What is the best way to establish how much extra time is needed for an exam by a person who is dyslexic?

The only valid gauge is the person's own life experience. There is absolutely no test that can provide this information. Each accomplished dyslexic has developed her own route around her phonologic deficit; the specific strategies or alternate pathways that she has perfected over the years and found to work for her will determine how much extra time she requires.

How often should a person be tested?

Dyslexia is a chronic condition; it is not outgrown. Once a student has been identified as dyslexic and has received accommodations, there is no logical reason to believe that there will come a time when he will not require this accommodation (for timed tests) in order to access his cognitive strengths. As mentioned earlier, scientific studies have clearly demonstrated that the thread of the phonologic deficit persists throughout a person's life. Imaging studies demonstrate that even so-called compensated dyslexic students continue to call upon secondary (non-automatic) neural routes and to read more slowly than their peers. There is absolutely no evidence to indicate that a person who is a fluent reader and uses traditional primary brain systems for reading. Lacking this evidence, requests for repeated assessment are without reason. There is no evidence of benefit from asking students past high school to go through the expense and the psychological trauma – and the potential for misinterpretation – of a new series of evaluations.

In this context, many believe that the request for frequent testing of the dyslexic once he has completed high school represents an artificial barrier raised to discourage students from applying for accommodations. The requirement for additional time for a dyslexic reader is so fundamental that there is no tenable counterargument; there is no plausible rationale for believing that a person who is dyslexic will no longer require extra time.

Do accommodations pose an unfair advantage?

Researchers have compared the performance of learning-disabled and non-learning-disabled college students on timed and untimed standardized tests. The results were consistent: Only students diagnosed as learning-disabled actually showed a significant improvement in test scores with additional time.

Those who worry about the “advantage” of extra time for a person who is dyslexic fail to appreciate that even with additional time he will continue to feel rushed. Extra time is not an advantage, it is an attempt to level the playing field. Even with the additional time, a slow reader will continue to feel at least the same or more time pressure compared to the ordinary reader.

Do people fake dyslexia to get the “perks” associated with it?

The belief that somehow many parents, particularly middle income parents living in the suburbs, are seeking a diagnosis of a learning disability to gain some imagined advantage for their child is an insidious, unfounded and malicious rumour. These rumours poison the atmosphere and create a backlash that is harmful to children who are struggling to learn and to their parents who are struggling to understand and help them.

Recently, a blue ribbon panel concluded that rather than over-identification of suburban students as dyslexic, the problem was the relative under-identification of disadvantaged children, especially minority children. The panel strongly urged that the major testing agencies make proactive efforts to inform these disadvantaged reading-disabled students of their rights to testing accommodations.

How early should accommodations begin?

Once a child is expected to write, to complete time consuming class or homework assignments, and to take standardized tests, consideration should be given to providing accommodations. By second or third grade, children struggling to read can be introduced to Recording for the Blind and Dyslexic and to learning to type on the computer. Teachers should be instructed to grade a dyslexic student’s essays on the basis of her creative writing and not her spelling. If homework seems to go on for

hours, the student should be allowed to reduce her assignment, such as completing every other question. Reducing the time required for completing assignments is critical; it is demoralizing and self defeating for a student in third or fourth grade to spend hour after hour struggling to complete her work at home.

Children who are dyslexic require additional time for tests. This is especially important for high-stakes standardized tests that often represent the gatekeeper for admission to specialized programs or schools and, increasingly, for promotion and graduation.

In providing accommodations, a child's dignity and sense of privacy must be considered. Frequently there are several children in a class whose reading difficulties necessitate accommodations. Providing accommodations most sensibly and most effectively should become part of the planning discussions routinely held within each school, and not carried out as a spur-of-the-moment and sometimes thoughtless gesture.

Is there a downside to requesting accommodations?

Because of the stigma and he misunderstanding associated with the diagnosis of dyslexia, most adults and children prefer to keep their dyslexia private. Requesting accommodations almost always means exposing a child's or young adult's imperfections publicly. The student who is dyslexic and who relies on accommodations can begin to doubt herself and to question her own need for accommodations. But while t one level these feelings do become etched into a person's sense of herself, at another level most dyslexics are able to develop an appreciation of their own unique qualities.

At the same time it is possible to provide accommodations while maintaining anonymity. A program developed at Yale Law School can serve as a model for other schools. Details can be obtained from the Yale University Resource Office on Disabilities.

The practice of flagging the scores of tests taken with accommodations has been distressing to many students with disabilities. While the purpose of the accommodation is to place those with the disabilities on a par with others taking the test, the asterisk placed next to the score telegraphs to all who see it that the test taker has a disability. The evidence is strong that once an admission committee sees the asterisk, the tendency is "to place that applicant's file on the bottom of the pile." The asterisk identifies the applicant as having exceptionality and his scores as ones the testing organisation cannot validate. A civil rights law group, Disability Rights Advocates (DRA), filed a law suit on behalf of a physically disabled man, Mark Breimhorst. He charged that the Educational Testing Service's (ETS) policy of flagging accommodated test scores with the notion "Scores Obtained Under Special Conditions" violated state (California) and federal antidiscrimination laws,

"stigmatizing disabled students with a kind of scarlet letter." The judge hearing the case ruled that the tests should "equally measure the skills of disabled and non-disabled test takers," and then there would be no need to flag these scores. In a settlement reached between the civil rights group and ETS, the testing organisation agreed to stop flagging the test scores of individuals with physical and learning disabilities who take these tests with accommodations. Initially, the new policy applied to the Graduate Record Exam (GRE), the Graduate Management Admissions Test (GMAT), the test of English as a Foreign Language (TOEFL), and Praxis, a test for teachers. A blue ribbon panel was named to reexamine flagging and make recommendations for the major standardized test, the SAT1. On July 15 2002, the panel released its findings: "The majority position of the panel was to discontinue the practice of flagging the SAT 1 based on scientific, psychometric, and social evidence." I served on the panel and joined in the majority opinion that noted the "compelling" evidence against flagging.

How does the need for accommodations on exams impact the kinds of work the person who is dyslexic will be able to do once he is out of school? Will he be able to "do the job"?

I want to emphasis that most dyslexics can succeed on the job. It is the artificial barrier presented by multiple choice tests that is the problem. Dyslexics generally do not have a problem practicing medicine or law or engineering or writing novels or plays – if they can survive the hurdle of the multiple choice test. These tests tap their weakness and yet at the same time are often the gateway to future opportunity.

Having said this, the person who is dyslexic will be relatively more successful at some occupations than others. Ironically, the jobs which he will have difficulties tend to be entry level ones involving dependence on lower level skills, with very little requirement for higher level thinking abilities. A person who is dyslexic would not enjoy work entirely centred on clerical or filing duties.

In law, the ability to read quickly or to carry out rote, mechanical skills is often confused with the ability to think and reason. Early on, few would have predicted that David Boies, who did not learn to read until third grade, would become the leader of a field that seems to be so dependant on reading. Yet Boies's life experience reinforces the dictum that it is not how fast you read but how well you *think* that counts. Boies's approach to skim through the text until he recognizes what is important; then he slows down, homes in on this material, and carefully reads the critical facts. He has an uncanny ability to grasp exactly what is important; once he has set his sights on the most meaningful target for further analysis, he can concentrate on this much reduced volume of material and carefully analyse it.

Earlier I mentioned dyslexic physicians, including surgeons, who have thrived. What flies in the face of so much that we assume to be related to surgical expertise is that some of the most renowned surgeons failed anatomy in medical school. One of those surgeons told me that anatomy is not related to surgical skill. "It actually has

little to do with the practice of surgery," he told me. "Performance in an anatomy course has more to do with the ability to rotely memorise the names of assorted bodily parts." Most surgeons are in agreement that "surgery has to do with thinking, with knowing what to do and not with knowing the names of particular structures." It is hoped this information will caution medical educators to be more thoughtful in their career counseling; they should not assume that dyslexic medical students who have trouble with anatomy cannot become outstanding surgeons.

Slow reading lawyers, poor spelling writers, and surgeons who failed anatomy at medical school – they all flout conventional wisdom. From these individuals we learn that reading slowly tells nothing about the ability to comprehend, that poor spelling has little to do with one's ability to write creatively, and that an inability to memorise the names of anatomical structures does not portend one's skills in operating on those same bodily parts. Most would have counseled each one of them against pursuing the career of his dreams in which he has found such fulfillment. I hope that educators and parents alike will encourage children who are dyslexic to pursue their dreams.

What is the role of multiple choice standardized tests in assessing people who are dyslexic?

Under scrutiny these ubiquitous and influential tests do not seem to hold up very well. Many of our assumptions concerning the tests and their predictive value turn out to be questionable. The imbalance between their power and their flawed nature are particularly harmful to those who are dyslexic. These tests measure the rapid retrieval of rote facts, which taps directly into the dyslexic's phonologic weakness, while they are mostly unable to measure what may be his strongest assets, namely, his ability to reason, to think abstractly, to see the big picture and to think out of the box. These are the kinds of creative abilities that tend to reflect the dyslexia's sea of strengths, the kinds of cognitive skills in which the dyslexic might score in the 99th percentile – were they measurable by a simple test. And so multiple choice standardized tests represent another kind of paradox for the dyslexic: They telegraph his lower level weaknesses while they obscure and keep hidden his talents.

High school SATs add surprisingly little over and above high school grades as predictors of college performance. Once judge proposed that law schools "relax or even eliminate reliance on the LSAT." As reported in the *Wall Street Journal*, the judge wrote that the test "does not predict success in the legal profession at all…One must wonder why the law school concerns itself at all with an applicant's LSAT score."

The United States medical Licensing Examination is now being criticized, often by those such as Dr. Stephen Smith, associate dean of student affairs at Brown University School of Medicine, and Dr. Graeme Hammond, professor of surgery at Yale University school of Medicine, both of whom have served on the National Board

of Medical Examiners and participated in the test making process. According to Dr. Hammond, “I shudder when I think about how those questions were constructed…I believe that the time has come to get rid of these examinations which test the ability to take multiple choice tests and little more.”

The Future: A Time For Hope

I am optimistic about the future for those with dyslexia. Science, morality, and the law are converging to provide the rationale, the societal good, and the legal grounds to support the provision of accommodations to students who are dyslexic. More and more, learned groups are beginning to question the role of these tests. Most recently, Richard C. Atkinson, president of the University of California, proposed "an *end* to the use of SAT's as a requirement for admission to the sate university system…one of the largest and most prestigious." Atkinson indicated that "he would like to move away from numerical measurements of student aptitude and encourage a more 'holistic' approach to evaluating candidates."

As for higher levels of education, a comprehensive study published in the *Journal of the American Medical Association* (JAMA) suggests that a non-traditional approach to medical school admissions produces physicians whose post-graduate training and career experiences are indistinguishable from those selected through more usual procedures. In this study carried out at the University of California at Davis, the researchers were interested in the consequences on an admissions process in which special consideration was given to a range of factors considered important in choosing future physicians. The goal was to select the "best" applicants but not to be bound by the traditional criteria of grade point averages (GPA) and medical school admissions test (MCAT) scores. Students who scored poorly on standardized tests but who demonstrated other, more difficult to measure qualities were eligible for consideration by the admissions committee. In this study, which extended from 1968 through 1987, approximately 350 students were admitted by special consideration criteria; 67 percent did not meet the minimum standardized test criterion set by the school for admission, while a smaller number of students did not meet the minimum undergraduate GPA.

The admissions committee was able to disregard the results of standardized tests and to select students who went on to successful completion of medical school and residencies. By the time they were residents and in practice, the special group was indistinguishable from their higher scoring classmates.

As a JAMA editorial said:

Applicants who qualified for the special admissions programs because their Medical College Admissions Test (MCAT) scores and GPAs were below the "minimum" established for regular admission had excellent outcomes that were comparable to those admitted in the usual way. The students with higher MCAT scores and GPAs were not significantly more likely to graduate, complete residency successfully, become licensed, attain board certification, or enter the full range of career opportunities (including academic medicine) than were the students admitted under the special admission program. If the highest MCAT scores and GPAs are not predictive of these outcomes, they are not meaningful admissions factors.

The failure of numerical scores to differentiate between who will and who will not become a good doctor substantially increases the work of the admissions committee members; they will clearly need to rely on other, hopefully more valid criteria.

And so there is accumulating evidence – in undergraduate admissions, in graduate school, and now in law and in medical school – that reliance on standardized test scores as reliable predictors of future performance is not fulfilling its promise. Such scores may not select the best students and in fact may be keeping out those students who have the ability not only to successfully graduate but to contribute in unique ways to their profession.

The importance of the more intangible qualities – of getting beyond the facts – is of more than theoretical interest. These are the kinds of qualities that impact our daily lives, that can make the difference between a good scientist, physician, lawyer, artist, or writer – and a great one. It's really all about the difference between relying on an accumulation of facts and thinking on a higher plane. And this is why we must not abandon the future and the selection of the next generation's leaders to how well they can score on mechanical standardized tests. We must take in all the information about a person, the kinds of data that are not subject to easy reduction. Creativity is too large are too far ranging to be fit into the narrow confines of a bubble response to a multiple choice question.