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Democracy must be born anew in each generation, and education is its midwife.

John Dewey

MISSION STATEMENT

Thinking Classroom serves as an international forum of exchange among teachers, teacher educators, and others interested in promoting democratic teaching practices. The publication encourages professional development, research, and reflection. *Thinking Classroom* features articles that foster learner-centered teaching strategies including critical and creative thinking, active and cooperative learning, and problem solving. The journal also publishes articles about the institutional structures that support these practices.

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David J. Klooster and Patricia Bloem

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Reading the Hard Stuff

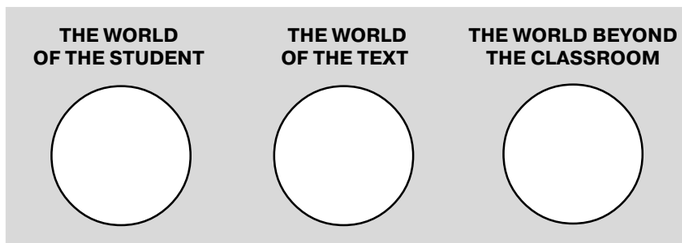
David Klooster and Patricia Bloem, both children of teachers, are married and have three sons. Pat is Associate Professor of English Education at Grand Valley State University in Allendale, Michigan, USA. David is Professor and Chair, Department of English, at Hope College in Holland, Michigan, USA.

We believe in giving our students lots of different kinds of books to read. We want them to love reading, and so we offer high-interest, easy-to-enjoy books to our classes. We want them to acquire a lifetime habit of reading, and so we include brand-new bestsellers as part of our courses, the kinds of books students might pick up in bookstores after they graduate. We want them to know the rich heritage of their culture, and so we include classic texts from previous centuries. We want them to "read around the world," and so we include books from many different cultures. And sometimes we want them to stretch themselves to understand difficult new ideas and complex genres and new vocabularies, so we include texts that we know will be very difficult for them. We suspect that many teachers at every level, from primary school to university, strive for a similar range of reading for their students. In this column, we focus on some strategies for helping students read difficult texts.[1]

"This book is so boring!" "I get to the bottom of the page, and I have no idea what I just read." "What's the point? I'm never going to use this information!" No doubt you've heard versions of these comments. Sometimes it's easy to laugh them off, but when students are complaining about a book that you love, and that you believe is just what they need, their words can be discouraging.

When students encounter the most challenging books, we try to think carefully about the three worlds that come together in their reading. First is the world of the student reader. Every student brings a wealth of experiences, a prior reading life, personal likes and dislikes, ambitions, dreams, and goals. Next is the world of the text—its subject matter, its way of making its point, its language, its author, its history of influence (both the earlier works that affected it, and its artistic or intellectual descendents), its structure, its purpose. Finally, there's the larger world beyond the classroom—the world the student reader hopes to enter, to participate in, to influence, and to change. This last world includes many elements—too many to name here—among them career, politics, neighborhood, environment, relationships, beliefs, and values. Whether our students are in first grade or graduate school, they all have their sights set on the world beyond the classroom; part of why we are asking them to read difficult texts is to prepare them for that world. And it is precisely that larger world that most often gets lost or obscured when students get bogged down in difficult reading.

We can imagine these three worlds with the help of the diagram below:



Teachers who want students to succeed with difficult reading assignments need to think carefully about the influence of each of these three worlds in the classroom.

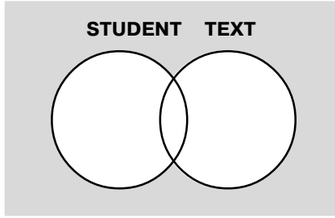
Some readers will hear an echo of Louise Rosenblatt's influential book of literary criticism, *The Reader, the Text, the Poem: The Transactional Theory of the Literary Work* (1994). Rosenblatt's work in reader-response theory has indeed been important to us, especially in our roles as teachers of literature. Yet in this context, we are not primarily concerned about reading literary works, nor ultimately about the individual reader's construction of the meaning of the text. Instead, we are thinking about the ways in which a classroom of readers builds shared understandings of a text, and then uses those understandings to do some kind of work in the world—to interpret, influence, participate in, or change the world beyond the classroom.

It is worth pausing for a moment to consider why certain texts are difficult for students to read. Though it's not a new issue, there are new obstacles today. The Internet has changed the way students do research. Fewer spend long hours in the library, gaining the patience and discipline to read long, dense texts; more and more content themselves with quick Google searches or Wikipedia references and consider it research. They want to read a screen, rather than a chapter or a book. Accessing and interpreting scholarly articles is an increasingly rare assignment for many university students. Especially for contemporary students who have not developed a habit of reading, and who are not immersed in a culture of books, the challenges of difficult text can be overwhelming.

Texts that are difficult to read have at least some of these features: They are 1) long, often with unclear or unfamiliar structures, 2) theoretically sophisticated, 3) syntactically complex, and employ 4) unfamiliar vocabulary. Bartholomae and Petrosky (2008) call works like these "strong texts," and they argue that students need to become "strong readers," able to engage in a process of "pushing and shoving with and against texts." To help our students become strong readers, our teaching strategies will have to account for all of the complexities contained in challenging texts.

Anticipation and motivation

As classroom teachers, our first job is try find ways to bring together the world of the student reader and the world of the text:



Teachers can make use of many active learning strategies to help students access their prior knowledge and prepare for encountering the new text. We can use an anticipation guide: Prior to reading, students are given a series of provocative questions that will be answered in the text, and asked to provide answers based on what they already know or think they know. They then read the text with an eye toward confirming their predictions. We can frame a dilemma or paradox, and ask students to write about it or speak about it in a small group or with the whole class. We can provide an example of the problem the difficult text will explore—perhaps from a film, or from a previous reading in the class, or from an event in the news—and try to help students to see that the problem is a compelling and significant one. In all of these pre-reading strategies, the teacher aims to arouse curiosity for what is to come, and to build on what students already know.

Reading teachers know how important student motivation is in this process. Let's think for just a moment about one of the reading miracles of our times: Young readers of almost every level of ability have been choosing to read difficult, lengthy novels on their own, simply because they *want to*. We refer, of course to the Harry Potter series. The books contain difficult names and challenging vocabulary, complex plots, intricate mythology. And they are *long*! Could we have imagined middle school readers tackling 700-page novels on their summer holidays before the Harry Potter phenomenon? What can we learn from the Harry Potter experience about motivating students for difficult reading? We suggest at least this short list:

- **Choice**. Students tackle hard books when they feel that they are reading them by choice.
- **Peers**. When students see classmates and friends enjoying a hard book, they are more likely to join in.
- **Identity**. When students identify as readers—as competent, self-directed, and willing—they are more likely to dive into a long, demanding book.

Researchers confirm that student motivation is a key factor in successful reading. Gambrell,

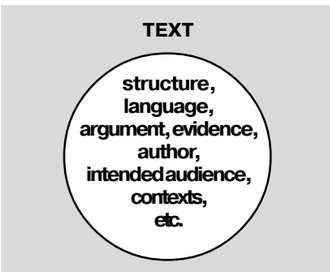
[1] We recognize, of course, the incredible privilege we have in terms of access to books in our culture, and in the freedom we have as college instructors to select books for our courses with very few limits. Yet it seems that nearly everywhere, teachers have more access to books than they did even a few years ago. Part of the credit goes to the oft-maligned "globalization," which has diminished the problems of cross-cultural access that previously blocked access to books for so many, and part of the credit goes to the Internet, which gives students everywhere access to reading materials that we could only have dreamed of in earlier years.

© Carolina Kozina, photo

Palmer, Coddling, and Mazzoni (1996) suggest that students' self-concepts, and the value students themselves place on reading, are key to their success. In another study, Linda Gambrell (1996) discusses a number of factors that motivate young readers in primary school classrooms. These include a teacher who models good reading through enthusiasm and guidance, a classroom rich with books, opportunities for students to make choices about what to read, a familiarity with books developed over time, opportunities to discuss books with other students and with people beyond the classroom, and an incentive and reward system in the classroom that demonstrates the value of reading. Teachers at every level can look for similar ways to motivate their students to *want* to read, and to want to read *well*.

Analysis and engagement

In the next phase of the lesson, we need to help students enter fully and skillfully into the world of the text itself.



Part of this work needs to be done in the classroom, with the more experienced teacher guiding the less experienced students into the complex world of the text. The skills students have gained in easier reading assignments are the necessary beginning point, but in most cases these existing skills are not adequate to the task at hand—that's what makes the reading difficult for students! If we approach the situation with the attitude that our students know a great deal but that they don't yet have the skills they need to succeed in the present task, we are likely to set the right tone for the next phase of their growth. Without this awareness, too often students' frustrations with the difficulty of the task quickly become our own frustrations ("They didn"t get it! They didn't try hard enough. I guess they aren't very good students after all."). Remembering that without appropriate scaffolding of instruction, the task may be beyond them—that, in fact, we made the assignment precisely *because* the task is beyond many of them—helps us to maintain a productive attitude.

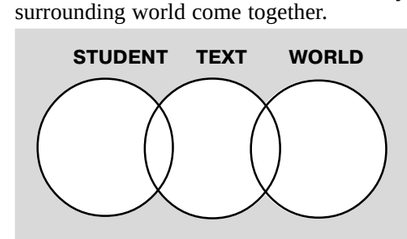
We can help students in the classroom in a number of ways. Sometimes teachers narrate their own approach to, and encounter with, the text. Peter Elbow (1986) calls this strategy "Movies of the Mind," an attempt to describe exactly what is going on in the mind as it works on the text. Teachers might draw attention to way the text is structured (the presentation of the central idea, the outline of the supporting elements, the kinds of evidence the author provides, the ways the knowledge is applied in the conclusion, or the calls for further research or the claims of significance). Teachers can help students with difficult new jargon or unusual uses of familiar words, and thereby encourage the close attention to language that may be needed. Often, students have difficulty understanding the disciplinary ways of thinking represented in the text. Difficult reading often presents itself when a professional is writing for fellow professionals, and thus students need to learn how historians talk to each other, or how philosophers converse in the company of fellow philosophers, or the ways scientists communicate their findings to fellow professionals. Unpacking the conventions of this disciplinary way of thinking can be the teacher's most important work towards building students' sophisticated reading skills. .

But the teacher must also equip students for successful independent reading of the text, and here again some active learning strategies have proven effective. A brief lesson on annotating the text—demonstrating, for example, four ways to mark up a text (highlighting or underlining selectively, sign-posting main ideas and structural divisions, posing questions, and speaking back to the author)—can help students to be productively active and engaged as they read. The Double-Entry Notebook (Berthoff, 1987), in which student readers divide a notebook page down the middle and write notes and quotes directly from the text on the left side, and their own comments about the text on the right side, is an excellent strategy. The Reading Journal, a more informal response tool, is also highly effective when students record their emerging understandings in the midst of, and at the conclusion of, their independent reading. Toby Fulwiler (1987) describes the journal as occupying a middle ground between the purely subjective personal diary and the purely objective course notebook. These and other methods help students remain engaged as they read, and prevent them from reaching the bottom of the page with the feeling that they have no understanding of what they just read.

The work of understanding a difficult text needs to continue once students return to the classroom after having read and worked on the text on their own. Small groups might gather to compare their Dual Entry Diaries, and formulate questions they want to pose to their classmates. Reciprocal Teaching groups might form, with students taking turns summarizing, questioning, and responding to the text. The teacher might ask students to review their Reading Journal entries and to begin a full group discussion with the elements of the text the students themselves found most interesting or provocative. The teacher will want to work toward two goals in this phase of the teaching: first, to ensure that all of the students have come to a solid basic understanding of the text, by eliminating confusion, clarifying difficult passages, and highlighting main ideas; and second, to focus on the enduring challenges and philosophical complexities of the text. The goal is not to make the difficulties disappear, but rather to concentrate on what makes the hard parts hard. This second goal, then, is to ensure that by the end of the in-class discussion of the text, students have identified the main questions and ethical dilemmas the text raises, and the issues that merit further inquiry and application.

Reflection and application

The final phase of our work with students, when we assign them difficult texts, is to ask them to inquire, through writing or through discussion, how their own world, the world of the text, and the surrounding world come together.



Effective writing or discussion assignments in this phase of the process will ask students to do several things. First, as always in the reflection or consolidation phase of a lesson, there is huge value in asking students to put their new understanding into their own words. Restating, summarizing, and paraphrasing what they learned from the reading serves the vital purpose of associating words with new knowledge. The more students are able to say in their own words what they have come to understand, the more they make the knowledge their own, and the more we, as teachers, are able to determine whether they truly understand what they have read.

Second, an effective writing or discussion assignment at the end of a reading task may ask students to put the text they have just read into dialogue with other texts. We want students to see how ideas develop over time, how one writer builds on the work of previous writers, and how one text can contradict or refute another. Good teachers will ask students to work with a cluster of texts, and to inquire about how the ideas in those texts connect and interact with one another.

Third, an effective writing or discussion assignment will ask students to take a stand on the ideas of the text they have read, and to inquire about how the ideas can be applied in the world, about how the text illuminates contemporary issues, in their own lives or in the world around them. Assignments might ask students to use the ideas from the reading to solve problems, to interpret a case study, or to guide the decision-making of contemporary people. We might ask students to take the role of the writer of the text they have just read, and enter into debate with other students playing the roles of other writers, politicians, doctors, or philosophers in a panel discussion. We might ask students to write a position paper, stating their own informed view of the dilemma or paradox the reading addresses.

All of these approaches help students read difficult texts by acknowledging the three worlds that come together in the classroom—the world of the student readers, the world of the text, and the world in which we all hope to participate beyond the classroom. Rather than allowing students to ignore or avoid the difficult text, these approaches encourage an engaged, active, complex reading of the text, guided by the understandings of the more experienced teacher-reader. They encourage student readers to apply the knowledge they gain from reading to address the problems they face in the world beyond the classroom. We believe the three-phase model we have described here—activities *before* the reading to motivate careful attention, specific active learning strategies *during* the reading itself, and *follow-up* activities to encourage reflection and application—can help students tackle difficult texts with greater success. The reading will still be difficult, but the outcomes are more likely to be successful.

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What role does computer play in your or your children's life and learning?

Michael Roninson, age 14, 9th grader in Shaker High School, Latham, NY, USA

Computer is pretty much my whole life. The majority of my social life is online, where I talk to friends and share pictures and videos. Most of my entertainment comes from videos online. I also use the computer to research and write for school. Often, I would watch television with a laptop on my lap and multitask: check emails, chat, etc. I also display my music, and learn of new music through the Internet.

Margarita Sarkisyan, age 21, student of Sevastopol National Technical University, Ukraine

The computer occupies a bigger and bigger part of my life (at least a third already). For me, the computer is a printing press, a photo studio, a stereo system, and a movie theatre, all at the same time. I can print out a completed assignment or an interesting picture or photo, create my own playlist, or watch a favorite cartoon in the evening. Thanks to the Internet I have nearly unlimited access to the films and the books I've always wanted to watch and to read. If I can't find a reference, I always have my friends, and my friends' friends, willing to help, so someone will manage to uncover the necessary URL. In general the Internet has become almost our principal means of communication, leaving behind even the cell phone (due in no small measure to economic reasons). Interestingly, online communication and real world communication follow different patterns: Both the language and the topics of discussion are different. I've noticed that for many of us, our reactions and responses on the net differ from those in real life; here we feel free to express our thoughts and emotions more easily (smileys and icons of all sorts are sometimes very helpful). On the other hand, when I'm online I sometimes catch myself talking in a language not quite my own. I don't think it's anything to worry about though.

Needless to say, such communication is addictive. On your way home you are already thinking about chatting on ICQ, exchanging reviews on Proza.ru (a Russian server where anyone can post prose works, and write or receive reviews), or reading messages left by old friends—and potential new friends—on your *wall* in Vkontakte.ru (the Russian analogue of Facebook). You can discuss the latest news in your town (or university, or neighborhood), share the joys of your successes or complain about your failures, ask for advice. It should be said that people very rarely just offer advice offhand; more often they really empathize and sincerely try to help. The Internet offers something for everyone, and for every occasion. If you need material for a report or resources for research—welcome to online encyclopedias. Want to cook something extraordinary or try a traditional recipe? A thematic Web portal can lead you there. Simply need to kill time (although with me that's *extre-e-emely* rare)? Visit news blogs or online gaming sites. All in all, I can't function without the computer. In a way, this dependency makes life more complicated, but, on the other hand, the very style and pace of my life dictate that the computer must play a major role.

Beverly Michaels, Head of Circulation Services, Tredyffrin Public Library, Strafford, PA, USA

I purchased my first (very primitive) home computer in 1986, so my children (ages 18, 22, and 28) have grown up with easy access to this technology. However, according to their different personalities, they have used the computer in rather different ways.

My son has always been interested in designing and constructing things, and understanding the technology behind them. At age 11 he taught himself HTML and designed a website devoted to his pet hamster. At age 13 he built a computer from scratch. In high school, he purchased sophisticated software for 3D design and for composing music. Now I can see that all these activities set the stage for his college study of music composition and recording technology.

For my two daughters, it is the Internet, rather than the computer itself, that dominates their activities. They are both introverts who find face-to-face social situations stressful, so they actually prefer online conversations, where their writing skills take precedence. Social networking sites make it easy for them to communicate—and form friendships—with people around the world who share their interests. And though I tease them about having more "virtual" friends than "real" friends, there is no question that their online friends are real friends. Last summer, during a visit to Toronto, my then-17-year-old finally "met" Samantha, who has been her online friend since they were 11 (they originally met on a message board for fans of author Lemony Snicket). Their meeting was clearly a reunion of two girls who had been friends for six years.

Naturally it is important to keep computer use in perspective, and to balance computer time with time spent in other activities—physical, mental, and social. But the computer can help children (and adults) develop areas of talent, and compensate for areas of weakness, when we use this technology creatively and constructively.

Maria Bogomolova, mother of a 6th Grader, Moscow, Russia

A week ago we decided to restrict access to the Internet by password. This was preceded by a whole series of events and considerations.

It's 7 o'clock in the morning. My alarm clock is buzzing. I wake up to find my daughter, a 6th grade student, browsing the Internet. Vkontakte.ru—again!

"Hey, wash your face and brush your teeth. Hey, your breakfast is ready." No response. She is surfing the net... Back from school, she throws off her schoolbag and logs in.

"How's life?

"OK."

She is browsing *vkontakte.ru* again.

"Who are you chatting with?"

"My classmates."

"You could have discussed everything at school, couldn't you?"

She murmurs something unintelligible for an answer.

I call my friend, whose son is a university student.

"When will it cease? When will they be fed up with this Internet?"

"Never," my friend says. The prospect distresses me.

One day my husband chanced upon the site our daughter surfs. This unwitting contact with the teenager communication world made our hair curl. The child who makes practically no spelling mistakes at school is writing online in some horrid newspeak, warping her spelling on purpose. The content of the writing accords with the form: "Wazzup dude? Check out my userpic 8)."

The psychologists' recommendations do not help a bit. "Your child lacks real life communication skills" doesn't explain anything. For holidays my daughter's classmates never stay at home, they visit different countries, cities and towns. I ask her: "Where have your friends been?"—"We never talk about it."—"What do you talk about?" No response.

The assignment for Russian Literature class is to prepare a biographical report on a great poet. We have shelves full of literature textbooks, as well as complete works by the author and reference biographies. But our daughter connects to the Internet, picks up the longest article, prints it out—and her report is ready. No reviewing, no reorganizing, nothing!

As a representative of the "old school", I resent and get edgy with the situation. The great possibilities offered by the Internet are used in a barbaric manner. The computer science course obviously doesn't help much.

You might say, "Come on, use your powers of persuasion,"—and I do so, hoping for a long-term effect. But so far, I can see none.

I don't want to prohibit Web communication completely, and I don't want to draw my daughter back into the world of library card catalogs (although sometimes I feel nostalgic for that time—but this is quite another story…)

Our family council verdict is to limit Internet access. Business first (homework, reading), and then the Web. I realize of course that such restrictions are not the best solution. Access and abundance *are* better than rations and regulations. Parents and schools share the responsibility of fostering a striving for knowledge and, broadly speaking, an interest in life. The possibilities of new technologies in general, and of the Internet in particular, should be a major tool for achieving this purpose. However, if someone knows how to use this tool effectively, please share your experience.

No doubt, the "Internet: Pros and Cons" discussion is just one perspective of the broader topic of "Our Children in the Modern World." We parents want them to become familiar with our culture and background, read the books we read, and enjoy the music we enjoyed at their age. They prefer to choose their own way. But there must be a meeting of the minds somewhere – and we should find it, or we risk losing continuity across generations, and communication with our children.

Photos from the authors' archives

Pros and Cons

Artyom Patrikeyev

The Effects of Computer Use on Children's Physical Development

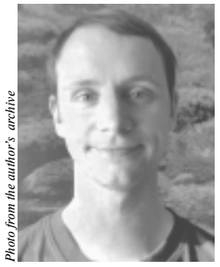

Photo from the author's archive

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Technology has brought many changes to our lives, and we now often see four- and five-year-old children using computers. It's difficult to say whether this is good or bad, since this phenomenon is so new that there has not been sufficient time for the necessary longitudinal studies. Research has yet to determine the precise effects of the computer on the mental, psychological, emotional, and physical development of the child.

With regard to how computer use affects the physical development of children, we are concerned primarily with damage to their eyesight, and the fact that sitting in one position for a long time contributes to the development of scoliosis and poor muscle tone. Yet there are other negative aspects that are not immediately obvious. One of these is damage to coordination, a lack of harmony in muscle movement, which hampers the ability to perform physical tasks. Actually, it is often difficult to determine the exact cause of motor disturbances in children, as they may be connected with various other factors, such as age-related changes and low fitness levels. Nevertheless, it is absolutely necessary that we examine and research the effects of computer use on children's physical development, including motor coordination, and here I would like to share my own observations and analysis.

During the preschool and elementary school years, children develop fundamental motor coordination, as well as a tremendous number of specific motor skills and patterns. This development serves as their kinetic base for the rest of their lives, and in fact, an opportunity missed in this period cannot be regained later. Children acquire basic motor skills by the age of 10, and all the other, more complex movements they learn later are merely a combination of the previous skills and patterns.

From eight years of observation, I have found that the effect of computer use is most obvious between the ages of 4 and 7. As a doctoral student and kindergarten teacher, I conducted longitudinal research on the formation of basic motor skills in children. In addition, for the past seven years I have worked in an elementary school as a massage therapist and physical education instructor, so I have had the opportunity to observe children's development beginning in kindergarten (ages 4–6) and continuing throughout the elementary years (ages 7–11). I have learned directly from my students what games they play at home, what other activities they engage in, and what they are interested in, and I have noticed a clear difference between the children who play computer games and those who do not. The difference is especially conspicuous around the ages of 5 or 6. In some children problems with motor coordination are obvious without any special testing. The symptoms are as follows: The child has difficulty judging distances; he or she bumps into things, including other children, and often stumbles and falls. For example, such a child may fail to notice a classmate two feet away and run right into that child. I have also observed such children experiencing difficulty with more complex movements, and with tasks requiring spatial awareness and muscle coordination, such as throwing and catching. At the same time, such children have well-developed fine motor skills. For example, they are good at making plasticine figurines or building with Legos.

Manual dexterity is believed to be closely associated with speech (Koltsova & Ruzina, 2002). The better a child's fine motor skills, the more proficient the speech skills. However, the development of general motor coordination (the ability to control the workings of various groups of body muscles) has a profound effect on the organism as a whole, and can't help influencing speech as well. The implication is that a disturbance in the development of motor coordination can also lead to disturbance in the development of speech. Therefore the computer may be exerting both positive and negative effects on a child's physical development and on the development of speech. It is difficult to calculate the overall impact of these opposing factors.

As for the child's mental and emotional development, the effects of time spent on the computer are no less contradictory. On the one hand, video games can enhance intellectual development, providing both knowledge and entertainment. By playing strategy games, a child can learn about battles and troop transfers, about the construction of buildings and settlements, etc. In social interaction with other children, a computer-literate child can access this knowledge, applying ideas and actions that are not available to his or her non-computer-literate peers—I have witnessed this phenomenon more than once with my students. However, the computer "kills" imagination. Colorful and concrete images of characters and situations from the game are so vividly imprinted in the child's mind that he or she doesn't feel the need to invent anything. In imaginary play, the child uses toys to represent video game characters, with their preprogrammed characteristics. For instance, blocks turn into soldiers, and benign doggies, kitties, and teddy bears become evil monsters. Why resort to fantasy and imagination when the computer game has provided a complete scenario? The connection between an object from real life (say, a toy soldier or a doll) and its image in the child's mind is lost. The physical world exerts less influence on the development of the child's mentality and motor skills. What are the long-term physical and psychological consequences of this substitution of the computer image for the physical object? Readymade pictures—bright and detailed, but cliched—substitute for the mental images that the child would otherwise form through his or her own creative activity. The child has less incentive to develop his or her own creative skills, which could have adverse effects on individual creative potential. For example, children who play video games at the age of 4 or 5 are often unable to perform a simple narrative task in speech training class, such as making up a story after looking at a picture or imagining an event to match the emotions suggested by differently colored sheets of paper. Perhaps in the future we will be able to determine early on where a child's strengths lie—in creative work or in manipulations with readymade objects. In that case, some children could be given computers, while others could be offered toys and games to enhance their creative skills. But as far as I know, this possibility does not yet exist. So in the meantime, we had better give our children a chance to choose (within reason) for themselves what they want. However, parents should keep in mind that video games are a tremendous temptation, which could divert their child from developing his or her inherent abilities, and ultimately hamper self-realization.

So, what is the mechanism that leads to a lack of physical coordination in children who spend long periods of time playing video games?

When you use the computer or play a video game, your attention is focused on the narrow area of the screen—peripheral vision is practically never involved in the process. So peripheral vision, and the corresponding awareness of the surrounding environment, is not developed, and the child ceases to make use of it. In essence, the external environment no longer exists, so the child has difficulty switching perception to the three-dimensional real world, and does not "see the field" well, as football players put it. The child cannot judge distances properly, and reacts slowly to changes in the environment. As a result, the child has poor

Photo from the author's archive

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coordination and lacks the ability to avoid accidents—a snowball flying toward his head, a looming sharp corner, a running playmate, etc. It is quite within reason to suggest that using the computer constrains the development of gross motor coordination and concentration abilities. To be more exact, it is not that overall concentration deteriorates, but rather that the focus of attention narrows. Like a horse with blinders, the child may notice some very minor detail that other people wouldn't see at all, if this detail comes within the narrow focus of his perception, but his gross observation abilities are reduced. This narrowed focus is combined with extremely vivid and lasting impressions from the video game. The child should be doing homework, but keeps going through plans for attack and defense; characters and scenes from the game monopolize the child's vision. Naturally, with all this going on, it's hard to concentrate on doing math or writing exercises.

The narrowed focus of attention, and the lack of coordination between the perceptual and motor systems, may be connected with difficulty in switching off the distinct sensory perspective used in playing a video game. During the game, the senses of sight, sound, and even touch adapt to the computer model of space and time, which is often far from reality. The player learns to notice—to see and even hear (with stereo sound)—the events taking place on various parts of the screen and beyond (but outside the real space of the room where the child is playing). When the computer is turned off, it is hard for anyone—child or adult—to adapt quickly to perception of the real world, to accurately assess simple actions. The person's sensory perspective continues to function within the two-dimensional frame of the screen, while the person is required to move in the reality of three-dimensional space. In real life you don't need to "switch" from one reality to the other, and physical movements do not require any special effort. Here is a simple example: You are walking along the road and a car comes toward you; your ears hear it, your eyes locate it, your brain assesses the situation, judging the distance and speed of the car—and your muscles are already reacting to it; you jump to the side of the road to avoid the car. An onlooker would see it as a simple jump or step to the side. A sensory perspective tuned to three-dimensional space is absolutely necessary in everyday life—without it we couldn't even walk, because any hole or bump in the road could cause a fall and severe injury.

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In the real world, all of our sensors are switched on, consciously or not. They are certainly functioning when we play a video game too, but with a much narrower focus. Between the ages of 1 and 7, children study the world, learning to act in it independently. They need to touch, grasp, smell, taste, hear, and look at everything, so that the impressions of one sense are confirmed by the other senses, forming the ability to perceive three-dimensional space as a whole. When playing a video game, the child is only pushing the keys and moving the mouse, and the movement of the objects on the screen has nothing in common with the actual movements of the child's hands and fingers. In real life the ability to vary your effort is important to achieving the desired result, but in a video game it doesn't matter how hard you press the keys. Since you don't have to vary your touch on the keyboard, and your mind is filled with bright images from the game, you get the impression that it's not important to accurately control the force of your motions, which in turn may have a disastrous effect on the development of muscle coordination.

I'd like to touch once more upon the emotional component of playing video games, which is unquestionably linked to physical development. At the height of a video game the emotional tension is so high that it can block impressions of real life. The child is willing to give up anything for twenty minutes of playing a video game. Everything not directly associated with the process seems insignificant, which means that the child may lose the incentive to master other vital skills. Success in the game does not depend on being able to run quickly, to climb well, to throw accurately, etc. All you have to do is grab a mouse or a joystick, and astounding tricks and incredible feats are at your fingertips.

Sometimes a child even develops an active dislike for physical exercise, and this can be regarded as a symptom of computer addiction. I have witnessed this effect of video games during my physical education classes. Usually my students drop their toys when recess is over and run to the gym with joy (phys ed is their favorite class!). However, when I tried allowing students who were excused from physical activities because of illness or injury (but who were still required to attend class) to use portable entertainment systems (GameBoy, PSP, etc.) during class, the number of ailing students increased dramatically. Other students suddenly developed pain in their legs or a bad cold. When I stopped allowing the excused students to use portable entertainment gadgets, the number of ailing students quickly returned to the norm. In contrast, I did not observe any increase in "disease incidence" when I allowed the excused students to play with ordinary toys (cars, dolls, or the like).

What is the link between computer games and this aversion to physical exercise? In some instances, realizing that it is impossible to achieve the levels of perfection demonstrated by a computer character, a child may regard physical education classes and exercise as useless (why even try if you can't achieve the same mastery?). In other cases, the child responds to any time taken away from his beloved computer games as a personal affront, and if the alternative is physical exercise, then transfer of the negative attitude to this "non-computer" occupation is practically guaranteed.

I have to note though, that for computer-obsessed kids an invitation to read a book holds no attraction, either. Of course you must be able to read to play most computer games, but the games demand only very specific reading skills. The textual information is supplementary. Having acquired elementary keyboard skills and learned the patterns of the game, players begin to disregard the information in the accompanying text. They quickly scroll through large texts without reading them, going back to them later only if they get stuck. This option, combined with the bright, concrete images of the game, teaches kids that textual information is not essential. As a result—and I have witnessed this more than once— such children lose interest in reading books, unless they have bright, eye-catching pictures (as in comic books). I believe that this phenomenon could even undermine the efforts of teachers and parents to teach reading during the crucial period when the child is developing the basic skills of fluent reading and the strategies for deep comprehension of written text. This is especially likely when a child spends a lot of time alone, and the general atmosphere in the family does not promote respect for reading as a resource and a means of obtaining information.

Of course in the area of reading each child is an individual case, and there is no point in drawing universal conclusions and offering blanket recommendations. Yet, in light of the observations above, we should be very careful in planning our children's access to computers and video games. This access should be kept within reasonable limits (as suggested below), and it should not interfere with other activities and experiences that enhance the child's development.

Don't take me for a hard line opponent of computer games. I played a lot in the past, and I still enjoy playing video games when I have free time, so I speak from firsthand experience. My own experience as a video game fan and as a physical education instructor suggests that children should not start playing video games *before the age of 10*. And generally speaking, the later the better. During the period when the motor abilities, coordination

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skills, and patterns that will be used throughout a person's entire life are being formed, a child is far better served by playing sports or outdoor games, in order to develop the growing body. And after about the age of 9 there is a period of significant and complex transformations, with rapid growth and restructuring of the system. This period starts prior to sexual maturation (9–11 years) and ends when a person is sexually mature (around the age of 16–17). During this time it is not advisable for young people to be sitting in front of the computer screen. Rather, they need to be active and moving, playing soccer, volleyball, hockey, or any game that requires a variety of movements. Rapid growth and bodily changes at this age lead to decreased coordination (teenage clumsiness). Teenagers should move as much as they can from the beginning to the end of this transformation period, to maintain good control over their changing bodies. If they neglect physical exercise or limit themselves to just walking to school and back, crucial motor abilities and motor coordination skills may be lost, and it will take incredible efforts to regain them later. Minimizing the time teenagers spend at the computer can help to avoid this loss of physical skills. Once the period of sexual maturation and bodily changes is complete, once the basic body control skills have been formed, then time spent in front of the computer poses less risk—although some daily physical exercise is of course desirable.

If it is not possible for students to give up computer use entirely (e.g. their parents are champions of teaching computer literacy from early childhood), they need to be engaged in a full range of physical exercises. Here are some examples:

- Throwing and catching balls of various sizes in different ways and at various distances (from 3–5 to 30–35 feet) (to develop hand–eye coordination and the ability to follow a moving object).
- Kicking a ball and stopping it with your feet (motor coordination, foot–eye coordination, gross motor coordination, dexterity).
- Hitting a ball with your hands (hand–eye coordination, following a moving object, coordinating movement of arms and legs). Vary by trying to balance a lightweight ball on a stick. Exercises involving a tennis ball and tennis racket are also useful.
- Dribbling a ball (hand–eye coordination, arm–leg coordination). Bounce the ball with one hand, then the other. Gradually increase the difficulty: First dribble the ball standing still, then while walking or running.
- Test of reaction time—this is both a test and an exercise (hand–eye coordination, faster reaction rate). The following exercise helps improve reaction time, which is the time needed to respond to a visual signal. Sit on a chair with one arm outstretched in front of you, while another person holds a yardstick/meter stick vertically above your outstretched hand so that its lower end is between your thumb and forefinger. The greater the distance between the thumb and forefinger, the more difficult it is to catch the ruler, so 5–6 year-olds should be allowed to almost touch the ruler, while older children should hold their fingers wider, leaving a quarter of an inch on each side of the ruler. When you say, "Ready!" the person holding the ruler has five seconds to let it drop. Your task is to catch the falling yardstick/meter stick with your thumb and forefinger as quickly as you can, and note where your fingers are on the scale. If they are 1–4 inches from the bottom end of the ruler, your results are excellent, 4–10 inches is good, and 10–16 inches is, to be charitable, not too bad. Age or height are not relevant, because from the age of 5, a person is capable of catching a falling yardstick with thumb and fingers, so anyone with adequate reaction skills and motor coordination can perform this task. Repeat the exercise until you can achieve a result of no more than 10 inches with both your left and right hands. This exercise develops skills that are immensely important for all kinds of sports, and are equally useful in everyday life.
- Dribbling a soccer ball (foot–eye coordination, gross motor coordination, dexterity, speed).
- Hiking through a forest or on difficult terrain (gross motor coordination, balance, dexterity).
- Jumping rope (gross motor coordination, balance, speed). This wonderful exercise is ideal for the development of many motor skills. Start with ordinary jumps, turning the rope forward. When this skill is mastered, make the exercise more difficult: jump higher (children aged 9–10 can jump higher than 1 foot); jump on one foot; turn the rope backwards. A good test is to jump for one minute without stopping (turning the rope both forward and backward).
- Stand on one foot with your eyes closed for at least 10 seconds (you should be able to stand on both your right and your left foot). Ten seconds is the minimum you should try for; challenge yourself to stand for more than 50 seconds.

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Ideally physical exercise should take the form of games; no strict rules are needed. If the child cannot do something, don't press for immediate improvement. It's better to switch to something else, then return to the exercise later. Vary the exercises to avoid boredom. Performance goals (the number of repetitions or balls caught, distance, etc.) are determined based on the fitness of the individual child or group of children; they are not strictly linked to age or height. Children should not be made to feel inadequate if they cannot perform an exercise on the first try.

If the child can perform all of these exercises successfully, you may reasonably increase the time the child spends at the computer to 20–40 minutes a day (to be more precise, 20–25 minutes a day for 5–6 year-olds, 30–35 for 7–8 year-olds, and 40 minutes for 9–11 year-olds).

Of course, in this day and age, everyone needs to know how to use a computer, for computers are key tools in the work environment. It is highly probable that some day even janitors will be using keyboards (operating robotic cleaners, for instance). However, modern computers are not so complicated that children need to start studying them at the age of 4.

As parents, we need to resist the temptation to have computer games "babysit" our children so we can relax. This approach undermines the future development of the child. It is always easier to prevent damage than to correct it.

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Media Education Is an Integral Part of the Development of Critical Thinking

Interview with Alexander Fedorov, President of the Russian Association for Film & Media Education

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Two years have passed since our editors Natalia Kaloshina and Alison Preece last interviewed Professor ***Alexander Fedorov****, President of the Russian Association for Film and Media Education (http://www.edu.of.ru/mediaeducation), Editor-in-chief of the journal* Mediaobrazovanie *(Media Education, http://www.ifap.ru/projects/mediamag.htm), consultant to the Interregional affiliate of UNESCO's "Information for All" Program (http://www.ifap.ru), and Pro-Rector for Science of Taganrog State Pedagogical Institute. What is going on in media education today?*

N.K. *Our first question, naturally, is what has changed in the world of media education since our previous interview?*

A.F. In the past two years, interest in media education has grown considerably throughout the world. Media education has been widely discussed under the auspices of UNESCO (the UNESCO Media Education Conference in Paris, France, June 2007) and the Council of Europe (a European workshop on media literacy in Graz, Austria, December, 2007); and for the first time in history, at the level of the United Nations (the media literacy section at the World Forum "Alliance of Civilizations" in Madrid, Spain, January 2008). The Madrid Forum led to the creation of the Media Literacy Education Clearinghouse (http://www.aocmedialiteracy.org), a UN-sponsored multi-language Web portal on media literacy education, which began operating in the first quarter of 2008. This site provides free access to an extensive collection of papers by media educators and media researchers in English, Spanish, Arabic, French, German, Russian, and other languages of the world. I was able to attend all these international forums …

N.K. *And not only to attend, but also to be among the presenters?*

A.F. Quite right… and this experience convinced me that support for media education and media literacy in the world is steadily growing. Media education is undergoing intensive development in Canada, Australia, Great Britain, France, Germany, and Scandinavia. The Mediterranean countries are implementing an educational program called Mentor, which emphasizes the issues and challenges of media literacy: New handbooks and curricula have been created, and scientific conferences have been organized. And alongside these traditionally active players in the field of media education, new ones are appearing. I would note in particular the initiatives by Hungarian and Ukrainian educators and researchers. In Hungary (http://www.c3.hu/%7Emediaokt/angol.htm) media education is being actively introduced in secondary and high schools, based on recently developed curricula. In addition to new courses on media culture, elements of media education are being integrated into the traditional school subjects. Similar attempts are being made in Latin America (Brazil, Argentina and Chile). In New Zealand, media culture has become a legitimate school subject, on a par with language or history. In Ukraine (Lviv), the newly established Center of Media Ecology organizes conferences and publishes a journal. In Russia, too, new media education associations and centers, as well as new websites (for example, http://www.mediagram.ru, http://edu.of.medialibrary), have appeared in the last two years, and seminars and workshops are held on a regular basis. In 2007 and 2008, the first classes of Russian specialists in Media Education graduated from the Taganrog State Pedagogical Institute. By the way, the Rector of the Institute, Professor Vitaly Popov, recently signed a contract with the UN program "Alliance of Civilizations" to participate in creating the Russian section of the online Media Literacy Education Clearinghouse. All over the world—not only in Russia—more and more researchers are engaging with the problems of media education, and the number of monographs, textbooks, and articles published on the subject is growing every year.

A.P. *Did these international forums discuss the further development of media education?*

A.F. Of course; actually, these issues were the focus of attention at these forums. For example, the Paris UNESCO Media Education Conference in June 2007 adopted the *Paris Agenda* (http://www.ifap.ru/pr/2007/070625ba.pdf), including recommendations for media education in four main areas:

1. Development of comprehensive media education programs at all education levels:
   - to adopt a broad definition of media education
   - to establish links among issues of media education, cultural diversity, and respect for human rights
   - to define basic skills and evaluation systems
2. Teacher training and increased awareness of issues of media literacy at all levels:
   - to integrate media education into teacher training
   - to develop effective teaching methods
   - to mobilize all the stakeholders, in the education system and society as a whole (including the family, social institutions, and professional organizations)
   - to make media education an integral part of lifelong learning
3. Conduct and dissemination of research:
   - to develop media education and research in higher education
   - to create regional, national, and international networks for information exchange
4. International cooperation in actions:
   - to organize and to make visible international exchanges
   - to raise awareness among political decision-makers.

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I think that these recommendations are relevant for any country in the world today—including Russia, of course.

N.K. *What practical results, if any, do you see from these forums?*

A.F. The fact that these discussions have taken place in the Council of Europe, UNESCO, and at the United Nations means that the relevance of media education in the modern world is recognized at the highest level. But more importantly, it means that these influential organizations and their partners are prepared to allocate funds for the development of media education projects. Further, it means that a long-term, coordinated, purposeful policy is taking shape in Europe and in other parts of the world, aimed at increasing media competence among both young people and adults. Media education Web

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portals are being created at national, regional, and global levels. UNESCO and the Council of Europe are publishing handbooks and programs on media education intended to be of practical value to teachers. All of this creates new opportunities for integration of media education into the learning process in schools and universities. For example, we've already begun organizing the Russian materials for the Media Literacy Education Clearinghouse, and starting in September 2008 we will be using these materials in our work with university students.

N.K. *Dr. Fedorov, two years ago you said: "I have no doubt that all universities... need media literacy courses, and media education must become part and parcel of the curriculum…" So, what about today, are things moving in this direction?*

A.F. It would be an exaggeration to say that during the last two years every school and university in the world has started offering courses on media education, media literacy, or media culture. However, I can certainly see some changes, and they are significant. For example, Faith Rogow, founder and President of the Alliance for a Media Literate America (http://www.amlainfo.org), reports that membership in this US organization of educators has grown fivefold over the last five years. Elements of media education have been incorporated in the U.S. high school educational standards, and, as I have already noted, media education has become a standard part of the school curriculum in Canada and Australia, and also in New Zealand and Hungary.

Coming back to Russia, apart from the numerous media-focused universities and departments (including those specializing in journalism, film, TV, video, and advertising), media literacy courses are now offered by at least 12 generalist universities (as compared to only four or five three years ago), in the cities of Biisk, Voronezh, Ekaterinburg, Irkutsk, Kurgan, Moscow, Rostov-on-Don, Taganrog, Tambov, Tver, Tomsk, and Chelyabinsk. As for Russian secondary and high schools, I think I can say with confidence that hundreds of teachers from various regions of the country now integrate media education into compulsory subjects or conduct elective courses related to media culture.

A.P. *But still, why* hundreds, *instead of* thousands *or* tens of thousands*? What are the obstacles to a much more wide-ranging introduction of media education across the learning spectrum?*

A.F. In my opinion, in most countries of the world these obstacles are basically as follows:

- there is still a lack of strategically trained media educators;
- there is a certain inertia on the part of the university administration (for example, in Russia universities are granted broad opportunities to introduce new courses within the "regional component" option, but university academic councils remain timid about including media education in their curricula—even though media literacy is obviously relevant for the students, especially for future teachers);
- the ministerial structures traditionally focus their attention on training courses in computer science and computerized teaching approaches, and give far less attention to relevant problems of media education;
- some educational leaders (as well as educators themselves) still tend to confuse *media education* (which is an integral part of the development of critical thinking, and critical perception of all kinds of media texts) with *educational technology* (technical teaching aids) in schools and universities;
- the results from the growing body of research into media education (see, for example, thesis abstracts at http://www.edu.of.ru/mediaeducation/default.asp?ob_no=2362) very often fail to reach their primary audience—the classroom teacher.

Of course, I'm not referring here to the many universities and departments involved in educating media professionals (such as journalists, film directors, producers, or advertising managers). These naturally offer a whole spectrum of courses related to media. What I am concerned about first and foremost is the media literacy education of future teachers. For them, media literacy is of utmost importance, because today's students spend a lot of their time in a virtual, media world. However, many school teachers still tend to ignore this fact.

A.P. *So, to make media literacy a standard component of every student's education, we need…?*

A.F. … to combine the efforts of international and governmental organizations, on the one hand, with the local efforts in particular regions and educational institutions, on the other. I think this is the best way to achieve the goal.

N.K. *Could you touch on the most popular (interesting, effective) classroom activities used to promote media literacy at various academic levels?*

A.F. Yes, and these are quite diverse. Particularly popular throughout the world are methods that encourage students to create their own media texts (newspapers, radio and television broadcasts, clips, films, websites, etc.). A wealth of such projects have been generated in France, Great Britain, Germany, Russia, and other countries.

Also widespread are methods developed by the British media educator Len Masterman, which are aimed at developing critical analysis of all types of media texts. In Russia, however, aesthetic analysis of media texts continues to be more popular, following the traditions of the founders of media education in Russia, Oleg Baranov, Stal Penzin, and Yury Usov.

N.K. *Am I correct in my understanding that critical analysis aims to interpret and evaluate the contents of media texts, whereas the aesthetic approach builds an understanding of how the media text was crafted and how that technique affects the viewer?*

A.F. Quite right. The aesthetic analysis of media texts of any genre is closely connected to the aesthetic or artistic theory of media education, which is essentially based on a culturological theory of media education. The main aim is to understand the artistic laws and language of media texts, to develop aesthetic perception and taste, and to be able to conduct a competent critical aesthetic analysis. Accordingly, in the classroom the focus is on analyzing the language of the media and on critical analysis of the author's artistic conception.

To revisit educational approaches: In recent years creative projects and portfolios have become popular in media education, and their effectiveness has been confirmed repeatedly by both practical experience and research.

Considering that many Internet providers now offer, at no charge, various tools for creating online projects, I would

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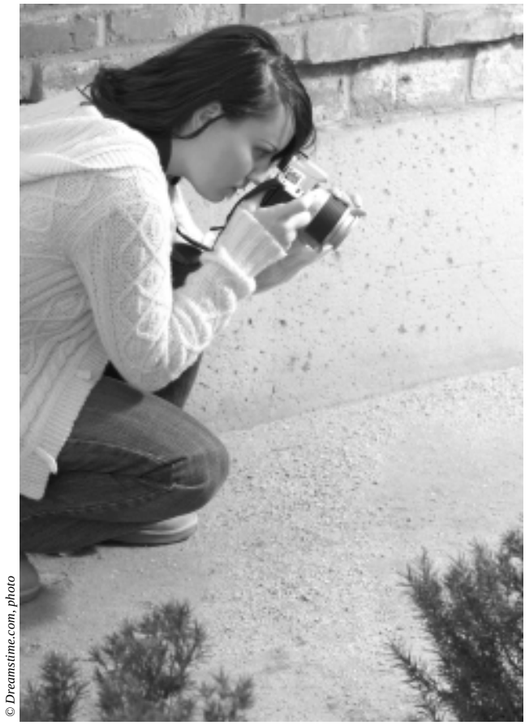
recommend that school and university teachers use these opportunities to design challenging and creative assignments for their students. For example, school students could form an online club for discussing TV shows or series, or organize an amateur photography contest and invite participants to discuss the entries.

N.K. *In your article a year ago (*Thinking Classroom, 8*(3), 13-19) you told our readers about some creative assignments you had used with students specializing in media education. What other assignments could you recommend that may be effectively used with high school students?*

A.F. There are lots of them—you can find descriptions in my monographs and handbooks, many of which are freely available on the Web site of the Russian Association for Film and Media Education (http://www.edu.of.ru/mediaeducation/default.asp?ob_no=19993). Some of them have been translated into English (http://www.edu.of.ru/attach/17/16308.doc).



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My own classroom experience has demonstrated the power of media-focused role-playing games ("I'm a producer," "I'm a scriptwriter," "I'm a film director," "I'm an actor," "I'm a journalist," etc). Through these activities, students familiarize themselves with, and gain direct experience of, the creative media professions and learn how to create original media texts. This experience helps them better analyze and appreciate professionally created works.

In addition, creative assignments develop students' imagination, associative thinking, and non-verbal perception. For example, students might:

- create advertising posters for their own media texts (or alternatively, for professionally made media texts) using various artistic media;
- create drawings and collages related to works of Russian or foreign media culture, such as movies or TV shows;
- draw "comics" based on particular media texts and designed for a specific age group. For example, school students could create comics for their peers, or for preschoolers.

After such creative assignments are completed, the next step is to organize a contest or exhibition of the posters, collages, drawings, or comics: The class discusses the artworks' strengths and weaknesses; the artists have an opportunity to defend their works in public, to respond to their teacher's and peers' questions, etc. This helps develop their perceptive and communicative skills, their critical thinking, and their media competence.

A.P. *There are many different kinds of media technologies and media texts. And the same certainly must hold true for the possibilities of using them in learning. What do you think about the potential educational value of graphic novels and comics in general?*

A.F. In Russia, in apparent contrast to the Western world, comic books have no particular popularity among teachers or students. Russian teenagers are much more interested the Internet, cell phones, TV shows, and movies. So classroom activities based on comics are much less popular in Russia… However, activities that involve creating comics are especially engaging for students who have special artistic abilities. In fact, many teachers have observed that students who are not adept at expressing their ideas verbally often surpass their peers in nonverbal expression of the same ideas or feelings—in drawings, posters, or comics…

A.P. *And what potential do you see for using the tools and opportunities proliferating on the Internet—blogs, YouTube, social networks like Facebook or MySpace—in the classroom?*

A.F. The broad capabilities of Internet software applications offer interesting prospects for practical media education. Students should be encouraged to create their own blogs, to discuss their special interests on one of the social sites, and/or to share their video creations on YouTube. However, it's important that our assignments develop students' critical thinking capacities and encourage them to create media texts with humanistic content; and require that they analyze, rather than simply "consume," particular media texts. For example, they might create a blog for discussion of the content and quality of today's youth-orientated commercial publications. Students could be assigned to interview their teachers about media (il)literacy, and then (with contributors' permission) post their interviews online. Teachers could help students plan the format of the blog, and prepare questions for the interviews. Students' creative work produced in role playing games such as "I'm a cinematographer" or "I'm a director" could be posted on YouTube.

A.P. *Are these just would-be plans, or are teachers already offering such activities to their students?*

A.F. They are. For example, since 1996 such projects have been implemented in Russia under the guidance and methodology of Yelena Yastrebtseva, my colleague from the Russian Academy of Education (http://www.ioso.ru/scmedia/what.htm). Another example: In 2005–2006, the

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Center for Media Education in Tolyatti organized a competition for educational Internet projects (http://www.mec.tgl.ru/index.php?module=subjects&func=listpages&subid=57).

Extensive research has confirmed that such assignments contribute to the development of students' perceptive, creative, and analytical abilities, and improve their knowledge of media and media education. As a bonus, the learning process itself becomes more varied, interesting, and creative.

True, some teachers believe that because many teenagers already spend most of their leisure time on the Internet, it isn't necessary to devote precious classroom time to that sphere, and that in fact, the school should try to protect students from the virtual world. However, I don't consider this to be a constructive approach. In any case, we won't be able to protect the students from new information technologies. And in my view, the real challenge for a thoughtful and creative teacher is how best to take advantage of the new media for educational purposes.

At the same time, we must recognize that unguarded use of Internet resources involves serious risks. Teenagers who are technologically savvy but otherwise unsophisticated are apt to fill their blogs, sites, or YouTube accounts with highly negative content: obscenity, pornographic photo/video images, texts promoting violence, drugs, or racism. One needn't be an expert in media culture to see that

Photo from the author's archive

today such youthful "creativity" is, unfortunately, a widespread phenomenon.

A.P. *So, acknowledging the downside of the newest media technologies: Do you think it's time to teach our students the basics of Internet safety?*

A.F. As we know, one of the main objectives of media education today is to foster critical thinking that can be applied to any text in the mass media. If students are able to analyze and evaluate texts critically, they will be far less likely to "take the bait" of criminals, predators, or unscrupulous characters trolling the Internet. Of course the problems of safety on the Internet and mobile phone networks should be given high priority in media educational classrooms: Blind trust in any virtual conversation partners can be really dangerous...

It is difficult to address these problems unless students are familiar with the psychosocial mechanisms of the media. When students have learned to identify specific techniques used in media manipulation, they take a more critical view of information received via any channel, including the Internet. Achieving this goal may include:

- exposing and demonstrating the psychosocial machinery of media manipulation;
- demonstrating and analyzing typical media manipulation methods and techniques;
- "sifting" the information presented in media texts (careful categorizing of the true and false materials in the press, TV, radio, etc., differentiating the "spin" and "buzz words" by juxtaposing the information with actual facts);
- questioning the aura of convention, ingenuousness, or authority surrounding a given message;
- critical analysis of the objectives, interests, and motives of the source of the information.

In all these approaches, of course, we need to keep in mind the differences between informational and artistic texts. Different criteria will apply.

One of the most difficult questions regarding negative influences of the media is the issue of violence. Certainly in real life few teenagers set out to imitate the behavior of violent movie or videogame characters. But some of them become desensitized to media violence, which leads to indifference and an inability to experience normal human compassion. This finding has been confirmed repeatedly by U.S. researchers.

Therefore, an effective classroom assignment might be to critically dissect the true identity of the so-called "action hero"—and challenge the morality of a "hero" who murders dozens of people in cold blood. To this end we sometimes employ an activity called "criminal investigation": Students investigate crimes depicted in a violent media text. Their task is to reveal illegal, cruel, or abusive actions committed by the characters. Then, having collected cogent evidence, the learners build up an indictment against the "agents" (i.e. the authors) who exploit violence—or encourage violence—for commercial purposes.

N.K. *What would you like to wish the readers of* Thinking Classroom*?*

A.F. That they should embrace the ideas of media literacy education, and continue always to raise their own media competence. Here I'd like to cite the words of the well-known Canadian educator, philosopher, and scholar, Marshall McLuhan: "You must be literate in umpteen media to be really *literate* nowadays."

N.K., A.P. *Thank you so much for answering our questions. We wish you continued success in all your endeavors!*

Goharik Markosyan and Julieta Chaloyan

Engaging Children and Teenagers in Peace Culture Education and Peacebuilding

Photos from the authors' archives

***Goharik Markosyan** is President of the NGO "Women for Development" in Gyumri, Armenia.*

***Julieta Chaloyan** is a senior staff member of the NGO "Women for Development" in Gyumri, Armenia.*

For the past five years, the NGO *Women for Development*, established in 1997 in Gyumri, Armenia, has been implementing a project called *Peace and Conflict Resolution Education in the Schools of Gyumri*, which is aimed at promoting peace culture and conflict resolution skills. As part of the project, 10 Peace Education Centers (PECs), involving about 250 students, are now operating in the schools of the Shirak district. As a member of the International Peace Education and Conflict Resolution Network established in 2005 in New York, *Women for Development* cooperates with many non-profit and governmental organizations implementing similar projects, both in Armenia and abroad. In this article we share our experiences in teaching Peace Culture and peacebuilding.

Why teach Peace?

Today the need for peace is as crucial as it ever has been; threats to peace and security including wars, armed conflicts, and terrorism, seem to proliferate unchecked. However, peace and stability depend not only on the absence of war, but also on our ability to build relations with others. If we wish to have peace, then we need to explain to people what peace is, and what stands in the way of achieving it: what we need to change in ourselves, in our culture, and in our society to be able to live in peace.

Peace education leads people to take an active part in creating a more humane, equitable, free, and prosperous world, a world without wars and violence.

With hard work, people of any age can make positive changes in their consciousness, feelings, and ideas, but the younger the person, the easier the process. That's why our centers work with children and teenagers.

The key principles of peace education are non-violence and social justice. Students acquire skills and knowledge needed for peacebuilding, and develop their own viewpoints on issues of peace and justice. It is important that they also learn to prevent conflict and acts of violence, and to resolve conflicts peacefully. Consequently, the skills and knowledge acquired in PECs promote changes in behavior that decrease personal and interpersonal conflicts, and lead to the creation of stronger class and school communities.

How Peace Education Centers work

Peace and Conflict Resolution Education is set up as a two-year course of study. Initially, in 2002, the Centers accepted students from all grade levels. Subsequently, however, we had to change our approach, because it was

Photos from the authors' archives

RULES FOR AVOIDING ESCALATION OF CONFLICT[1]:

- Be in control of your own behavior, thoughts and feelings (e.g. If in the middle of an argument you leave and slam the door behind you, the conflict won't be resolved anytime soon...).
- If your opponent engages in inappropriate behavior (e.g., raises his/her voice), don't follow suit.
- Remember that everyone has freedom of choice, and freedom to act according to his or her own views.
- Don't resort to threats (never say "You'll be sorry!" or "I'll show you!").
- Focus on the specific problem in question (e.g., if the conflict originated over a torn book, there is no need to bring up a CD that was lost a year ago).
- Don't insult your opponent or his/her relatives.
- Don't invoke the opinions of other people as "authorities" to bolster your argument (e.g., "Your classmates don't like you either.").
- Avoid using the words *always* and *never* (e.g., "You always do same thing! You're always like that!" or "I'll never agree to this!").
- Avoid name-calling.
- Don't make "hotheaded" decisions. Wait for your emotions to cool down.

difficult to make up a timetable that would accommodate all participants. Now every Center is built around a "nucleus" consisting of one class (recommended by the school staff), with students from other classes invited to join this nucleus. As a rule, a lot of students sign up at the beginning of the year, but after a month or so there are typically only 15–20 really interested students (mainly 6–8th graders) remaining in each Center.

To make our classes rich and meaningful, we use group work, interactive activities, and discussion. The discussions are lively and interesting; a warm and respectful atmosphere puts students at ease so they can speak their minds freely. We carefully choose the problems for discussion. Whereas many teachers try to avoid discussing controversial issues, we proceed from the conviction that the modern school needs to be connected to the real world, with all its conflicts and unexpected changes. For example, we discuss issues such as tolerance towards other ethnicities and religions; and we talk about the relationships between teachers and students, parents and children, trying to determine whether principles of freedom and equal rights can be applied to these relationships. We also address the socio-political problems of life in Armenia, and in our city in particular—especially during our elections, when these topics are being discussed everywhere, but students often receive biased information. Our students learn to speak freely about what is going on in class, in school, and in their family life. We encourage them to participate in school government and other community organizations, so that they can begin to influence social processes even during their student years. We teach our students to respect their peers, and to base their interactions on principles of positive and open collaboration.

In a word, we have ambitious goals, and our course content, teaching materials, and teaching methods are all designed to help us achieve them.

[1] When explaining the rules and principles we follow Crawford, D., Bodine, R. (1996). *Conflict resolution education: A guide to implementing programs in schools, youth-serving organizations, and community and juvenile justice settings. Program Report.* Washington, DC.: Department of Justice.

The Peace and Conflict Resolution Education course comprises the following topics:

- *What Is Peace?*
- *What Is Conflict?*
- *Causes of Conflict*
- *Conflict Escalation*
- *Conflict Analysis*
- *How to Behave in a Conflict Situation*
- *Conflict Management*
- *Principles of Conflict Resolution*
- *Mediation*
- *Negotiation*

Students not only acquire knowledge about these topics, but also develop practical skills that they can use in real-life settings.

As an example, below we describe our lessons in *Conflict Analysis*.

Conflict Analysis lessons

To begin with, we help students realize that conflict is an integral part of life. Conflict arises from differences in our views, needs, and desires. Conflict can occur anywhere: at home, at school, at a playground, on the street, at work, on the way to work, or during an athletic event.

Conflict often escalates because the opposing parties tend to exaggerate the facts, take extreme positions, or form hostile groups. Then the conflict becomes destructive and harmful to all parties involved.

Most people see conflict only as something negative or destructive, but this is not the whole story. Conflict can frequently be a stimulus to growth and development. The ability to manage conflict bolsters self-esteem and facilitates social interaction. Conflict management, however, must be based on understanding, which can be achieved through conflict analysis.

Conflict analysis involves determining

- who is in conflict with whom
- the positions and demands of the parties involved
- the goals and intentions of each side
- a possible course of action, i.e. what each side might do to achieve its goals

To demonstrate the importance of conflict analysis, we offer students a simple situation: Two friends are discussing how to divide an orange. Students always start by proposing the most straightforward solution: Divide it in half. But one of the boys in our scenario rejects this decision, and we try to determine

Photos from the authors' archives

why. We discover that one boy is interested in the fruit itself, while the other needs only the peel, as his mother needs orange zest to make a cake for his sister's birthday. After this analysis it is easy to find a solution: one boy gets the flesh, and the other gets the peel. The conflict is settled, and everybody is happy.

As we move from discussing the necessity for conflict analysis to the analysis itself, our teachers try to select activities that will engage students' interest and encourage them to think and to develop their communication skills. Two such activities are *Scene & Discussion* and *Conflict Mapping*.

Scene & Discussion

One way to analyze a conflict is to perform it. For example, PEC teachers can ask students to stage a conflict situation from

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CONFLICT RESOLUTION PRINCIPLES:

Principle 1. *Think before reacting*
Before you accuse a person of something, ask yourself some questions to clarify the situation. For example, what might have caused your friend to be rude to you, or to arrive late? You may see some valid reasons for your friend's actions.

Principle 2. *Try to understand your opponent*
Try to take a positive attitude toward your opponent. Make eye contact, be aware of facial expressions, try to imagine how you would feel in your opponent's position. Remember that to *understand* your opponent's viewpoint does not necessarily mean to *agree* with it. You don't necessarily have to abandon your own position, but you should always look at the problem from other perspectives.

Principle 3. *Listen carefully*
Let your opponent speak his mind. For one thing, this will help you understand your opponent better; and for another, it will defuse the situation and make it easier to resolve the conflict. While you are listening, don't jump in to defend yourself or give advice (e.g. "True, but that wasn't my fault!" or "You should have thought of that before!").

Principle 4. *Ask questions*
Certain types of questions promote dialogue: e.g. "What did you mean when you said...?" or "What do you think about that?" There are other types of questions, on the contrary, that discourage dialogue and thus hinder conflict resolution, such as *yes/no* questions, or questions that contain their own answer, e.g.: "Don't you think it would be better if…?"

Principle 5. *Try to find the best solution*
The best solution to a conflict is the one in which nobody feels slighted or has to sacrifice something of vital importance. You must believe that a win-win solution is always possible.

the "adult" world, and then discuss the conflict to determine the best solution. One of our example situations is as follows:

Two organizations, one North American and the other Armenian, are organizing a joint seminar in the U.S. The roster of Armenian participants is almost full: There is only one vacancy left, but there are two candidates. The two are equal in terms of professional standing and experience. How can the director resolve this dilemma to the satisfaction of both parties?

To begin to analyze the conflict, students act out the situation. The student playing the role of the director talks to both candidates to better understand their motivations. The director discovers that one of the candidates plans to use the opportunity to see a brother he hasn't seen for several years. The other regards participation in the seminar as recognition for the quality of his work.

The scene is followed by a discussion. Students propose a variety of solutions to the problem, one of which is the following: The applicant who wants to see his brother should get to attend the seminar, while the other applicant should receive a promotion, in acknowledgement of the caliber of his work. Both sides are satisfied with this decision. The students are convinced that conflict analysis is vital for reaching a win–win solution.

Conflict Mapping

Another way to analyze a conflict is through Conflict Mapping. Students enjoy this activity, as graphic representation helps them better understand the relations among the parties involved in the conflict.

Before mapping a conflict, we ask students to answer the following questions:

- Who are the primary parties in the conflict?
- Are there other people or groups who are in some way related to the conflict?
- What are the relations among the parties, and how can they be represented on a map? Are these family relations? Close relations? Broken relations?
- What fundamental unresolved problems between the parties must be included on the map?
- What is your (or your organization's) position in the situation? What relationships or connections do you have with the parties that might serve as a starting point for resolving the conflict?

Before constructing a map, we need to agree on a set of symbols to be used. We use the following:

- *Circles* to represent participants of the conflict. The size of the circle depends on the participant's role in the conflict
- *Lines* for connections, including close connections
- *Parallel lines* for an alliance
- *Crossed out parallel lines* for unstable or broken connections
- *Arrows* indicate the direction of influence
- *Zigzag lines* for disagreement or conflict
- *Squares and rectangles* for questions, topics, or objects (but not people)

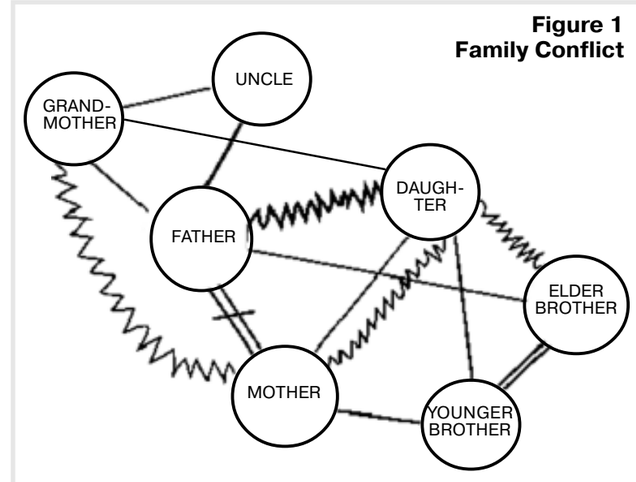


Figure 1
Family Conflict

The map in Figure 1 depicts a family conflict between father and daughter. The problem is whether the daughter should marry according to her parents' wishes. Note the lines that indicate a close relationship between grandmother and granddaughter, and a rift between father and mother. Despite their close mutual connections, the brothers take different sides in the conflict. Our example represents a family conflict, but a similar map can be used to describe any kind of conflict, on a local, national, or even international level.

For Conflict Mapping we divide students into small groups and provide each with a description of the conflict. Each group is assigned a particular perspective from which to analyze and map the conflict. Predictably, the resulting maps turn out to be very different. Each group then presents its map to the others, and argues the case for its own solution to the conflict.

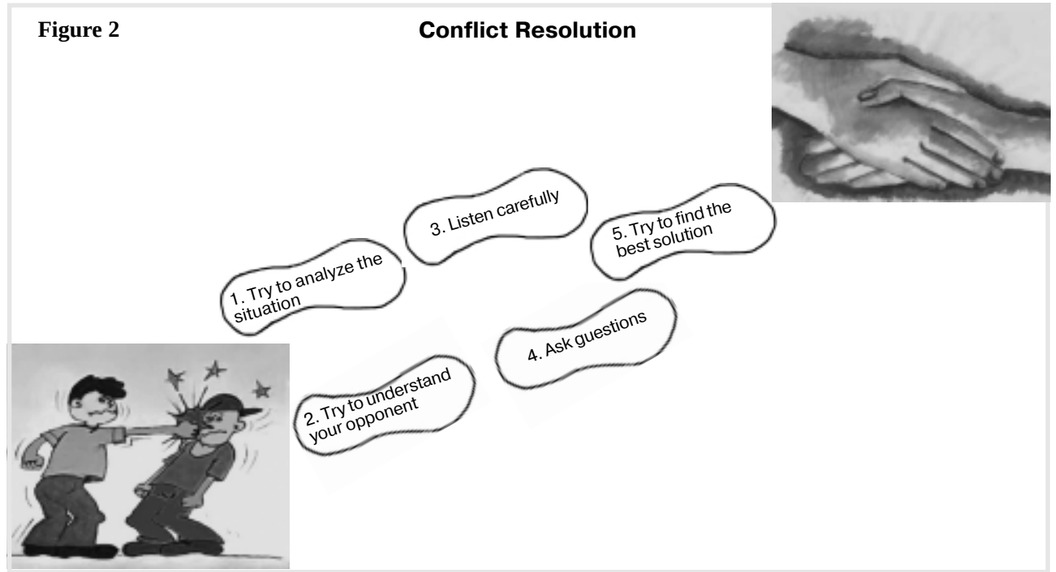
Peer-to-peer lesson

Our PEC students are just a small part of the population of their respective schools. To engage other students in the project, we organize peer-to-peer demonstration lessons: Students attending the Peace Education Centers share their knowledge and experience with others. The peer-to-peer lessons are planned after students have completed the PEC course, and have mastered its content and skills. Of course one lesson is not enough to share everything they have learned in the Center over the two-year program.. Therefore these peer-to-peer lessons focus on a single topic: *Principles of Conflict Resolution.* Working in groups of four (in our experience, this is the optimal group size), the student "teachers" spend about a month planning and preparing their lessons, under the guidance of PEC teachers. The teachers help them select examples of conflicts and prepare performances and posters, and advise them on how to structure the lesson to make it interesting and comprehensible to everyone in the class.

Lesson structure

At the beginning of the lesson, the peer teachers talk about the Peace Education Center program. They explain that, unlike school, the PEC doesn't give homework assignments or grades, and best of all, that students in the Center can express their minds freely, without fear of making a mistake. They also explain how the PEC program has helped them to live in peace and resolve conflicts to the satisfaction of all sides. They invite input from the class in formulating a definition of *conflict*. Then they discuss rules of conduct that can help prevent conflict, and talk about how to resolve an existing conflict peacefully. No doubt these rules and principles (summarized on pp. 22 and 24) are familiar to many readers.

Figure 2 **Conflict Resolution**



In preparing the lessons, members of the groups agree in advance who will present which particular rules and principles. They prepare posters to illustrate their explanations. For example, five footprints might be used to demonstrate five principles of conflict resolution (Figure 2), or an expressive comic could present recommendations for behavior in conflict situations (Figure 3). Real-life examples are used to illustrate all the rules and principles, and students in the class are encouraged to provide additional examples. Class members also participate in short skits representing conflicts they encounter in everyday life or at school. The participants portray the origin and development of the conflict, and then offer various solutions. To determine the best solution, they use the rules and principles they have just learned, with the posters displayed in the room serving as reminders. A variation on this activity is to have the actors presenting the conflict intentionally violate all the principles and rules discussed. The other students must then determine which principles and rules were violated, and explain what led to the escalation of the conflict.

Photos from the authors' archives

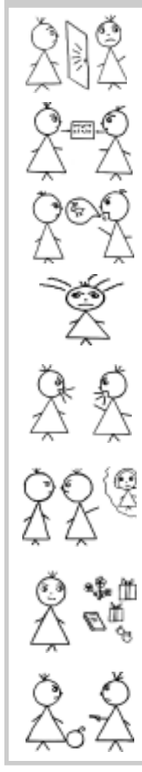
In these peer-to-peer lessons, both the peer teachers and their students are active participants in the process. For the first few minutes the young teachers are usually shy, but they soon forget their stage fright and conduct their lesson with confidence, actively involving their schoolmates in the process. Students talk about their arguments with friends, parents, and teachers, and discuss how to resolve these conflicts. At the end of the lesson, the students receive a questionnaire for their parents (designed to find out what parents think of conflict resolution education), and handouts summarizing the rules and principles of conflict resolution. Parents' responses to the questionnaires are carefully analyzed, and the data will be applied in our future work.

After a peer-to-peer presentation, peer teachers, PEC teachers, and observers (other students from the Peace Education Center who were present at the lesson) analyze the lesson. The atmosphere of constructive criticism and self-reflection makes for unbiased judgment, and helps the young teachers improve their skills with each subsequent lesson. Peer-to-peer lessons are conducted for almost all the classes in the schools where PECs are active, and within a month most of the students have been introduced to the ideas of Peace Culture. Sometimes we conduct such lessons in other schools as well.

These lessons help our participants and their audiences realize that respect and collaboration can easily be achieved in any school community if one approaches one's classmates as friends, rather than enemies.

Response of participants

Figure 3. How to behave to avoid escalation of conflict



- Be in control of your own behavior, thoughts and feelings.
- Focus on the specific problem.
- Avoid name-calling!
- Don't make "hotheaded" decisions. Wait for emotions to cool down.
- If your opponent engages in inappropriate behavior, never follow suit.
- Don't invoke the opinions of other people as "authorities" to bolster your argument.
- Remember that everyone has freedom of choice, and freedom to act according to his or her own views.
- Don't resort to threats.

Photos from the authors' archives

About 95% of students who attend peer-to-peer lessons consider them useful and important. In response to our questions, many note that they were able to express their thoughts freely in these lessons without fear that they would be misunderstood or criticized for a "wrong" opinion. The respondents like having the lessons conducted by peers—they are convinced that their peers understand them better than any adult could. Children often relate more easily to other children, and both tutors and tutees benefit from the interaction: The former improve their knowledge and skills and gain confidence, and the latter become familiar with the ideas of peace and peacebuilding. Students share the handouts from the lesson with their friends and relatives, thus engaging them in peace education as well.

According to the peer teachers themselves, their teaching experience helps them to manage conflicts that may occur between teachers and students. They are proud of their new role, their self-esteem increases, and as an added benefit, they really begin to value the work of teachers.

How the participants benefit from the project

From time to time we organize meetings, workshops, or round table sessions with parents of PEC students. The parents tell us how their children's behavior has changed: Many notice that their children have become more respectful, friendly, and tolerant. Similar ideas are expressed on our questionnaire

Photos from the authors' archives

for parents, in response to the question "How has the PEC course influenced your children?" as illustrated by the following answers:

- *My son has become more tolerant of younger children.*
- *He teaches his younger brothers and sisters to avoid conflict.*
- *My son can now manage a conflict; one day he even helped me and my husband to resolve a family conflict.*
- *After PEC studies my son comes home very peaceful. I feel he has changed.*
- *My daughter has become kinder. Now she ignores her brother's tricks, which she never did before.*
- *When my daughter tells me about the classes, I can see that your explanations are clear and easy to understand.*
- *I really see my son changing. He is much more levelheaded now. He doesn't argue with his sister about everything.*
- *He has changed a lot; he is no longer so quick-tempered.*

Teachers note that PEC studies improve students' interactions and broaden their outlook, which results in a better understanding of the people and the world around them. According to the students themselves, the Center provides them with a lot of new information, and helps them understand things that used to confuse them; their studies promote personal growth and help them to build healthy relations with others.

Peace education focuses students' attention on important current problems: problems of war and peace, tolerance, and peacebuilding. After their two-year course, participants can no longer say that peace issues are beyond their concern. Rather, the students are convinced—and prepared to persuade any adult—that taking care of one's surroundings, helping people in crisis, educating oneself, and making progress in different areas of life are very important, not only for self-realization but also for world peace. As a result, our students have organized such initiatives as Good Deeds Week, during which they visit nursery schools, a children's home, an orphanage, and a home for the elderly. In addition, they take care of their school grounds and the yards around their homes. When they visit their little nursery school "buddies," the PEC students bring them a toy or a hand-made gift; they give concerts for the residents of the home for the elderly, and help them solve minor everyday problems. PEC students realize that Peace Culture begins inside ourselves, and so they contribute to future global Peace Culture by gradually changing their own lives, the lives of their families, and their school communities.

Our colleagues

From the very start of the project, we have been actively cooperating with both municipal education boards and the National Institute of Education of Armenia. These organizations help us deliver teacher workshops and prepare handbooks for PEC studies. The goal of our cooperation is to introduce peace education into the school curriculum, either in the form of optional courses, or by integrating the elements of peace education into other courses. To achieve this, we study the experience of other successful projects, and provide school teachers of literature, mathematics, history, biology and other disciplines with specific learning strategies.

We hope that the knowledge and skills students acquire in the PECs will help them realize their own potential in life and contribute to their future success. Our future plans are to continue working to develop peace culture, and to promote an atmosphere of mutual respect within school communities.

Alexandra Bomphray

Teaching Spelling Through Word Study in the Elementary Classroom

Photo from the author's archive

Alexandra Bomphray is a doctoral student at the University of Victoria, Canada. She is also a former elementary teacher and staff development instructor.

As an elementary teacher in a U.S. school with a high population of second language learners, I often struggled to ensure that all of my students were provided with meaningful learning opportunities. English spelling instruction was one area that presented me with unique challenges in meeting this goal. Being a new teacher, I quickly fell back on providing my students with teacher-generated weekly spelling lists that generally followed basic rhyme patterns. These were then followed by a standard group spelling test on Fridays. As one might anticipate, my success with this form of spelling instruction was extremely limited, if not nonexistent. I witnessed what so many teachers have observed—that each week it was the same students who were successful on my Friday tests while others, including the majority of my English language learners, failed week after week.

While I made adjustments to my spelling program, including dividing the class into three different spelling groups based on ability, I quickly found that these surface-level changes accomplished little in the way of motivation, and students who had previously been unsuccessful on their tests continued to struggle and met with very little success. In fact, this division of my class also had the unwanted effect of stigmatizing students in the lower spelling groups, as the class quickly noticed which group was given the most difficult words. I also observed that my spelling program, even with those students who were "successful" on the tests, was in the end a failure in the sense that there was little carryover from my tests to my students' writing in other contexts. Clearly, my spelling program contained little more than rote memorization with no deeper connection or meaning to, or for, my students and their learning.

It wasn't long before I was struggling with the question: "What was the purpose of my spelling program if it did little more than to ensure the success of some while at the same time ensuring the failure of others?" After coming to the conclusion that my spelling instruction was not only ineffective but also harmful to many students, I began to look for a solution. My students were already involved in Writer's Workshop, a daily 60–90 minute writing program designed to provide blocks of time for writing, sharing, and editing that writing with classmates. Instruction is provided primarily through models and mini-lessons. Students are frequently given their choice of topics and forms. The emphasis initially is placed on getting the ideas down; on organization, coherence, and flow; and on the descriptive power and impact of the language. Attention to spelling accuracy and punctuation, etc., comes once the content is in order, and younger children are encouraged to use invented spelling (approximations) as needed (Atwell, 1987; Calkins, 1994; Graves, 1991). While I cherished the time afforded by the workshop approach for my students to write without being overly concerned with proper spelling, I also felt it was essential for students, in the right time and place, to work on advancing their spelling ability. Therefore, completely doing away with my spelling program was not an option. Instead, I wanted to find a program that incorporated spelling instruction and learning in a more authentic, meaningful way. I found this in word study.

What is word study?

Word study is a meaningful alternative to the more traditional methods of teaching English spelling (Bear et al., 2004). While there are different variations to this program, the particular program highlighted in this article encourages student choice and exploration of words. Spelling lists are tailored to suit students' individual needs, as each student has his/her own list of words to work from each week. Daily activities reinforce the connection between students' spelling words and their writing, and encourage students to explore their words on a level deeper than basic memorization. Cooperative learning is also a key aspect of any word study program, in that students are assigned partners to work with during many of the activities included in the program. Perhaps most important, though, is that word study programs are typically centered on the idea that students choose their own spelling words, instead of being provided a teacher-generated list. The addition of choice to a spelling program, where historically there had been little to no choice, clearly changes the dynamics of that program. Research has demonstrated that student choice is a motivating factor and can often directly enhance learning (Brophy, 2004).

Constructing your word study program

The following section provides a detailed outline of the key aspects of a word study program, including descriptions of all four of the main components of the program.

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Word lists

The first step in creating a successful word study program is to gather a collection of word lists. One resource I have found useful is the Dolch Sight Word list. Divided into different ability levels beginning from a pre-primer level, the Dolch Sight Word lists are lists of English words that are commonly found in children's books (Figure 1). These words also cannot be "sounded out" and therefore must be memorized by students and learned by sight.

Figure 1	First 10 words of the 2nd Grade Dolch Word List
always	best
around	buy
because	both
before	call
been	cold

However, teachers should feel free to choose words from any of the many word lists available, or to construct their own lists from the topics and texts their students are encountering. A useful strategy is to select words frequently found in the children's books used in the classroom, as well as words that students cannot "sound out" and therefore must learn by sight.

Once a collection of lists has been gathered, the teacher begins to create individual spelling lists tailored specifically to students' individual abilities. This is done by cutting and pasting words from different lists, and then printing new lists of about 40–50 words for each student. Students should be given their word lists on the first day of word study. These lists will serve as a starting point: Students will work from them initially, and add to them throughout the school year.

At the outset, students with similar ability levels can be given the same list of words. However, as the school year progresses everyone's lists should vary, because students will individually add words to their lists from their own reading. It is important to continually update these lists not only as the spelling competencies of students change, but also to make the word study meaningful and authentic. Teachers can also assist in this process by providing students with additional lists to choose from as the year progresses. For example, teachers can create lists for varying ability levels that focus on a specific topic or subject being studied in class. If students are studying outer space in science, teachers can provide students with lists of vocabulary words associated with the unit (Figure 2).

One effective way of encouraging the connection between a word study program and students' writing is to create word lists based on the genre of writing students are currently studying. If, for example, students are working on informational or expository writing, the teacher can provide students with frequently used words in that genre (i.e., *topic, index, glossary, subheading*). Once again, all students should not be provided with the same list. Instead, the teacher should create several different lists that are suitable for varying levels of ability.

Figure 2	Grade 2 Outer Space words	
Basic Level	**Grade Level**	**Advanced Level**
space	shuttle	astronaut
planet	telescope	satellite
comet	gravity	asteroid
orbit	mission	constellation
rocket	meteor	astronomy

Word choice

From the individual word lists, each student selects a pre-set number of words at the beginning of each week. Based on student ability, the teacher decides this pre-set number of words for each student, but typically students should be asked to select five to ten words. However, the teacher should constantly be assessing and changing this number as needed, to ensure that each student is being sufficiently challenged, yet also working at a level that makes success possible.

Students select words by highlighting chosen words on their list, and writing each of the words down on their in-class index card and their at-home spelling page. Once this is completed, students

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are provided with the opportunity to select any two additional words that are not on the list. This free choice is an essential step in a successful word study program. Many times students choose rather long words which they have heard in a class read-aloud or academic discussion. While at the beginning of a word study program teachers often fear that students are selecting words far above their capabilities, students are often surprisingly successful in learning these more difficult words. One reason is that they are much more motivated, and will often put in the extra effort necessary to learn these harder words.

Word choice should take students only about five minutes. Setting a time limit helps those students who tend to be indecisive when it comes to selecting words. No matter when students select their words, it is important to ensure that they do it at the same time each week. Having students select their words first thing Monday morning, for example, is helpful as the start of class serves as a natural deadline. This routine will help provide structure to your word study program, and will highlight to students the importance that teachers are placing on word study, by not allowing other activities to take precedence over word study activities.

Word study activities

Another major difference between traditional spelling programs and a word study program is that while traditional spelling

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programs typically involve little more than studying at home for weekly tests, a word study program engages students in daily activities using their chosen words. These activities can include spelling the words using letter tiles, highlighting their spelling words in their own writing, searching for their spelling words in books, and drawing pictures representing their words. Of course, the activities used in any particular word study program will depend upon the grade level and ability of the students in the class. Many of these activities can also be completed with a partner in the assigned word study pairs.

While the activities used may vary from week to week and from teacher to teacher, there are some activities that should be standard to any word study program. Students should be engaged in at least one activity that provides them with the opportunity to explore their words on a deeper level. These activities can include exploring spelling patterns, components of words (i.e. word roots, suffixes), and how word parts can often highlight the meaning of the word. One of the more effective activities in a word study is the "making connections" activity. During this activity, students make connections to other words by coming up with similar words, identifying words that share the same root, or finding other words that contain similar spelling patterns. For example, a student studying the word *uncover* might make connections with other words with the prefix ***un-***; or might explore the result of removing the ***un-*** and adding a different prefix, such as ***dis-*** or ***re-***. In this example, the student would try to determine whether ***dis****cover* or ***re****cover* were "real" words. By making connections to familiar words or word patterns, students are able to activate their prior knowledge, while also deepening their understanding of each word.

Students also complete nightly word study homework assignments, where they perform activities that have been previously modeled in school. Assignments may include things like writing all the vowels in their words in colored crayon, writing their words in alphabetical order, or writing a brief story incorporating all of their words (Figure 3).

Figure 3 **Modeled Story Using 2nd Grade Dolch Sight Words**

Yesterday was the **best** day ever **because** so many great things happened. First, my best friend gave me a **call** and invited me over for a sleepover. **Before** going over to my friend's house, my dad and I went to the store to **buy** me a new baseball bat. Then, because it was very **cold** outside, my dad treated me to a hot chocolate on the way home. **Around** 6:00 pm, my mom dropped me off at my friend's house. My friend had rented **both** of my favorite video games and we stayed up all night playing them. It has **been** a long time since I had a day so wonderful. I wish life was **always** like this.

Assessment

Unlike traditional spelling tests, word study tests are completed in pairs, with the teacher serving as an observer and moderator. Students are responsible not only for taking their own spelling test, but also for facilitating a test for one of their peers. Since students have worked in their assigned pairs for a variety of activities throughout the week, they are familiar with their partner's words, enabling them to be effective facilitators. After the tests have been given, students are responsible for grading their partners' tests. This type of assessment is extremely beneficial to students, as they are provided with an opportunity to work not only with their own lists of words but also with their partners'. In fact, it is not unusual for students at the end of the week to be able to spell their partners' words correctly as well as their own. This testing environment also tends to be more relaxed in nature, loosening the tense atmosphere that often surrounds more rigid testing experiences. In contrast with the dread many students feel towards their weekly spelling tests, the alternative assessment used in word study is enjoyable and relaxing to students, because they are working with a peer as opposed to being given a more structured teacher-directed test.

Practice tests should also be incorporated into the weekly routine. These practice tests should follow the same format as mentioned above, but students will check their own tests instead of having their partner correct them. This activity provides time for students to practice and to assess their own understanding; but more importantly, it also helps to smooth out potential difficulties that might arise during the "real" test, including students not being able to read one of their partners' words.

The final step to a word study program, which occurs directly after the partner tests, is for students to go back to the word study folder containing their spelling lists and cross off all of the words that they spelled correctly. These words are now off-limits to the students, since they have been successfully spelled. From that point forward, students are expected to spell these words correctly, even in a Writer's Workshop format where spelling is not emphasized. Any words misspelled by students on their tests should not be crossed off. Instead, these words remain highlighted, demonstrating that while the student has attempted to learn the word, he/she was unsuccessful in that attempt. Students should be encouraged to attempt those words again.

Effectively implementing word study

Issues with implementation

In the beginning, a word study program *does* require more teacher preparation and time. However, once the program is up and running, it will run itself and will require the same amount of teacher preparation as traditional spelling programs, or even less. As with most everything in teaching, care taken in implementing the process is essential to the eventual success of the program. Depending on the grade level and the abilities of students in the class, the length of the implementation process can vary. At the very minimum, the first two to three weeks of a word study program should be highly structured. It is important to remember here that extra time put in by the teacher during the implementation process will pay off later on with a program that runs smoothly and is most effective in terms of student learning and development.

With that said, it is important to take time at the beginning of a word study program to model the different processes students will be involved in, such as choosing their own words and marking their partners' tests. In most cases, students will be completely unfamiliar with these sorts of tasks, and they also may not be used to having the amount of freedom that a word study program offers. Therefore, for the first couple of weeks, students should complete their word selection as a whole class, with the teacher guiding them throughout the process: Students select their words one at a time as the teacher closely monitors the process by walking around the room. The teacher should also constantly remind students to highlight their selected words, and to write their words down on both their in-class index cards and their homework sheets. When each student in the class has successfully chosen one word, the teacher can direct the students to choose the next word.

This is also the time to stress with students the importance of double, if not triple, checking to see whether they have copied their words down correctly. Since students are responsible for

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copying words onto their in-class and at-home lists, it is also a good idea for the teacher to take a few minutes to glance over students' lists to ensure that there are no misspellings. This is especially important in the beginning of a word study program, when students are more likely to make errors. An alternative to this would be to have each student's partner double check that the words have been correctly copied, verifying the student-made list against the correct spellings on the teacher-made list in the word study folder. Later in the school year, the teacher should frequently spot check students' words to ensure that students are continuing to be vigilant in copying down their words correctly.

During the implementation process, it is also important to model how the assessment process works. The most effective way of doing this is to complete a fishbowl activity modeling the partner test process. Fishbowl activities involve students sitting in a circle, while a pre-selected group of students in the middle of the circle models an activity for everyone. Prior to the activity, the teacher works with the selected students, teaching them the activity and assisting them in preparing to model it. To model word study partner tests, the teacher can select two or three different pairs of students and have them go through the process of giving and taking word study partner tests in front of their peers. For younger students, the teacher may want to be more directly involved in the modeling process, and pair herself/himself with a student for the fishbowl activity. Either way, the modeling process should show students how to give tests to their partners, as well as how to grade their partners' tests. It should also model the supportive and non-critical role that partners are supposed to have in relation to one another.

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Organization

Teachers should ensure that their word study program is well organized. It is essential that students' spelling lists are easily accessible in the classroom. While it is possible for students to keep a copy in their desks, a preferable option, which helps to eliminate lost spelling lists, is to create a word study poster using library-type pockets, one pocket for each student. In this case, students write their lists on index cards, and then place their cards in their assigned pocket on the poster. Once the poster is on the wall, students can quickly access their lists during Writer's Workshop or at any other time when they are including one of their spelling words in their writing.

If possible, provide each student with a three-ring folder in which to keep their word lists, because students will be continuously adding lists throughout the school year and three-ring folders allow students to browse through and access their words with ease. Teachers can then hand out these folders every Monday morning and collect the folders immediately after students have selected their words. It is also important to include a few blank lines at the bottom of each word list where students can write their non-list words.

Reflection

In some parts of the world, literacy instruction is becoming more and more individualized, with programs such as Writer's and Reader's Workshop becoming more prevalent in many schools (Atwell, 1987; Calkins, 1994; Graves, 1991). Spelling instruction has unfortunately lagged behind other areas of language arts instruction, at least in many parts of North America. This, of course, is partly due to many teachers' disenchantment with the rote memorization nature of traditional approaches to learning to spell.

As a teacher who has used both traditional methods and word study for spelling instruction over several years and in two different grade levels, I can speak for the dramatic difference that implementing word study into my literacy program has made for my students, especially my English language learners. I have often heard the term "ownership" tossed around in faculty meetings and staff development sessions, and I was aware of the increased learning that occurs when students "own" their own work. However, I am not sure I fully understood the power of ownership until I witnessed the transformation in my students when I switched from a traditional spelling instruction approach to a word study approach. My students actually looked forward to word study time, including their weekly spelling tests.

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The biggest change I witnessed was in my second language learners. Much of this change came from the satisfaction of experiencing success. In particular, I remember the difference word study made in a seven-year-old boy who had joined us from Mexico. During my traditional spelling instruction, he generally would not even attempt to spell words on the tests. Instead, he would write strings of letters filling up the space provided to him to write his words. Of course, the reason he did this was that the words were far beyond his ability level. He also rarely completed any spelling homework, and the word list that was to be kept in his homework folder was generally lost by mid-week. Clearly, he saw little value in learning the words given to him and he had, in a sense, given up, because success was simply too far out of reach for him. Then, on the first word study test, he spelled over half of the words correctly, with the other half coming close to the correct spelling. I will never forget the beaming smile on his face as he ran up to share his success with me. It was a boost in confidence for him that was simply immeasurable.

When I was preparing to present a staff development session on my word study program, to encourage other teachers to incorporate the program in their classrooms, I asked my students what they enjoyed about participating in word study. Overwhelmingly, they stated that not only was the program fun, but they were also learning a lot about words. Students also expressed a preference for being able to choose their own words, as opposed to being provided with a list by their teacher. Looking back on the way I used to teach spelling, I am very aware of how far my spelling instruction has come. Spelling used to be something that my students dreaded; or at the very least, it was certainly not something that they would describe as "fun." Yet, perhaps even more importantly, when I adopted the word study approach my students were learning, and they were very aware of the fact that they were learning. And that was just what I was looking for in a spelling program.

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Marilyn Cook

Asking Questions

Photo from the author's archive

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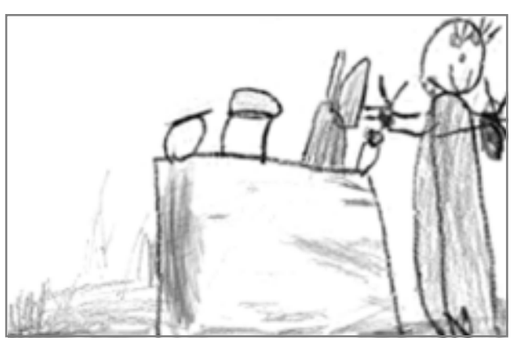
- *They create stuff, do work, show us how to play.*
- *They write words, do stuff like measure mysteries, draw pictures.*
- *Well that's what they do, they help people but they really don't put band-aids on them.*
- *They study potions like in the lab, do science.*
- *My papa is a great scientist he knows everything.*
- *They write stories about dogs.*
- *They work really hard, make stuff like robots and sometimes they make potions that are not deadly, do papers, do experiments.*
- *Sometimes they turn unicorns pink.*
- *They use glasses and pour things into them and it turns into something.*

What are these children talking about? These are actual responses of kindergarten students when asked, at the beginning of the year, before they actually did any science investigations, "What do scientists do?"

Well, what *do* scientists do? Why is this question important? In an article by Penni Rubin (2002), responses from interviews with scientists show the importance of nurturing an early interest in science. None of the scientists interviewed mentioned finding their professional interest as teens or adults; they said that they simply rediscovered their childhood interests. Asking lots of questions, and responding to students' questions, presents science as a form of inquiry. Inquiry involves asking questions, describing, observing, and communicating as students formulate answers to questions—or find that they have more questions. Why would this be important? Presented this way, science helps students to think and reason. When presented as inquiry, science is not experienced as an isolated subject, seemingly appropriate for just a few students, but as a way of thinking that is open to all students and applicable to any subject. If they feel that their individual questions are valued, students may then begin to see themselves as scientists.



After working with the students by doing experiments, and having graduate students in science come into the classroom to work with the students, we again asked the same students: "What do scientists do?" This time students used words like *research*, called themselves *scientists*, and even described a light experiment that we did illustrating the concepts of transparency, opacity, and translucence. Some of their responses included:

- *I'm a scientist of playgrounds.*
- *I researched the colors.*
- *I'm the scientist studying fish.*
- *I want to be a scientist because they draw and get to write words.*
- *Yes, I'm kind of a scientist because there is a center you can go through to find out if light goes through stuff, but it blocks and it doesn't.*

Inquiry, although sometimes thought of as an educational activity, is a life skill. Teaching in a way that honors inquiry includes not only asking questions, but also practice in reading, writing, speaking, and listening. Inquiry takes place in the exploration of a concept or an object, and occurs before any explanation of the properties of an object or concept begins. Inquiry begins as the student constructs his or her knowledge of a particular concept or object. Usually in a classroom setting, the teacher gives an explanation without student input, and without having students ask or develop questions about the topic. However, when a teacher begins teaching a concept by exploring it with the students and asking questions, students may develop other questions from the original questions. Many teachers may feel inadequate when they do not know the answers to student questions, but such occasions can provide teachers with an opportunity to show students how and where to search for answers to a question. Searching for an answer is modeling for the students that a process of learning how to research is just as valid as knowing the answer. Further questions may be formulated when looking for an answer. Teachers and parents can collaborate and become partners in the educational process with students by asking questions, and by modeling the life skills of inquiry. As a parent, instead of asking my child, "What did you do in school today?" I am asking, "Did you ask any good questions today?" As teachers and parents we can encourage inquiry by responding to a child's question with: "That's a good question. What do you think? How can we find out? What made you think of that? How can you get an answer?" Join me in asking more questions to promote inquiry.

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Betty McDonald

Enhancing Thinking Through Self Assessment

Photo from the author's archive

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How would you respond if I were to tell you that there are proven strategies for enhancing a student's ability to think? Self assessment strategies can do just that. An integral part of both portfolio and other authentic assessment strategies, student self assessment involves reflecting on past achievements, critically evaluating present performance, and planning future goals. Self assessment is based on realistic knowledge about the self in relation to educational goals. It asks, how am I doing? and how can I do better? Bourke and Poskitt (1997) describe it as a process in which students learn to compare and contrast their work with models, and against a set of standards and/or criteria.

Recently, self assessment has assumed prominence in education circles as an effective means of helping students develop a myriad of qualities. These include improved self-esteem, enriched self-concept, self-empowerment, autonomy, higher achievement, persistence, more in-depth understanding, etc. Over two decades ago, researchers became interested in the possible role that self assessment might play in helping students perform better academically (Boud, 1986; Ramaprasad, 1983; Sadler, 1989). Self assessment was viewed as the *sine qua non* of effective learning, and the best form of quality feedback for personal improvement. At issue was the extent to which students can be personally involved in their own work, and the benefits to be accrued from such an orientation. Several researchers have directed their attention to explicating how self assessment actually helps students to learn (Hill, 1995; Van Kraayenoord, 1997); how students report their performance (Adams & King, 1995; Orsmond, Merry, & Reiling, 1997); and how self assessment helps students to think about their own thinking (Andrade, 1999).

Reports of empirical studies emphasize the comparison of the marks students award themselves with those awarded by their teachers in particular subject areas (Boud & Falchikov, 1989; Falchikov & Boud, 1989), including mathematics (Fontana & Fernendes, 1994; Ninness, Ninness, Sherman, & Schotta, 1998). In their critical analysis of the literature between 1932 and 1988, Boud and Falchikov (1989) found, however, that explicit criteria for self assessment were unavailable, and that the reliability of the studies was therefore questionable. It must be underscored that in these studies, the teachers were not formally trained in self-assessment skills.

Research on self assessment at different levels in the education system has been conducted in various parts of the world. At the preschool and kindergarten levels, self assessment has been shown to have positive effects on student achievement (Mills, 1994; Boersma, 1995). At the primary school level, Towler and Broadfoot (1992) stressed the need for student training and a school-wide approach to facilitate the process. Additionally, self assessment was shown to have positive effects on academic achievement at the middle school level (Sink, Barnett & Hixon, 1991). More recently, McDonald and Boud (2003) provided empirical evidence that students trained in self assessment skills do better at school than those who have not been exposed to such training. But the question still remains, Exactly how does self assessment help a student to think?

To clarify terminology, one may ask, what precisely is meant by self assessment? Is it simply having students take upon themselves the task of assessing their own work, independent of their teachers or traditional external examiners? Is it spending time thinking about an assessment of one's work or performance provided by another person (classroom teacher, external examiner, coach, tutor, adjudicator, etc.)? Self assessment has been defined as "the involvement of students in identifying standards and/or criteria to apply to their work and making judgments about the extent to which they have met these criteria and standards" (Boud, 1986, p. 5).

Despite many variations in the way the term is used in the current literature, this researcher wishes to make an extremely important distinction at this point. As conceptualized here, self assessment is dependent on others: persons other than, and including, the assessor must agree on criteria. In contrast, some would include as self assessment those evaluations that are independent of others, where there is no agreement on criteria. The former is proactive, developing criteria to inform the future, whereas the latter is often reactive; the former examines a problem or situation prior to the activity, while "independent" self assessment typically examines the problem or situation after the fact. For the purposes of this discussion, explicit and agreed-upon criteria are key components of self assessment.

Boud (1995) posits that the defining feature of self assessment is that the individual learner ultimately makes a judgment about what has been learned, not that others have no input into that judgment. He further insists that, whether conducted by teacher or learner, the development of knowledge and an appreciation of appropriate standards and criteria for meeting those standards, and the capacity to make judgments about whether or not the work involved does or does not meet these standards (which involves critical thinking), are essential ingredients of the concept of self assessment. Basically, apart from testing/grading one's own skills/work, self assessment involves an active process of evaluating what would be considered good, mediocre, or poor work in any given situation. Topping (2002), McAlpine (2000), and Butler and Winne (1995) concur that self assessment actually alters the way in which a learner engages with a task.

There are numerous useful, enriching examples of informative criteria that have

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been designed for students. The following is one criteria-generating activity that I designed and have used with students in an undergraduate mathematics course that seeks to encourage student thinking and empowerment:

(1) In the spaces provided below list two reasons why you think MATH 163 is a useful course to take.
Reason 1:_____
Reason 2:_____
(2) With your neighbor, discuss the reasons you each listed.
(3) Now agree on, and copy below, one reason why MATH 163 is a useful course to take.
Reason 1:_____
(4) Copy the one reason you mutually agree upon on the chalkboard in the space provided for you.
(5) As a group, discuss and agree upon common reasons, using the list from the chalkboard as reference.
(6) On a scale of 1 (needing urgent attention in this course) to 5 (of moderate importance to the focus of this course) please rate the two reasons you first gave.
(7) The process is iterative, and reflective discussion is encouraged until consensus is reached.

In this particular example, the majority of students agreed that *acquiring problem-solving skills* was an important criterion for taking the course. Once the class had agreed on an acceptable list of criteria, they worked collaboratively to develop a rubric to rate the relative importance of those criteria.

Let us now look closely at a process that I have used and found effective in

developing students' self assessment skills. With a given problem on the blackboard, I write two options as proposed solutions, one below the other, and ask students to discuss which solution they think is better. I encourage students to ask their neighbors questions such as the following:

- *Why would you choose option A?*
- *Why would you choose option B?*
- *What is it about A that is better than B, or vice versa?*
- *Why do you consider that particular quality so important?*
- *What other aspects are significant?*
- *Are you perfectly sure you have made the best choice?*
- *Do you wish to change your mind now? If so, why*?

Several iterations may follow until consensus is reached on the criteria that are relevant. If there are differences of opinion, then the reasons/justifications need to be expressed and recorded.

From this example, it is clear that the process encourages students to reflect and think deeply because they not only have to give an opinion but also have to justify their opinions in the hearing of other active listeners. Finally, each student has to use the mutually agreed-upon criteria to evaluate him/herself.

As a example of the process of generating and negotiating criteria, let us use the topic of career choices to provide a working context. A conversation between the teacher and students might proceed like this:

Teacher: What career would you like to pursue?
Student: Medicine.
Teacher: Why would you want to choose Medicine?
Student: I can make lots of money.
Teacher: Any other reason?
Student: I can help humanity.
Teacher: Any other reason?
Student: I just like Medicine.
Teacher: OK, you have given me three reasons why you would like to pursue a career in Medicine: (1) making money, (2) helping humanity, and (3) love for the discipline. Now discuss with your partner his or her reasons for wishing to pursue a particular career, and write down all of the reasons given. Discuss your decisions, using questions such as: *Why is reason 1 better than reason 2 or 3?; Which reason do you consider most important, and why? Justify your choice for reason 1 or 2 or 3; etc.* Then, mutually agree on and justify those reasons why you both think a person should pursue a particular career. Record those reasons. Continue the discussion with others in the class, with the goal of arriving at an agreed-upon list of five things a person should consider, ranked in order of importance, in making the decision to choose to pursue a particular career.

Once the criteria have been agreed to, students develop a rubric that assigns relative values to them, and then use this rubric to evaluate their own reasoning with regard to career choices. Clearly, the process described above engages students in logical thinking. This was confirmed by a research study I conducted (McDonald, 2002), with a sample of 256 participants, into the effectiveness of this strategy for introducing self assessment. Students were invited to respond to a survey and to comment on any aspect of the self assessment program they desired.

Here are some notable quotes from students (names are pseudonyms) from different schools:

- *...better than I ever thought it would be… the program allows you to look inwards at yourself through the eyes of an external person and critically analyze yourself to your own advantage.* (Cara)
- *…at first I was skeptical about the idea of having to assess myself on my own without assistance from the teacher but later on I realized that formal training in self assessment allows me to be empowered to make judgements about real-life situations independent of an authority figure.* (Carl)
- *I found that my ability to reason improved tremendously as a result of formal training in self assessment skills.* (Lilly)
- *I realize that the program in self assessment training enhanced my own private study habits to my advantage* (Leo)

Self Assessment as structured thinking

Thinking involves using certain skills that may not necessarily come naturally to an individual. Applying these skills presupposes some form of deliberate training and monitoring to ensure that the person is provided with clear guidelines and opportunities to apply specific strategies to enhance or extend logical thinking, and to make the purpose and potential value of those strategies apparent.

The question at hand, therefore, is: How does self assessment assist an individual in learning to think? In other words, how does self assessment help an individual to formulate thoughts, reflect, ponder, exercise the power of reasoning, take a perspective or stance on an issue, believe, recall, remember, visualize, weigh, consider, or evaluate? In addition, how can teachers help students develop self assessment skills? Naturally, some students may already be in the habit of spontaneously self-assessing as their own means of improving their work. For example, several students I interviewed claimed to use concept maps, sticky notes, flash cards, cue cards, acronyms, rhymes, songs, etc. to help them organize their understanding and learning of new material. It is important to recognize that these students reported using these tools as a way of identifying or highlighting standards and/or criteria to apply to their work. For instance, while the sticky notes, flash cards, and cue cards focused primarily on summary points for a particular topic, the acronyms, rhymes, and songs zeroed in on criteria they considered important for their understanding of a given concept.

Teachers can incorporate self assessment techniques into classroom teaching in all subject areas. Let's say that a teacher is teaching a lesson related to the theme of color. After evaluating the prior knowledge of the students and choosing the most appropriate method to present the new material so as to link it to what students already know, the teacher may ask students to write down three reasons why they chose a certain color for a particular piece of artwork. As with the previous example on career choices, after the students have each written three reasons, students who are seated next to each other can then share and discuss their choices, with a view to writing two mutually agreed-upon reasons for their color choice. Because the number of reasons allowed is limited, students are forced to choose and to justify their choices. Once decisions have been made, the teacher may solicit the mutually agreed-upon choices and display them on the chalkboard to be discussed by the entire class. After arriving at a class

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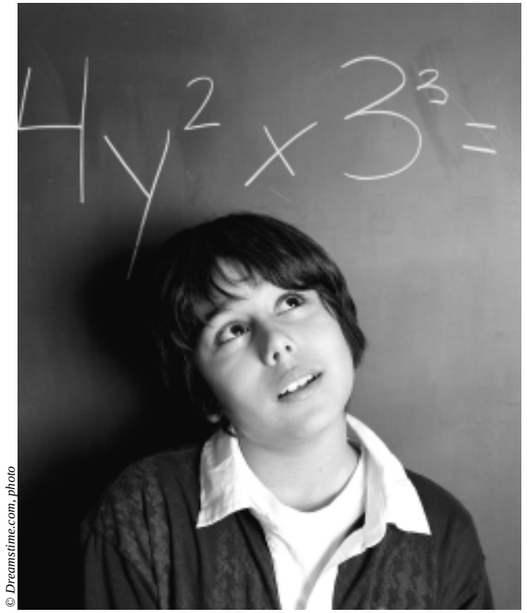
consensus, the teacher lists the agreed-upon reasons for the choice of color for the particular artwork. This criteria generation/negotiation exercise may be done in any subject area (Art, English, Geography, History, Mathematics, Science, etc.), and it is important that students have the opportunity to see it applied across the curriculum. In this way, they can come to realize that self assessment skills are not subject-specific. As students develop, the kinds of questions would change to suit their maturity, and the criteria would be refined and increase in sophistication, but the objective would remain essentially the same.

Teachers may wish to have students develop schedules for self assessment, so that it becomes a natural part of their activities. The hope is that after some time, students will embrace and internalize the process, having seen for themselves that the benefits derived from the exercise are worthwhile.

A simplified case study in self assessment practice: The difference it can make

Alan feels as though he is left out in class, and finds it a challenge to concentrate and do well with his assignments. He is reluctant to share his frustrations with his peers for fear of being publicly ridiculed. What options does Alan have? The



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conscientious teacher, Mr. Ron, aware of the value and techniques of self assessment, recognizes Alan's situation and refuses to believe that he is learning disabled or that he does not wish to succeed. Mr. Ron talks to Alan individually, and discusses the challenges and frustrations he is experiencing. Mr. Ron takes a particular lesson suggested by Alan and carefully and skillfully walks Alan through a step-by-step procedure for using self assessment techniques to help him fully grasp the concepts causing him difficulties. This entails a lot more work for Mr. Ron, but he reasons that the results will more than compensate for the sacrifices made.

For example, on the assignment Alan identified as problematic for him, he had worked out the following equation: $(a + b)^2 = a^2 + b^2$. This is a common error among students of mathematics. The step-by-step walk-through led by the teacher with Alan may have proceeded as follows:

Teacher: Let a = 1 and b = 2, then a + b = 1 + 2. OK. What is 1+2?
Alan: 3.
Teacher: So Alan what is $(a + b)^2$ equal to?
Alan: 3^2 or 3 x 3 = 9.
Teacher: So you are saying that $(1 + 2)^2$ = 9. OK. Now, Alan, what is 1^2?
Alan: $1^2 = 1 \times 1 = 1$.
Teacher: OK. Correct. Alan, what is 2^2?
Alan: $2^2 = 2 \times 2 = 4$.
Teacher: Very good, Alan. Now what is 1 + 4 equal to?
Alan: 1 + 4 = 5.
Teacher: Look very carefully at what we have now Alan… is 5 = 9?
Alan: Of course not!
Teacher: Now, that is why you were wrong in saying that $(a + b)^2 = a^2 + b^2$. All we have done is to substitute numbers for *a* and *b*. We let a = 1 and b = 2, and we found that what we had is not true. OK?
Alan: OK. I see that.

At this stage, the teacher may explain that $(a + b)^2 = (a + b)$ **x** $(a + b) = a^2 + 2ab + b^2$ by using any of several methods, like multiplying each term step-by-step. The teacher may wish to use a square with sides a + b and show that the total area within the square is made up of four sections with areas a^2, ab, ab, and b^2. The sum of all these four sections yields $a^2 + 2ab + b^2$, which is the total area of the square $(a + b)^2$. For reinforcement, the identical numbers a = 1 and b = 2 may be substituted, and the result verified.

The point of these calculations and demonstrations is to make clear to the student that there are three steps that need to be checked, or criteria to be kept in mind.

Then the conversation may proceed as follows:

Teacher: OK, you have identified for yourself standards and or criteria for your choice: (1) correct substitution, (2) correct addition, and (3) correct squaring of the added amount. Now look at these answers (Alan is given a series of solutions generated by 3 other students, May, Jon, and Amy) and assign scores as in Table 1.

After allowing sufficient time for Alan to think through the process and analyze the solutions generated by other students, the teacher provides affirmation by saying:

Teacher: The three agreed-upon reasons were: (1) correct substitution, (2) correct addition, and (3) correct squaring of the added amount. You are saying that May would receive a score of 1 because she substituted correctly. Jon will receive a score of 2 because he substituted correctly and added correctly. Amy would receive a score of 3 because she substituted correctly, added correctly, and squared the added amount correctly. So you have decided on criteria for your choice of answer, and you have used those criteria to make judgments about the extent to which those criteria were met by May, Jon, and Amy. That same process, of determining criteria, and then employing them to evaluate our own work, is the process of self assessment. Now go ahead and pretend you are the teacher, with Alex as the student, and try using other examples from his assignment.

Table 1 — **Rubric for self assessment task**

Score	Descriptor
1	Only substitution is correct
2	(1) substitution is correct and (2) the addition is also correct
3	(1) substitution is correct, (2) the addition is also correct and (3) squaring of the added amount is also correct.

Here again, the process described above fosters logical, deep thinking.

Mr. Ron, with input from Alan, designs a self assessment record sheet that Alan can use with this particular lesson, as well as with other lessons in any of Alan's other subject areas. Part of the self-assessment schedule looks like in Table 2.

Table 2 — **Selected section of a student's self assessment record sheet**

Student mark obtained from a total of 10	Score meeting standard		Student's comments or judgments based on a 10 point scale and specified criteria
	Yes (✓)	No (✓)	
10	✓		Excellent, techniques used are OK
2		✓	Poor, needs to focus on key issues
7	✓		Good, but better precision required

Alan realizes that Mr. Ron is concerned about his welfare and takes an interest in his performance. Mr. Ron is not depending on on-the-fly opportunities to convey important concepts, and this careful planning comes across to Alan as a genuine concern on the part of his teacher. Mr. Ron does a lot of up-front reflective work. He uses Alan's feeback and seeks the advice of his colleagues. This process encourages Alan, and makes Alan more accountable for his own progress. Alan then recognizes that he is empowered to succeed. He can reflect on his actions and freely comment on his own performance without fear of victimization. This makes a tremendous difference in Alan's personal life.

The synergy this activity generates extends to other subject areas and permeates all of Alan's activities, thereby propelling Alan to see his success and progress as his responsibility. In addition to the task-specific criteria negotiated with the teacher, Alan gradually expands the criteria applied to his work to include clarity, neatness, organization, accuracy, coherence, relevance, and justifiable reasoning. He assesses his thinking as he moves along (critical thinking) to the extent that he does not have to be told how he is doing. His expectations are bound in reality, rather than in wishful thinking. He is willing to work hard without being told to do so. Multiple opportunities are provided for personal improvement. With minimal didactic instruction, he is not overly dependent on his teacher. Alan's self-concept, self-esteem, self-efficacy, self-confidence, self-actualization, and creativity noticeably improve as he moves through school. Absenteeism, tardiness, procrastination, and excuses become practices of the past. Alan's peers cannot help noticing the changes in his work and attitude. They emulate Alan, and therefore reap similar benefits.

It would be tempting to dismiss this scenario as unrealistic and not easily achievable. However, this researcher is relating a real life experience, and the development portrayed has been observed first-hand. Certainly, not every situation will result in success of a similar magnitude, but the point is that such possibilities are worth recognizing. Mr. Ron himself uses self assessment as an integral part of his program, and uses the insights gained to reorganize his class and pedagogical practices to better facilitate his students' learning. Needless to say, such changes demand an enormous amount of effort, collaboration, energy, dedication, determination, and persistence that must not be taken lightly. Here again, not all teachers may experience the remarkable success that Mr. Ron experienced with Alan, but the fact that some do is worth acclaiming.

Conclusion

When teachers believe in the potential of their students and use self assessment skills to empower them, students are encouraged and see school as a friendly, hospitable place that fosters learning in a comfortable atmosphere. When self assessment is made a meaningful part of learning, students see themselves as individuals with unique abilities and talents that can be nurtured and developed. Self-esteem flourishes. Teachers are also encouraged by the changes they see in their students, and they too will feel fulfilled and fueled to move on.

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Letter to the Editors

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In response to the article ***«The Role of the Humanities in Post-Conflict Societies, or Do They Need Poems Here?»*** *by Patricia Bloem, David Klooster, Asone Wollor, James Harris, and John-Paul Noah published in Vol. 9 issue 2, 2008.*

Dear Editors,

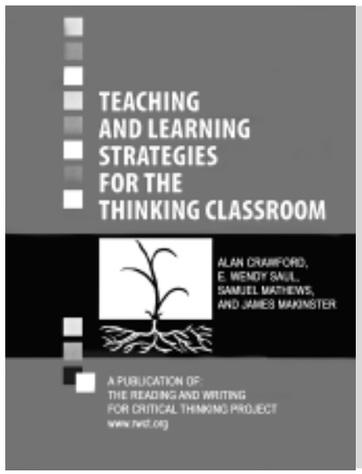
I would like to add my voice to the discussion of what needs to happen to put the broken pieces together for Liberian education. The scarcity of qualified teachers and the mass failures of Liberian students to pass exams have motivated me to advocate for the training of teachers.

Our unqualified teachers must be trained and given the right tools for quality education for the benefit of our students. Arrangements should be made to have unqualified teachers participate in workshops and seminars during every long vacation in order to upgrade themselves. The two rural teacher training institutes at Zorzor and Kakata must be strengthened and equipped in order to encourage teachers to enroll for training.

In order to keep our teachers in classrooms and in the teaching field, we also ought to consider the question of incentives and attractive salaries, which I believe, will encourage more teachers to enroll in the teacher college and other teacher training institutions.

Every aspect of the Liberian society has been affected by the devastating civil war. Most of our teachers have died, some have fled the country, and others are refusing to return to their native homes to teach because of low salaries. In order to put the broken pieces together, we must train or teachers, we must give them encouraging incentives and attractive salaries, and we must encourage our university professors to help train our teachers during the vacations.

Korlu M. Okwumuo
University of Liberia.



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William G. Brozo

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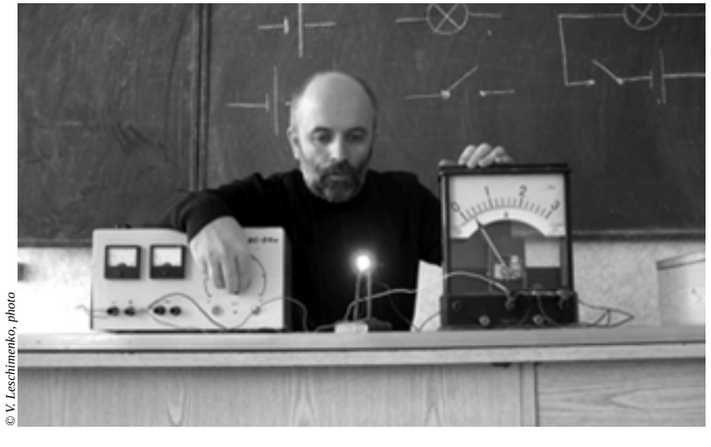
Developing Academic Vocabulary

William G. Brozo is Professor of Literacy in the Graduate School of Education at George Mason University, Fairfax, Virginia, USA.

Vocabulary knowledge is one of the five essential components of effective reading (RAND Reading Study Group, 2002). Thus, helping students expand their knowledge and use of words is an expressed outcome of schooling. Certain words, however, have more currency than others in academic contexts. Helping students recognize and understand specific terms and concepts encountered in disciplinary texts and classrooms (science, social studies, mathematics, language arts), and use these terms appropriately, is one of the essential challenges for any teacher (Marzano & Pickering, 2005). Knowledge and facility with academic vocabulary makes it possible for students to engage with, produce, and talk about texts that are valued in school and on standardized assessments (Flynt & Brozo, 2008). It allows students to read with understanding and communicate their knowledge on tests, in discussions, and in other class demonstrations (Harmon, Hedrick, & Wood, 2005). And it helps youth take advantage of career and professional opportunities that might not otherwise be available to them (Brozo & Simpson, 2007).

To develop students' knowledge of and facility with academic language teachers should take advantage of three overarching principles of effective word learning.

- Students must have both definitional and contextual understandings of words in order to know them really well (Nagy & Scott, 2000).
- Students need multiple exposures to words in multiple contexts (Blachowicz & Fisher, 2004).
- Students must be active participants in the word learning process (Stahl, 1999)



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Three strategies that take full advantage of these principles of vocabulary teaching and learning are ***Word Grid***, ***Vocabulary Self-Awareness***, ***Vocabulary Cards***. These strategies are ideally suited to building both contextual and definitional word knowledge, and providing students repeated exposures to new vocabulary.

Word Grid

The word grid is an effective visual technique for helping students learn important related terms and concepts (Brozo & Simpson, 2007). It provides students with an organized framework for learning words by analyzing similarities and differences of key features (Johnson & Pearson, 1984). Learning vocabulary through the use of word grids allows students to contextualize vocabulary knowledge, which increases comprehension of disciplinary texts and topics (Nagy & Scott, 2000).

Tanya provides her science students a blank word grid, with plenty of columns and rows, for an upcoming lesson or chapter. At the same time, she puts a large version of the grid on poster paper and displays it on the wall. Grids can also be projected from an overhead projector or computer. As the class encounters critical related terms and defining information in the text, Tanya directs students to write them into their word grids as she writes them into the large grid. She also invites students to suggest key terms and features. To take full advantage of word grids, they should be co-constructed with students, so as to maximize participation in the word-learning process.

As each new term is added, Tanya discusses its features with her students before marking the grid to show whether the term possesses or does not possess the feature. In the grid below on *Purposes and Designs of Graphs* features are marked with pluses or minuses.

Once the grid is complete, Tanya demonstrates for students how it can be used to study key terminology based on critical defining characteristics. She then quizzes students by asking questions about the similarities and differences among the words. In this way, students will make a connection between the effort they put into completing and studying the grid and their performance on word knowledge quizzes. For instance, Tanya will ask students to provide similarities and differences between pairs of terms, as in, "What are two common characteristics of bar graphs and line graphs?" or "Give me two ways that pictographs and line plots are different."

Finally, Tanya allows time for students to quiz each other on the content of the grids in preparation for tests and other vocabulary-related activity.

Vocabulary Self-Awareness

Another approach to word learning that promotes generative learning is the vocabulary self-awareness strategy. Because students approach new topics from different backgrounds, bringing a range of word understandings to learning in the content areas, it is important to assess students' vocabulary knowledge before assigning reading or other tasks involving text (Fisher, Brozo, Frey, & Ivey, 2006). This awareness is valuable for students because it highlights their understanding of what they already know, as well as what they still need to learn in order to fully comprehend the reading (Goodman, 2001).

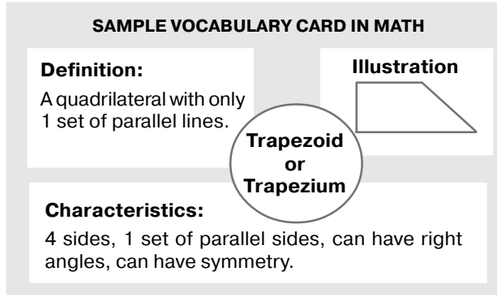
Nasim provides students a list of important words at the beginning of each reading or unit and has them write the words into a vocabulary self-assessment chart (see example on p. 48). He asks students to complete the chart before the lesson begins, rating each vocabulary word according to their level of familiarity and understanding. A plus sign (+) indicates a high degree of comfort and knowledge, a check mark (✓) indicates uncertainty, and a minus sign (–) indicates the word is brand new to them. Nasim also asks students to try to supply a definition and example for each word. For words with check marks or minus signs, he tells students to make guesses about definitions and possible examples.

Over the course of the reading or unit, Nasim allows time for students to revisit their self-awareness charts, to add new information and update their growing knowledge about key vocabulary. His goal is to bring all students to a comfortable level of understanding of the unit's important content terminology. Because students continually revisit their vocabulary charts to revise their

Table 1 — **Word Grid:** ***Purposes and Designs of Graphs***

	Requires scale	Requires horizontal and vertical axis	Requires number line	Compares parts to whole	Shows individual pieces of data	Shows trends	Shows frequency
Bar graph							
Pictograph							
Circle graph							
Line graph							
Line plot							

Table 2	Example of a Vocabulary Self-Awareness Chart in Science				
Word	**+**	**✓**	**–**	**Example**	**Definition**
density					
mass					
volume					
weight					



entries, they have multiple opportunities to extend their growing understanding of the words and practice using them.

Vocabulary Cards

Another strategy designed to help students learn terminology specific to academic contexts is the use of vocabulary cards (Blachowicz & Fisher, 2002). Vocabulary cards have been shown to increase depth and breadth of word knowledge, resulting in greater comprehension (Rekrut, 1996).

Anna, a math teacher, demonstrates how to create a vocabulary card by writing a key term on the board and drawing a large, rectangular card-like frame around it. In the corners of the card she writes a definition, characteristics, and an illustration of the term, as shown in the example below for the word *trapezoid/trapezium.* The format of vocabulary cards is flexible, so they can be modified depending upon what information or applications teachers require students to learn.

Anna then provides students a list of key vocabulary terms from the upcoming math lesson and has students write each one in the center of a 3x5 index card. Anna discusses with students how the cards can be reviewed quickly and easily in preparation for tests, quizzes, and other activities using the word. As material is covered and content is read, Anna guides students in filling out their cards with the required information.

Once students complete their cards, Anna allows time for them to review their words, both individually and with a partner. She then quizzes students on the content of their cards, including questions and tasks that require recall and understanding of all the information on the vocabulary cards.

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