

# Editorial **TEACHING STUDENTS TO BE GOOD THINKERS AND GOOD LEARNERS IS OCCUPATIONAL THERAPY FOR THE MIND**

## **ENSEÑAR A LOS ALUMNOS A SER BUENOS PENSADORES Y ESTUDIANTES ES TERAPIA OCUPACIONAL PARA LA MENTE**

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**Summary** In this editorial I describe a rich classroom activity in which a teacher, facing students whose school work has been primarily rote learning since they began school, challenges them to use their decision making to determine what the best energy source is for their region to rely upon. Typically they start with an attitude that they can't do that sort of thing. But the teacher tells them that they can, and shows them. Through the application of a new educational methodology called "Thinking-Based Learning", she guides them to do just that, using a strategy for making a well thought-out decision that takes them step by step through the process. And they do it. But they not only make decisions that they can defend, they also learn how to turn their thinking into good powerful persuasive writing. It is that final step that gives them all a feeling of accomplishment that cements their new optimism reflected in the attitude of all of the students that making careful decisions that they can defend is something that they can now do, and do well. In the editorial I reflect on two things: (1) whether this model, aiming at an intellectual accomplishment, embodies tactics used by this teacher that can inform the work of occupational therapists, but (2) how we can use the rich model of healing practiced in occupational therapy to celebrate the work of this teacher as genuine occupational therapy for the mind.

**MeSH** Teaching Methods; Thinking Skill; Creative Thinking; Leadership; Occupational Therapy.

**Resumen** En este editorial describo una actividad rica en el aula en la que la profesora, enfrentándose a los estudiantes cuyas tareas habían sido principalmente de aprendizaje de memoria desde que comenzaron la escuela, les desafía a usar la toma de decisiones para determinar cuál sería la mejor fuente de energía para la región en la que habitan. Según lo esperado, comienzan con una actitud de "No puedo hacer este tipo de cosas". Pero la profesora les dice que son capaces y se lo demuestra. Mediante la aplicación de un método educativo nuevo llamado Aprendizaje basado en el pensamiento, ella los guía usando una estrategia para tomar una decisión bien pensada que les lleva paso por paso a través del proceso. Y lo consiguen. Pero no sólo toman decisiones que pueden defender, también aprenden cómo convertir su pensamiento en escritura potente y persuasiva. Ese es el paso final que otorga un sentimiento de logro que cimienta su nuevo optimismo reflejado en la actitud de todos estos estudiantes: Tomar decisiones prudentes que puedan defender es algo que ahora son capaces de hacer y de hacerlo bien. En el editorial reflexiono sobre dos cosas: (1) Si este modelo, con el objetivo de alcanzar un logro intelectual, incorpora las tácticas utilizadas por esta profesora que puedan formar el trabajo de los terapeutas ocupacionales, y (2) Cómo podemos utilizar el intenso modelo de recuperación realizado en TO para homenajear el trabajo de esta profesora como una auténtica terapia ocupacional para la mente.

**DeCS** Enseñanza; Pensamiento; Creatividad; Liderazgo; Terapia Ocupacional.

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Teaching students to be good thinkers and good learners as occupational therapy

1. This is the beginning of a recommendation by a student in a 2nd eso classroom to the government about the best energy source to invest in as an alternative to continuing to burn fossil fuels.

**Methane Power**

*"Distinguished Congressmen, it is our pleasure to inform you that after years of research, the Department of Energy had decided on an alternative energy source. We have considered many options, including fusion, geothermal, solar, wind, fission, tidal, hydroelectric, and battery power, but methane power had proven to be the best choice. We recommend that money be provided for the research and development of methane gas as an alternative energy source, because it's source is plentiful, producing it cleans the environment, and we can easily solve the problems of transporting it when that is needed. Using methane as an alternative energy source would result in many positive outcomes. As you may already be aware of, organic materials are one of the sources of methane. There are many types of systems including the Novel Gas-fired Incinerator and the Two Stage Waste Combustor. A system called the Digester can easily be built in any ordinary home. Using the Digester to produce methane is environmentally convenient because it uses organic materials such as cow manure. The materials are placed inside the system and produce gas. Anything remaining that is not "digested," can be used as fertilizer....."*

Let's backtrack a little. In this student's science class everyone was supposed to read in the six pages of their text book under the heading "Energy Sources" descriptions of how electricity is generated by damming up rivers, burning oil and/or coal, nuclear reactions, wind, and the use of solar energy. In all of these the story was the same: natural energy like heat, the power of falling water, or wind drives turbines or generators which generate electricity. In class, though, the teacher said: we are going to do something now that will challenge your thinking: I am going to ask you to figure out what would be the best energy source for the region of the country that we all live in. And no guessing!

This stunned these students. Challenge our *thinking*? The only thinking they had ever been asked to do was to memorize important names and dates and remember them to give back on tests (or use mathematical operations with a formula they memorized to get the right number that resulted). One student said "I can't do that – that's for experts, and I'm not one." The teacher smiled. She said "Well, you may think you can't do this, but you really can."

She then worked with the students not on energy sources but on how to make decisions.

They used examples from their own decision making of both good and bad decision making and then tried to develop a step-by-step strategy that would avoid the errors and get them to a decision that they could feel confidence in. What they produced was this (figure 1)<sup>(1)</sup>:

<p><b>SKILLFUL DECISION MAKING</b></p> <ol style="list-style-type: none"> <li>1. What makes a decision necessary?</li> <li>2. What are my options?</li> <li>3. What are the likely pro and con consequences of each option?</li> <li>4. How important are the consequences?</li> <li>5. Which option is best in light of the consequences?</li> </ol>
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Figure 1. Skillful decision making

2. This is as a series of questions that the students – and the teacher -- thought that they needed to ask and answer before they could reach a well thought-out decision. Following this plan and practising it regularly was now the teacher's plan. She thought that this would lead to these students *developing skill at decision making* – in more traditional terms, they will have developed and use when appropriate a *thinking skill*. I call this a "Thinking Map" – not a pictorial map but nonetheless something that guides them through a process of thinking. And there are many more thinking skills that these teachers can teach their students starting with the development of appropriate thinking maps, fitting into traditional categories like *Critical Thinking* and *Creative Thinking*. The plan of these teachers is to turn this back on using these thinking skills to engage with the curriculum. Typically, when teachers have used any of these thinking skills, as appropriate, to engage with specific curricular content then they find that the understanding exhibited by their students becomes deeper and richer. So, for example, skillful decision making is



quite appropriate in the lesson I am describing. The primary question is a decision making question: what is the best energy source to use for the region of Spain that the students are in. These students will be practicing using skillful thinking to judge the best course of action for their region. And of course these techniques will arm them to use the very same techniques in their own lives what an important decision needs to be made.

But looking ahead, what about critical and creative thinking skills will these students learn? Well, some of the important types of critical thinking that they will also be learning to do with skill are: judging the reliability of sources of information in order to judge how likely it is that the information they are passing to us is accurate<sup>(1)</sup>, determining the most likely cause of some event that it is important to try to prevent from happening again<sup>(2)</sup>, and determining whether a prediction we are consider is well-founded on the facts<sup>(3)</sup>. In all of these the students will learn – and practice – that to make these judgments well depends on searching for and then evaluating the facts in everyday situations that they find that serve as evidence for or against the likelihood of possible explanations, predictions, and assessments of reliability, or render these uncertain. Using critical thinking to *understand the causes of things*, like, for example, finding out base don evidence what is causing certain species of animals to be endangered, in contrast to just guessing, is crucial if we are going to try to reverse this. And with regard to predicting, well anyone can make any prediction they want about the future, but which should we take seriously? What can we expect that the effects of global warming will be beyond what we have seen so far? This is controversial. What can our students say about this. Or what can we anticipate that a character in a novel we are reading will do to in a challenging social situation she finds herself in, and why? Or if they are younger children, what do they predict will happen if the dress certain ways in the Winter? Why? And of course if I get information about something I am trying to find out about on the internet I had better ask, and try to find out, if it is coming from a reliable source. These are crucial types of critical thinking and in good thinking classrooms teachers will teach their students to do these carefully and with skill as well, all through the study of important topics in their curriculum.

But more important, think about how, when the students we are discussing, learn how to use these types of thinking skillfully as they go through the process of decision making (and problema solving). Then teachers can help them enrich their decision making. They will need to base their decisions on reliable sources, their predictions of consequences of options should be well-founded, and in problem solving their assessment of the causes of the problems they are trying to solve should be based on the use of careful and skillful causal thinking. And for both of these, at the very start of the process, when developing a list of options, it is important to use good creative thinking to develop some creative ideas – sometimes these are better ideas than the more conventional ones. A person making a decision will never think of these if he or she doesnt exercise good creative thinking.

3. For now, though, let's go back to the thinking activity about energy that I have been descibing. These students are just beginnjng this process and learning how to use basic decision making in a way that will yield decisions that they can gain some confidence in, enough to want to – and be able to – defend with good reasons.

To help students succeed in this type of learning their teacher employs a different classroom methodology from that practiced in lecture/memory-based teaching. Rather than tell students things that they want them to memorize they help them to figure out how to respond to these challenges with skill, and using question strategies like those used in skillful decision making accomplishes this.

In addition to this methodology teachers usually help their students to learn to work together in *small collaborative thinking groups* of between 2 and 4 so that they learn how to interact in their thinking and learning with each other instead of trying to learn as individuals and compete with the other students. This acknowledges that good thinking and learning is social thinking and learning. And a good teacher of thinking who practices these classroom tactics may also help her students learn *how to communicate their ideas well based on the thinking that they did* just as the student who wrote the piece about methane as the best energy source. To communicate such thinking well



it is important not just to endorse this choice but to explain why<sup>(3)</sup>.

Of course what I have said is a simplification of a process that starts with 3 and 4 year olds in much simpler ways, and gradually moves up through the grades with more and more sophistication. Sound familiar? This is skill-oriented teaching and it is just like teaching students to use their language, teaching them the processes of mathematical operations, and teaching them to develop any number of skills in athletics. But, of course, these skills, taught with the spirit of helping students to guide themselves in these forms of thinking, has at its basis the dual convictions that students can learn to do a great many things themselves that they have thought they were incapable of. What the goals of this kind of instruction are are not just things that go on in their minds, but translations of those inner workings into actual performances like writing a persuasive letter that represent a clear example of good thinking.

This is a change in instructional methodology that carries with it *elevating the development of important thinking skills as priorities in their curriculum* so I call it "Thinking-Based Learning". And Thinking-Based Learning is rapidly becoming the methodology of choice in many schools that realize that the old way – rote learning – does not work well at all in helping students learn and develop skills that they need to use in their lives outside school every day of their life.

4. What can we learn about the practice of this teacher. The teacher said: let's try to make this decision about energy sources step by step about energy sources. Now these students had something they could work with. And a few of them said "That doesn't seem too hard". So the teacher said – let's start, but let's not respond to these questions too quickly. Let's really think. So let's look at question 1 first: why do have to decide this? The consensus was that burning fossil fuels is a health risk – air pollution, global warming, and sometimes pollution of our water supply. Where did they get this? Not from their text books, but from their experience in the world outside of school. Everybody was talking about this. So the teacher went on. Ok – now let's go to question 2: what could we do? And she produced a special graphic organizer, had the students work in teams of three, and first list options. She said, don't just list the energy sources in your textbooks, list whatever you think might work. And try to be creative. Think about new ways that we might get energy that we can use. The teacher gave the groups a little time, asked for reports, and then wrote on the board the alternatives collected from all the groups.

Next she said let's work on the second column – what kind of *consequences* would you try to find out to decide whether a particular energy source is a good one. All the students were now involved, even the boy who said he couldn't do this. Where did they get this information: from things that they heard and read about outside school. And notice how working in a team produces a rich and varied list<sup>(1)</sup>.

So where did they go from here? Well, the teacher asked each of the groups to work with one of the options and go and gather information that answered the questions, for example, how much will it cost, about their energy source. So how much will a solar panel cost? She said, take three days and then let's get back together and see what you have found. Now all the students were on this – and with enthusiasm. The result was a rich and full chart of each option to consider so that each option could be compared and contrasted.

But instead of dwelling on details, what did the teacher do next? She asked each student to look at this chart, compare the different energy sources, and choose the one they thought would be best, but to *be prepared to explain why*.

Table 1. Options and factors to consider in skillful decision making

Options	Factors to Consider
Nuclear	Cost to produce the energy
Solar	Availability
Coal	Environmental Impact
Oil	Renewability
Tides	Safety
Lightening	Cost of the energy
Geo Thermal	Ease of production
Wind	Jobs lost or created
Waves	Public acceptability
Burning garbage	Technology needed
Hydroelectric	Accesibility
Animal Power	Cost to convert
Methane gas	
Chemical reactions	
Natural gas	
Gravity	



And then to write something to the government explaining why they think the source they chose will work best. And she was going to send these recommendations to the government!

The boy who said "I can't do that" was the boy who wrote the methane recommendation part of which I showed at the beginning of these comments. And this activity then opened up these students to go right to it in the same way when they have to make the many decisions that come up in their own lives. And their practice has perfected how they do this.

5. Why have I written all of this in the *Journal of Occupational Therapy*? I have two reasons. They are both based on the recognition that while the details are different the parallel in goals and structure between Thinking-Based Learning and occupational therapy should be obvious. The goals of occupational therapy, in contrast to conventional medical practice, are broader and richer, and deal with the whole person. Well we know that often without occupational therapy, people who can do things that they think they can't don't even try. This is an attitude about themselves – in its extreme an "I am a failure" attitude – that keeps them from trying. Occupational therapy practitioners know this only too well and know that breaking down this attitude is crucial to therapeutic success. And how – steps taken one at a time that can be accomplished relatively easily first. And these are always identified by the patient as steps towards their goal. Now they are thinking that maybe they can. Then they are ready for that next step. And of course when they reach the goal they celebrate that. We all know what a positive breakthrough that can be, and how easy that then makes it to help the patient get into a routine of practice. And I want to stress also something that occupational therapy practitioners have commented on – the transfer of all of this to other areas of the life of the patient that he or she had given up on. "Maybe I can do those other things too!!"

So let me first spin out what seem to me to be benefits that occupational therapy practitioners can reap from this model of teaching thinking. The first set of things I want to mention comes out of the internal workings of the decision making model that I have just described. It is the social support each member of the collaborative teams provides for each other. I am not familiar enough with the variety of practices that occupational therapy therapists use, but, as we know also from Alcoholics Anonymous, there is power in a support group. What is it? Not "I don't want to fail in front of these other people" but in what the others members of the group say to each individual in the group: they say with their eyes "We know you can do it!"

But there is a second. The activity I described is one practiced with similar success by many teachers at many grade levels. Its key is the in the teacher guiding the students to **engage metacognitively** in both identifying the process they were going through in detail and as a thinking process in large part because the teacher makes that **explicit**<sup>(4)</sup>. Everyone in that classroom knew that their forward motion was promoted by questions from the teacher that were variations of the explicit plan for good decision making that they had developed. They had a plan that they all knew, and they were going to go through it step by step knowing exactly what they were doing every inch of the way. **Is this practice that is crucially embedded in attempts to teach students thinking skills** something that can also be superimposed on occupational therapy practice? This would involve helping patients think through what they are doing consciously and deliberately. And like these students, if they practice that enough guided by the teacher will they start guiding themselves next time it is needed and the teacher is not around. You quite rightly all are not just doing physical therapy. You are doing therapy that affects self image, self-attitude, and its ability to block or guide what a person does. And when what someone who starts with a negative self image and needs a lot of help overcoming this then learns how to guide themselves that is a great accomplishment, whether it is about what the best energy source is or how to take one step after another with an artificial leg.

6. Now my second set of thoughts about this. Let's go back to the students we started with. Surely, what these students accomplished, while intellectual, was engaging in a real real world activity that they would do when needed again and again -- an *occupation* in the full occupational therapy sense. They were now not only able to explain why they think that something is right, but to turning that into good honest piece of writing designed to convince others. For Thinking-Based



Learning teachers there is no real learning until this happens. Now substitute "healing" for "learning". For me *the teacher of this class was a real occupational therapist* in the rich sense of that term. Think of what traditional schooling has done to many of our students. It cripples them. That's where many of them come to think that they can't really figure out things for themselves and that they need to be told them by others and memorize them if they are to succeed. All teachers can learn to reverse that just as all students can become better thinkers and better learners. This is *cognitive and intellectual occupational therapy, occupational therapy for the mind*. And teachers can learn the subtleties of occupational therapy from you all in a way that I am sure will strengthen their role as Thinking-Based Learning teachers just as, I hope, what I have written about strengthens your roles as occupational therapists.

What a better world we would live in if that happened!

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