



## Mr. T. and Me

By JOHN BICKART, Ph.D. | *Science Education and Spiritual Transformation* / Chapter 5: Interrogation versus Observation

How does one transform students by teaching them to become better observers? I could not imagine! Nevertheless, that was a mantra I heard as I was learning to be a teacher, from my mentor, Mr. T. One of my favorites was, “**TRANSFORM the very lives of the students by teaching them how to perform a simple OBSERVATION!**” He was my friend and perhaps the best science teacher I have ever met. He was a strong proponent of the distinction between *interrogation* versus *observation*. He taught me that observing nature is like listening, while interrogation could put nature on the witness stand and start an aggressive grilling like the lawyer that everyone dislikes in those movies.

Have you seen those movies where the lawyer cuts off the chance for the innocent to speak? You know that inappropriate lawyer who you always see badgering the witness saying, "When did you stop hitting your brother?" This kind of questioning is simply leading the witness. It assumes that you were 'hitting your brother' in the first place. If there is no objection, and the question stands, it places an incredibly unfair limitation on the answer. An unfair courtroom would go something like this ...

Unfair prosecutor: "When did you stop hitting your brother?"

Witness: "I didn't hit my brother."

Unfair prosecutor: "Please answer the question, I asked, ... **When** did you stop hitting your brother?"

\*\*\*\*\*

Do you see the problem? Mr. T. would show me instances where we could unintentionally be the unfair prosecutor if we were to practice science by aggressively interrogating rather than observing. He would say, "You have to let nature speak. You must listen to her so well, that you can hear what nature would like to say? If you are with me, then you are going to love Mr. T. I wrote about him in the book, *The Next Version of You* (Bickart, 2018, Chapter 10, "Mr. T."). I miss him. Here is his chapter in its entirety.

\*\*\*\*\*

### **Mr. T.**

Did you ever hear someone say, "He was 'larger than life'?" They could have been talking about Mr. T. The "T." was short for Tomlinson. He was one of my heroes. He was a large, barrel-chested man with an exaggerated walk, exaggerated talk, and a dramatic teaching style that kept every student and teacher that knew him so much more than amused. He was smart and self-taught. He started as the bus driver, but ended up teaching high school sciences at the Waldorf School of Garden City, Long Island, N.Y. before going on to teach and consult to many other Waldorf schools. If students or teachers

wanted a break on the way home from school, they would make 'the T. stop' at his house.

I met him in 1975, in my first year of teaching. He was my mentor. I scurried behind him, taking notes furiously, as he showed me the secrets of being a Waldorf science teacher. He couldn't say anything without an air of mystery and drama. Every demonstration - of any phenomenon - was vitally important. "John," he would say, "you probably think turning on the water faucet is common and boring, don't you?" He would wait – develop a dramatic, mysterious squint – wait again – then make me say, "Yes," even though I knew it was a trap. "Ah, but you would be wrong!" he would boom out triumphantly. "This water comes from far, far away, traveling over stupendous rocks and under magnificent forests, to make it to what you call a common faucet!" Then he would wait again and do the mysterious squint until I showed my respect and amazement. He was larger than life. And I loved him and the students loved him and the teachers loved him and the parents loved him. You had to love him or he would wait – then mysteriously squint at you until you loved him.

Mr. T. taught me to do a simple science demonstration that he claimed would, "*TRANSFORM the very lives of the students by teaching them how to perform a simple OBSERVATION!*" I have since done this demonstration with kindergarten children to adult students. It's funny. I have always gotten the same amazing reaction to it. If I didn't, I mysteriously squinted at them until I did. I have tried it with students from Peewaukie, WI to Charlotte, NC to Shelburne Falls, MA to Wickatunk, NJ and even with incarcerated adult students in Asheville, NC. What's even

funnier is the way that this particular science demonstration appears in most physics textbooks. As Mr. T. taught me, the textbook writers have analyzed it incorrectly because they are lacking essential *context*. Their context includes part of the picture, not the whole picture. So, here's Mr. T.'s amazing, mysterious, vitally important – but very common - science demonstration (are you ready to be *transformed*? ... I'm squinting).

The demonstration quite simply starts with three bowls of water. One is hot, one is room temperature, and one is cold. Each student is asked to put one hand in the hot bowl and one hand in the cold bowl and hold them there for about 5 seconds. (Have you done it?) Then the student is asked to put both hands into the middle, room temperature bowl of water, and report aloud what each hand feels. Invariably the student reports that the formerly hot hand feels cool and the formerly cold hand feels warm.

Here, Mr. T. would carefully note that the student with his or her hands in the water is dealing purely with *observation*. "Observation is an *intuitive* act!" he would claim, emphatically. "Now John, don't worry about what I mean by intuitive in this context, I'll explain that in a moment. For now, put all of your attention – I mean ALL of your power of observation - on what your hands are experiencing." He exhorted me that pure observation requires NO THINKING, NO ANALYZING, and NO REASONING - it basically activates the intuitive side of your mind that takes in first impressions as a whole, *before* thinking about them. "Well, John? What have you observed?"

“I sensed that the water in the middle bowl felt warmer to one hand and cooler to the other.”

“Aha!” boomed Mr. T., “you just had a purely intuitive perception! Your body received the physical sensation while your mind noted (but did not THINK ABOUT) the observation of each of your hands.” Mr. T. then explained that most science texts describe this demonstration and, of course, ask if your two hands experience the middle bowl of water differently. “But,” he dramatized with his amplified voice and his arms outstretched (and need I say, a mysterious squint), “do you know what the textbooks claim next?” – dramatic pause – “they fault the human body's senses!” And Mr. T. was right.

I have since seen many science textbooks do just what he said. I looked it up for this essay so I could make a citation, as one physics textbook put it, “Can we trust our sense of hot and cold (Hewitt, 2002, p. 291)?”

I loved Mr. T. and I was trying to summon respect and amazement, but at this point, I almost said, “Really? It's just hot, cold, and medium water.” Boy, am I glad I didn't. But really, what was Mr. T.'s problem with the textbook? It seemed to me that my body actually *was not trustworthy*. It was sending me mixed signals. At a first glance, it sounded to me as if the textbook was asking a reasonable question, ‘can we trust our senses’? The textbook was, of course, implying the conclusion that our senses were wrong and therefore not to be trusted. It was probably the conclusion most new students and many teachers give: don't trust your senses.

But Mr. T. had a different take, "My problem with this textbook's assessment of the untrustworthiness of our senses is based on the assumption that the body should act as a thermometer and tell us the temperature of the water. John, do you agree that the textbook wants you to be a thermometer and tell the relative temperature of the three bowls?"

I had to answer, "Yeah."

Now, he's gaining momentum, "Obviously, we all know that if you stuck a thermometer in each of the three bowls and waited a number of seconds, you would get three accurate readings of hot, cold, and room temperature water. But for argument's sake, pretend you are the student. Here's what would have just happened to you. This textbook - this analysis - has just made some pretty audacious and arbitrary demands of your body. These demands might sound like, 'Body, you have the job of being a mechanical device. You will measure temperature. To be exact, you must be a thermometer!' Then, this analysis would condemn your body for not doing its job. This is like asking your infant brother or sister to park the car, then when he or she hits the curb, criticizing him or her."

Now, Mr. T. stood up. "John, we have to transform students! Teaching isn't giving lots of facts and information." Now the arms go up, "It's giving the kids something to believe in - telling them they are not machines - showing them that, if only they saw themselves as something higher than a machine, they

might keep growing into better and better versions of themselves. You see the textbook is hurting the students twice. First it lowers them to the comparable level of a mechanical instrument, then makes an incorrect comparison at that. This materialistic time we live in keeps doing this and frankly, John, we can't let it go by without notice! I have seen students actually act less human to one another after being bombarded with such mechanical / human analogies." - pause - And now ... I see it coming ... the mysterious squint comes over his face, "If only we would stay with clean, honest OBSERVATION. If only we could pay attention to what the body IS saying, instead of what it is NOT saying, we might hear that our hands are telling us about *relative heat differences*! Our body is sensing the relationship between our hands and the three bowls of water. The cold hand senses that the water is warmer than itself; and the hot hand senses that the water is cooler than itself. Our body is quite sensitively gaging the heat flow and the direction of that flow. It's not that our body is faulty; as a matter of fact, the body is awesome at this! You see that, don't you?"

"Sure, Mr. T. That makes sense."

"Look. Did you ever pick up a baby and check if she feels warm by touching your lips to her forehead? Did you know that the lips are one of the most sensitive parts of the human body? The baby is sensitive all over her body and so the forehead carries her temperature. If you feel the heat flow from the baby's forehead toward your lips; or in other words, if she feels warmer than your lips, then perhaps she may be running a slight fever. Our bodies are good at sensing heat flow. They are not acting as

thermometers. Asking them to be thermometers is an unfortunate assignment of tasks. Frankly, it's an insult, because it ignores and undervalues what we *can* do well. Even more, it is seriously misleading. It prompts an *unscientific* conclusion. The problem starts when the textbook projects mechanistic analogies onto a natural process and ends when the student is coaxed to jump to an unfounded conclusion, thereby contradicting the very foundation of science - *the scientific method!*"

"I see."

"But the problem is bigger even than that! Do you see what a tangled web we weave when we start by straying from pure observations to contaminating science with a subjective projection of the machine onto the human? No observed evidence in the three bowls demonstration suggested the mechanical analogy, yet many of our modern scientists add this analysis to the interpretation. It is impure, unfounded, and unfair!"

Now, I have a six foot two, barrel-chested dramatization of a real travesty! What I hitherto thought was a pretty clear explanation of the temperature of water has transformed into some kind of archetype! I had better answer with some feeling ... "I see. That is amazing. I totally respect what you are saying!"

Mr. T. calms down. "The reason I bring up this textbook example with the three bowls of water is that the error it exemplifies is so common. It is an example of science expecting a mechanical performance from a human. But in my experience it is not just science textbooks that see



us as machines. Everywhere I look, I see an increase in thinking that is mechanical. Weren't we hunter-gatherers a number of millennia ago - a relatively short time in evolutionary terms?"

I was thinking, *that was pretty long ago, but I'll try to follow his train of thought*, "Sure. Humans had very simple or non-existent technology."

"Then we became farmers and now we are technology operators. And while many people assign this movement to be caused by the human march toward ever increasing intelligence and discovery, I don't. I think it is a march from being simple, intuitive, *observers* to being complicated, ***overly analytical thinkers at the expense of our intuitive powers of thought***. Sure, we are getting smarter in some ways, but we are also losing something of value. John, in your teaching, you must seek a balance of the two sides. Watch your students to see which way they lean. Students who lean toward the intuitive, right brain tend to be very interested in the *relationships of each part to the larger whole* - like all three bowls of water in relation to each other and to our hands. Students who lean toward the left, analytic side of the brain seem to be interested in *parts by themselves, almost as if separated from the whole* - like the temperature of each bowl of water by itself. You can help students transform themselves from imbalanced leaners to holistic learners. Through a balanced approach to each lesson, you can help students to use everything they've got! If we use both sides of the brain, the human comes more clearly into focus as a whole, miraculous entity that uses its diverse parts to work in concert!"

Now, Mr. T. capitulated a bit, "My problem with this science textbook suggestion is not that it is totally incorrect. It is correct to say that we cannot trust our senses to mimic the workings of a thermometer. My problem is that it degrades the human body by arbitrarily projecting the function of a thermometer onto the body, a function, which the body simply is not made to do, while ignoring its actual capabilities. I think that the textbook is projecting by using too much of the analytical side of the mind with little or no use of the intuitive side. If instead, we were to analyze what the body does do, wouldn't we show how the body deals with all of the bowls and how they relate to each other? We might say something like, 'See how your body knows which bowl **has more heat.**' The student could then learn more about the incredible sensitivity our bodies do have and how to use them and respect them a little more. Further, the student would learn to ask what a natural object is in relation to other things - not by itself, taken out of context of the whole picture."

He rushed to the blackboard (yes, it was the old school blackboard - not green, not white, not electronic - and you used chalk), "I feel that a science lesson with a balance of intuitive and analytic perspectives on the three bowls, would go something like this.

- 1) First, stay in a state of non-thought while **observing** (intuitive right brain).
  
- 2) Next, wait for your hands to say which bowls of water **feel hotter** (intuitive right brain).

3) Now, conclude therefore, **where** the heat is flowing (analytic left brain).

4) Finally, accurately **report** the heat flow (balanced intuitive right brain / analytic left brain)."

Mr. T. concluded with a look that made me feel like he was related to me, "John, you will want your students to grow in character when they are with you - to transform toward the next version of themselves. They should feel related to their senses and the senses of the animals and plants and well, any other beings. Even when you are observing the simplest things, you be the model. Show them how to give undivided attention. Demonstrate by your own example that there is a time to intuitively observe, without yet forming any conclusions. During this time, let the phenomenon speak, and keep your role as listener or observer, only. Then, after a time, you may analyze and form conclusions. If we have truly heard, then theory should arise from observation, from "reading' the phenomenon, not speculating about it. As Goethe advocated, 'Let us not seek for something behind the phenomena - they themselves are the theory' (Goethe, 1988). And through this selfless act of giving oneself to the phenomena, the observer has the chance of being transformed and enlarged by the experience."

Mr. T. taught me well and I never stopped trying to live up to his exhortation, "*Transform students by teaching them to become better observers.*" But my education on transformation through observation did not stop with Mr.

T. Years later, teaching in an alternative high school, many students confided in me that they were too wounded, emotionally, to learn. "I just can't remember names and theories," they would say. One student took me aside one day as if teaching me how to teach, and said, "Look Mr. Bickart, you have to *show* us science, not talk about it!" Many of these students had done poorly in science and math classes, but excelled in literature, art, and music. Many had a strong aversion to abstractions such as measurements, labels, and terminology. My response was to have my students *directly observe and handle* the materials and processes of the natural world. Many of the humanist students loved my science classes because of this. In my classes, we touched and experienced the qualities of our world - we didn't just talk about them. We paid serious attention to qualitative realities, not just the quantitative. This had huge implications regarding how we related to nature/the world and therefore to ourselves. This point seems to me critical for connecting the experience of enhanced observation with the transformation that I have touted as such a worthy goal of true education. So much of our theorizing is driven by a need to reduce phenomena to the quantifiable that we ignore the qualitative that gives things meaning and a sense of meaningfulness to our experience.

Naming and theorizing was necessary for communication, but they were not paramount or exclusive. The conceptual did not replace the real. I expressly taught the students about the intuitive versus the analytic sides of a person. "The wounded person," I would say, "does not want to be hurt again. She or he has a vested interest in truly learning as a matter of survival. Therefore, he or she

brings a heightened 'bullshit meter'. When theories, names, and well-worn phrases are thrown around, the wounded learner becomes critical and questions the origins. Her or his mantra is 'SHOW ME' if you want me to believe you. You – my wounded students - are, in this regard, leading the way. You are teaching me not to settle for abstract notions as if they were the real thing. And in this I thank you for making me a better survivor!"

Iain McGilchrist, a contemporary psychiatrist and expert in brain science, writes a wonderful book that draws on his life's work. He dedicated himself and his book to honoring the lost side of what I have called our intuitive mind, which he refers to as the *master*. He claims that the other side of the mind, which I have called the analytic mind, is the *emissary*. He carefully and extensively outlines how, especially in the west, the emissary has largely usurped the role of the master - in other words, we have become too analytical and not intuitive enough. He gives countless examples imploring humanity to first, return to the ways of a child who can still look without thinking, then move to conclusions. He asks for schools to teach children to learn the difference between the act of respectfully connecting to something you observe and the act of abstractly talking about it and thereby disconnecting from it. In his book, *The Master and His Emissary: The Divided Brain and the Making of the Western World*, he writes of this as follows.

“In a [typical Western] scientific paper, one may not say ‘I saw it happen’, but ‘the phenomenon was observed’. In Japan, however, science students, who ‘observe’ phenomena, do so with quite a different meaning, and in quite a different spirit,

from their Western counterparts. The word kansatsu, which is translated as 'observe', is closer to the meaning of the word 'gaze', which we use only when we are in a state of rapt attention in which we lose ourselves, and feel connected to the other. The syllable kan in kansatsu contains the nuance that the one who gazes comes to feel a 'one-body-ness' with the object of gaze."  
(McGilchrist, 2009, Locations 4559-4563)

The Japanese culture, like so many eastern cultures, has retained a central element of the ancient human past, a more intuitive form of cognition. They therefore still embody abilities to use the intuitive mind that can see like a child, without the modern, western bias of mechanical abstraction. I do not teach the kindergartner that our hands are thermometers (and poor ones at that). I do not imply or explicitly say that we are machines. I simply nurture the child's natural tendency to stay with the water – or any other natural phenomenon – a while, before abstractly analyzing it. And I believe that this is in itself transformative.

Charles Lindbergh came back from his pioneering flight across the Atlantic Ocean in his single-person plane, The Spirit of St. Louis, having gained some realizations. Perhaps primal among these was that, "the novice has a poet's eye. He sees and feels where the expert's senses have been calloused by experience. I have found that contact tends to dull appreciation, and that in the detail of the familiar one loses awareness of the strange. First impressions have a clarity of line and color which experience may forget and not regain" (Lindbergh, 1953,

p. 250). Let our next generation become adults who have regained the ability to see with the fresh eyes of the poet, by teaching them in our schools to keep the eyes of the child - the intuitive eyes that see everything new - not tainted by/through a filter of experience or expectation. Cite my book. P. 96

-----

One kindergartner said to me, "The middle bowl is hotter, no it's colder."

"I hear you," I said.

Then I did this experiment with male, incarcerated individuals in the state prison, and one man said, "This hand says it's warmer and this hand says it's colder."

Again, I said, "I hear you."

I told both of them - young and old alike - the same thing. "Your hands are taking care of everything. They are a piece of nature, herself. Just like nature, each hand says something different. If nature has warm clouds and cold clouds, she balances everything by moving them around with wind and rain. The differences make everything move to balance out." I tell them about the baby's forehead and their lips. I talk about other parts of the body. I show other sensitivities. I relate these to nature's myriad of seemingly inconsistent signals that, in the end, balance out. Especially to the incarcerated individuals, I point out how we need to learn lessons that, on the one hand give us warm congratulations, and on the other hand, seem cold

and harsh. But, both sides have a constructive purpose without which we cannot be transformed to achieve balance. So, fellow teachers, we must teach from a balanced mind.

Think of a time someone you respected made a powerful statement. Did anyone jump in and add to or correct or manipulate his or her words; or did they let it stand and “sink in” before reflecting on it. What about when a great poem speaks? Or how about when a student speaks? Wouldn't it be great if we let that student's words stand, without touching them? For me, this is where the essence of transformation through observation lies. If a student is to grow and be transformed into the next, higher version of himself or herself, he or she must learn to listen to his or her own self. Maybe the student said something great. Maybe not. But, isn't the teacher the model of listening? After all, we never see the whole story, or the whole student. Maybe there is more to what the student said that could not be articulated. So, I say leave room and respect for what the student DID NOT SAY. Keep quiet in word and mind. Stay tuned. Keep observing ..... and maybe now your student can transform into the next version.

\*\*\*\*\*

## References

- Bickart, J. (2018). *The next version of you: 12 stories that highlight the use of intuition to update your life.*
- Goethe, J. W. v. (1988). *Scientific studies* (D. Miller, Trans. D. Miller Ed.). New York, N.Y.: Suhrkamp.



- Hewitt, P. G. (2002). *Practicing physics : conceptual physics, ninth edition*. San Francisco: Addison-Wesley.
- Lindbergh, C. A. (1953). *The Spirit of St. Louis*. New York: Scribner.
- McGilchrist, I. (2009). *The master and his emissary : the divided brain and the making of the Western world*. New Haven: Yale University Press.