



# The Learning Clinic

## Education & Career Development Agency

An education isn't how much you have committed to memory, or even how much you know. It's being able to differentiate between what you know and what you don't.

**Anatole France**

Education is an admirable thing, but it is well to remember from time to time that nothing that is worth knowing can be taught.

**Oscar Wilde**

Education is not the filling of a pail, but the lighting of a fire.

**William Butler Yeats**

Education is what survives when what has been learned has been forgotten.

**B. F. Skinner**

Education... has produced a vast population able to read but unable to distinguish what is worth reading.

**G. M. Trevelyan**

Much education today is monumentally ineffective. All too often we are giving young people cut flowers when we should be teaching them to grow their own plants.

**John W. Gardner**

Why should society feel responsible only for the education of children, and not for the education of all adults of every age?

**Erich Fromm**

To be able to be caught up into the world of thought - that is being educated.

**Edith Hamilton**



## *The Curse of Knowledge*

*REFLECTIONS* by...

Robert Kirwan OCT, B.A. (Math), M.A. (Education)  
Education, Training & Career Development Coach

During my 28 year career as a classroom teacher I was always puzzled at the difficulty I encountered when it came to teaching my students mathematics. It wasn't as if I didn't know anything about math. After all, I graduated with a degree in Mathematics and Economics from Laurentian University and I have always loved working on math problems and theories. As a result, I thought it would be relatively easy to be a good math teacher. It wasn't. As a matter of fact, I often became extremely frustrated when my pupils failed to grasp the "simplest of concepts" no matter how hard I tried to explain.

On the other hand, I wasn't much of a reader or writer while I was growing up. As a result, my writing has always been pretty basic and unsophisticated.

Yet, despite my lack of expertise in English language usage, I never experienced any difficulty or anxiety when it came to teaching my pupils how to write. Former students comment on how patient and encouraging I was and how I provided them all with a love of writing that has remained with them years after they left my classroom. I often became frustrated when teaching math, but I do not recall having that feeling while teaching writing.

The reason for this strange phenomenon became crystal clear to me when I read about the "Curse of Knowledge".

In order to help you understand what the "Curse of Knowledge" is all about, let me explain how in 1990, a lady by the name of Elizabeth Newton earned a Ph. D. in psychology at Stanford University by studying a simple game in which she assigned people to one of two roles: "tappers" or "listeners".

Tappers received a list of twenty-five well-known songs, such as "Happy Birthday to You" and the "Star Spangled Banner". Each tapper was asked to pick a song and tap out the rhythm to a listener by knocking on a table. The listener's job was to guess the song, based on the rhythm being tapped.

The listener's job in this game is quite difficult. Over the course of Newton's experiment, 120 songs were tapped out. Listeners guessed only 2.5 percent of the songs. That's right! They could only identify 3 of the songs out of a total of 120.

But what Newton discovered next is truly remarkable and made me think of my own involvement in teaching, coaching or parenting young people. Before the listeners guessed the name of the song, Newton asked the tappers to predict the odds that the listeners would guess correctly. The tappers predicted that the odds would be 50 percent.

Tappers actually got their message across one time in 40, but they thought they were getting their message across one time in two. Newton explained that when a tapper taps, she is “hearing the song in her head”. Try it yourself. Think about a familiar song and tap it out with your finger. You will find that it is impossible to avoid hearing the tune in your head. Meanwhile, as Newton discovered during her experiment, the listeners are not hearing the same thing at all. All they can hear is a bunch of disconnected taps very much like a strange Morse Code.

In the experiment Newton noticed that the tappers were flabbergasted at how hard the listeners seemed to be working to pick up the tune. The tappers were thinking, “Isn’t the song obvious?” The tappers looked disgusted when a listener guessed “Happy Birthday” for “The Star Spangled Banner”.

Newton pointed out that it is actually quite hard to be a tapper. The biggest problem is that tappers have been given knowledge (the song title) that makes it impossible for them to imagine what it’s like to lack that knowledge. When they are tapping, they can’t imagine what it is like for the listeners to hear isolated taps rather than a song. This is the “Curse of Knowledge”

This “Curse of Knowledge” has been with me during my entire career when it came to teaching mathematics to students. According to Newton, “Once we know something, we find it hard to imagine what it was like not to know it. Our knowledge has “cursed” us. And it becomes difficult for us to share our knowledge with others, because we can’t readily re-create our listener’s state of mind.”

So when it came to teaching mathematics, I had so much more knowledge than my students that it was extremely difficult for me to remember what it was like when I was first learning the concepts myself. But when it came to teaching writing, my “lack of knowledge” allowed me to better appreciate where my students were coming from. It enabled me to teach them in a way that they could better understand and I showed more appreciation for their struggles. I had an easier time identifying where they were coming from.

The same thing applies to coaching and helps to explain why so many of the star players in hockey or any other sport for that matter, make such poor coaches. The best coaches are usually people who were skilled players, but were not considered superstars. For example, Tiger Woods might never be a very good golf coach or instructor because it would be hard for him to imagine what it would be like not to be a good golfer.

And so, for the hundreds of professors, assistants and instructors at Laurentian University, as well as all of the students enrolled in one of the education programs, the next time you find yourself feeling frustrated because your “students” are just not picking up what it is that you are presenting, remember that just because you “can hear the song in your head” your “listener” is not likely hearing the same tune. You will have to transform your ideas into something that your listeners can understand and appreciate in order for them to learn. If you don’t, you will continue to be a victim of the “Curse of Knowledge”.

**Robert Kirwan, OCT, B.A. (Math), M.A. (Education)**  
**Education, Training & Career Development**

4456 Noel Crescent, Val Therese, Ontario P3P 1S8  
Phone: (705) 969-7215 Cell: (705) 562-7793

[www.thelearningclinic.ca](http://www.thelearningclinic.ca)  
[rkirwan@thelearningclinic.ca](mailto:rkirwan@thelearningclinic.ca)

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