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“Live as if you were to die tomorrow. Learn as if you were to live forever.”

Mahatma Gandhi

■ It is critical that parents and educators pay attention to young children and the discovery of their fundamental **Essence** – that special thing that they do well and like to do.

■ This **Essence** is what leads to their true **Life Purpose**, and ultimately long-term personal **Fulfillment**.

■ The case of John Gurdon is presented and the travesty that occurred when an educator was not effective in guiding him toward the discovery of his **Essence**.

■ Gurdon ultimately succeeded due to the support of his parents and his personal tenacity to find his **Life Purpose**.

■ The journey to long-term Fulfillment always follows the same path:

Essence → Need → Life Purpose → Passion → Energy → Creativity → Innovation → Reward → Gratitude → FULFILLMENT

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Unfortunate Times

Fifteen-year-old John Gurdon was mulling over one of the most challenging and vexing questions that each of us confronts one time or another, “What should I do with my life?” “Perhaps, I will be a scientist,” he thought. At the time John was

BALANCE:

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PART V: “INEPT” STUDENT WINS NOBEL PRIZE!^{A,B}

a student at Eton Boarding School, a high school located near Windsor, England. Then he received his report card. Here is what his teacher had to say about his capabilities, particularly in his studies of biology:

“It has been a disastrous half. His work has been far from satisfactory. His prepared work has been badly learned, and several of his test pieces have been torn over; one such piece of prepared work scored 2 points out of a possible 50. His other work has been equally bad, and several times he has been in trouble, because he will not listen, but insists on doing his work in his own way.”

*“I believe he has ideas about becoming a scientist; on his present showing this is quite **ridiculous**, if he can’t learn simple biological facts he would have **no chance** of doing the work of a scientist, and it would be **a sheer waste of time**, both on his part, and of those who have to teach him.”*

That year, John placed 250th out of 250 students and his total number of points for the semester was 231 out of a possible 550 points, a mere 42 percent. Thereafter, he was not allowed to study any of the sciences for the remainder of his stay at Eton.

BUT – John Gurdon, the apparent “inept” high school student eventually received a university degree in zoology, and went on to win the 2012 Nobel Prize in Physiology & Medicine [Figure 1]. How is that possible?

FIGURE 1: Sir John Gurdon had an inkling while in high school that he was interested in a career in science, but his biology teacher said that “He would have no chance of doing the work of a scientist, and it would be a sheer waste of time, both on his part, and of those who have to teach him.” John won the 2012 Nobel Prize in Medicine.



A Scholarly Journey

For 25 years, John was a Fellow of Churchill College at Cambridge University, where I too am a Foreign Fellow. His life story has always amused and interested me, as it provides great insight on discovering and pursuing your **Life Purpose**, and absolute necessity to uncover your fundamental **Essence** in order to find your purpose. Let’s take a closer look.

For John’s remaining time at Eton Boarding School, since he was not allowed to pursue any further science courses, he studied Homer and other Greek and Latin scholars. He learned their works and translated them into English, something he enjoyed to some extent, but he wasn’t very good at it. His real love, which began to blossom towards the end of his stay at Eton, was science, just as he had glimpsed a few years earlier when taking biology. In his free time, he enjoyed studying insects as well as plants, many of which he studied as a hobby. John was determined to find a way into science.

Never Give Up

Because of his poor showing at Eton, John was barely accepted at Oxford University, where he was advised to study any other topic but the Classics, for which he had taken the entrance exam. This didn’t disturb John as his interest in science, and in particular entomology, was rapidly growing. With some difficulty, he eventually persuaded the administration to allow him to pursue a degree in zoology.

After graduation, John applied to study for his PhD at Oxford in entomology, but again was rejected. He was, however, accepted as a PhD candidate in embryology. This course of events would change his life.

^A EDITOR’S COMMENT – This is the fifth article in a series based on the author’s latest book, “BALANCE: The Business-Life Connection, SelectBooks, New York, 2013.” The book is based on three decades of personal experience on how to achieve success and long-term fulfillment in both your personal and professional lives. Details concerning the book and points of purchase can be found at www.JamesCusumano.Com.

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His professor assigned him the most challenging task of determining whether all the different cells in the body had the same set of genes. At the time, the common wisdom was that this was highly unlikely. John was immensely attracted to his thesis topic and dug in with great enthusiasm and passion.

He had found the beginnings of his **Life Purpose**. "If I can shed some light on this topic, perhaps it will have an impact on our understanding of the human genome and the life process," he pondered. And indeed it did have an impact.

Life's Mystery Unfolds

You see, life begins when a fertilized egg divides and forms new cells, which in turn continue to divide. All of these cells are identical at the beginning of this process, but as the life process proceeds, they become highly specialized into, for example, nerve cells, heart cells, brain cells, etc. At the time scientists were convinced that after these cells became specialized, there was no way they could ever return to their original state. John showed this to be incorrect, and his work led to cloning [Figure 2], and has had a major impact on the possibilities for human in-vitro fertilization.

Briefly – in his PhD research, John extracted the nucleus of a fertilized frog egg, and he replaced it with the nucleus of a mature specialized cell from a tadpole's intestine. This new "hybrid" cell actually grew into a frog and in doing so, John proved that mature highly specialized cells still contain all of the genetic information required to form all types of cells and therefore, a fully-formed species like a frog – or a human being!¹

John's work not only has important implications for cloning and in-vitro fertilization without the need to use embryo stem cells, but also forms the basis for developing techniques to treat a large number of challenging diseases [Figure 3].

Another of our colleagues at Churchill College, Dr. Robert Edwards pioneered in-vitro fertilization using many of the aspects of John Gurdon's work, and in 1978 produced the first "test-tube" baby, Louise Joy Brown, born in England.

The Thrill of Life Purpose

The process by which John Gurdon found his **Life Purpose** is similar to that described in my book, **BALANCE: The Business-Life Connection**.

FIGURE 2: Cloning plants has been known since the turn of the 20th century. Now, based on the work of scientists such as Sir John Gurdon, cloning of animals and eventually humans is possible. These techniques are also useful to combat challenging diseases.



FIGURE 3: As a result of the findings of research by Sir John Gurdon and other accomplished scientists, in-vitro fertilization has become a common procedure enabling people to have children who have not been successful by conventional means.



tion. At the age of 15, deep down at a very basic level, he knew what he wanted to do with his life. He wanted to be a scientist; he had found his **Essence**. But at Eton Boarding School, he had a difficult time bringing this direction to the surface. And, he wasn't particularly helped by his science teacher, who wrote him off as a "lost cause."

This is exactly the point where John needed one of those "giants" we often meet from time to time during our life journey to help pull his predilections out of him and to coach him. Receiving just the opposite from his science teacher at Eton, he rebelled as teenagers can do, and insisted on doing biology his own way. The result was the teacher's retribution, and the loss was John's!

John has often said that the role of the necessary "giants" at this point in his life was played by his two dedicated parents. They encouraged him to carry on and pursue his emerging interests in science. Once, he fully recognized this interest and his own innate capabilities, he identified a project – a **Need** – which if successful, could eventually make a positive difference in the world.

This led to John's intense **Passion** to solve this seemingly impossible problem. And as is always the case under such circumstances, there is the creation of great physical and emotional **Energy**, which enabled him to apply the huge level of creative effort necessary.

Furthermore, under these conditions of low stress, communication between the left and right hemispheres of the brain becomes open and facile and leads to high **Creativity**, well beyond that which we normally experience. This fosters **Innovation** and enabled John to solve difficult challenges, which most thought unsolvable.

As a consequence, he experienced a **Reward**. In this case, it was opportunities to achieve more exciting academic positions and eventually, the emotional and financial reward that come with winning the Nobel Prize, currently worth \$1.2 million. John never set out to make a lot of money; the money came as a result of him following his **Dream**.

As I have explained in my book, this Reward leads to deep **Gratitude**, which is always the source of lasting **Fulfillment**. John's journey followed the classic path to long-term life fulfillment:

Essence → Need → Life Purpose → Passion → Energy → Creativity → Innovation → Reward → Gratitude → FULFILLMENT

Lessons Learned

John Gurdon began to see the seeds of his deep interest in science at age 15. However, his science teacher was not only ineffective in helping him; he drove him in the opposite direction. Instead of helping John understand his fundamental **Essence**, and assisting him in digging deeper to pull it out of his consciousness, he nearly irreversibly crushed his burgeoning interest in science. The message here is for educators to spend time helping students understand their interests and exposing them to the possibilities of how to express these interests and what may be their potential.

John, fortunately had two parents who played the role of "giants" in his life by encouraging him to dig into his interests in science and pursue them, believing that he would eventually find clarity as to the direction to follow.

But there was another major factor in the equation. John never stopped asking the questions: What am I good at? How can I make a difference in the world with my skills? And though he did not immediately know the answers to these questions, he was patient as he knew that he would eventually move into the answers. And he did – big time!

Sat, Chit, Ananda!

Enjoy your journey, make a difference!

James A. Cusumano, PhD ■

¹ Sir John B. Gurdon – Facts". Nobelprize.org. Nobel Media AB 2013. Web. 23 Apr 2014. http://www.nobel-prize.org/nobel_prizes/medicine/laureates/2012/gurdon-facts.html

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