

Choosing Creativity

Submitted by Sarah Fitz-Claridge on 10 July, 2003 - 22:52

Kolya Wolf

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Isaac Newton said of his life's work "I do not know what I may appear to the world, but to myself I seem to have been only like a boy playing on the sea-shore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary". It is not just scientists who cherish a childlike quality of mind. So do artists, entrepreneurs and indeed anyone whose stock-in-trade is originality and creativity. Given its importance in so many walks of life, it is worth asking: where does it come from and, more particularly, where does it go?

As every parent soon discovers, babies and young children are almost indefatigable in their endeavour to learn about the world. They are endlessly inquisitive, using all their senses to probe and analyse every object that comes within their reach. They are also amazingly creative. One of their earliest accomplishments – the acquisition of language – staggers the imagination when viewed as the philosophical, scientific and linguistic achievement which it truly is. Once they can speak, children become quite remorseless in asking questions about every conceivable topic.

But as they grow older, children's creativity and passion for learning gradually dissipate, and by adulthood have mostly disappeared. Adults may learn if their job demands it, but otherwise they have little interest in, and indeed often an actual antipathy to, learning. Creativity, if present at all, tends to be confined to hobbies.

This loss of curiosity and creativity is so commonplace that we think it natural. But is it? Rather than acquiesce in it so easily, should we not be asking why it occurs and whether there is anything that parents can do to prevent it? A possible starting point is to look more closely at the comparison between children and scientists. Is it possible that children are not just like scientists, but that in the manner of their learning to understand the world, they actually are scientists? If so, it may be worth looking to the process of scientific discovery – how it succeeds and how it fails – for any insights it might have to offer.

The growth of scientific knowledge is like a never-ending ascent of a spiral staircase of conjectures and refutations. Each loop of the ascent starts with the scientist's curiosity being engaged by some problem or anomaly in his comprehension of the world. Next comes the step most demanding of creativity – finding an idea which might solve the problem. The scientist then impartially compares, criticises and tests the new conjecture with respect to his existing knowledge. If it survives this ordeal it is tentatively adopted as a working hypothesis and its rivals are discarded. If it fails, for example by wrongly predicting the outcome of an experiment, it is deemed refuted and is itself discarded. Throughout this process, the scientist's motivation is not a desire to promote or discredit any particular idea but simply the joy of discovery, and the hope that however many problems he resolves, another one will always be waiting for him just around the corner.

Together these steps constitute the 'scientific method'. So long as the scientist adheres to it in practice, it does not matter whether he does so consciously or unconsciously. But deviating from it for whatever reason, bodes ill for his chances of

success. Probably the most famous attempt at perverting the scientific method was the Catholic Church's persecution of Galileo for his advocacy of Copernicus' theory that the Earth revolves around the Sun. Galileo was tried, imprisoned and forced to recant. In the words of Jacob Bronowski "The effect ... was to put a total stop to the scientific tradition in the Mediterranean."

A more recent example, the so-called Lysenko affair, occurred in the Soviet Union some fifty years ago. Stalin adopted, as a matter of state policy, a theory of genetics which by then had been scientifically discredited. This theory was taught in Soviet schools and universities for an entire generation, causing massive damage to Soviet agriculture and stifling progress in the biological sciences.

These examples illustrate the dangers arising, respectively, from the proscription and prescription of scientific ideas. Such practices are liable to cause two distinct kinds of damage. As a consequence of being shielded from criticism, the resulting ideas have a tendency to be false. Moreover, denied the rational option of discarding these entrenched ideas, scientists may be obliged to warp their other theories in order to fit in with them. The more elaborate this act of mental contortion becomes, and the longer it is sustained, the more severe is the resulting intellectual blight. Under such circumstances it is not surprising that most scientists find their continuing adherence to the scientific method a personal liability and tend, instead, to do whatever it takes to accommodate the authorities. This may well be the best course open to them, but it is incompatible with their making further scientific progress.

So what lesson can we draw from this about how best to safeguard our children's natural curiosity and creativity? Reflecting on his own school experience, Albert Einstein said: "One had to cram all this stuff into one's mind, whether one liked it or not. This coercion had such a deterring effect that, after I had passed the final examination, I found the consideration of any scientific problems distasteful to me for an entire year ... It is in fact nothing short of a miracle that the modern methods of instruction have not yet entirely strangled the holy curiosity of enquiry; for this delicate little plant, aside from stimulation, stands mainly in need of freedom; without this it goes to wrack and ruin without fail." Equating the capacity for scientific enquiry with a child's natural curiosity, Einstein concluded that the extinction of this 'delicate plant' is caused by the coercion of children by adults.

But why are children coerced in the first place? Young children usually have unfettered control over their learning, subject only to their physical limitations and to restrictions imposed for their own safety. But as they get older, their free-ranging way of learning is increasingly likely to bring them into conflict with their parents. This is because conventional wisdom dictates that, beyond a certain age, the course of a child's learning must be controlled by adults. This conflict is normally dealt with by the children being forced to conform to the wishes of their parents and other adults. Perhaps the most blatant example in our society of such coercion is the custom of forcing children to go to school. Here the method of learning which has served them and science so well is systematically suppressed in favour of a programme of instruction which is simultaneously proscriptive and prescriptive.

The effect of this coercion on children is the same as it was on the scientists caught up in the Galileo and Lysenko fiascos. In the face of overwhelming pressure children suppress their natural, scientific method of enquiry, in favour of conformity and appeasement. Impairment of their creativity is the inevitable consequence. Although the powers that be can command the obedience of a child, they cannot command the universe to reveal its secrets to someone who has been forced to stop thinking for himself.

If schools could teach children everything that they will need in later life, the loss of creativity would not be so important. But the ability to solve any kind of problem requires some degree of creativity. Most adults utilise only a tiny fraction of the creative potential they had as children. This limits both their personal growth and their usefulness to society at large. The capacity for flexibility and originality has always been conducive to finding fulfilment in life. But in our rapidly evolving society such attributes are becoming essential. As our economy becomes more knowledge-based, employers will increasingly need people capable of creative thought, rather than just well trained human automata.

What can we do to reduce the coercion of our children? We can give them more responsibility and control over their own lives, backed up by our interest, encouragement and advice. Some parents may want to take this to its logical conclusion

and make it a cornerstone of their family's interactions that their children's autonomy should not be infringed – trusting instead that, given sufficient goodwill, conflicts within the family can be resolved by mutual consent. But even for families who do not want to go this far, it remains true that every bit of control retained by their children increases the likelihood that the fount of their creativity will survive into adulthood.

Applying this to children's education means, in the first instance, allowing them more control over their relationship with school. Some parents achieve this by allowing their children the choice of being educated at home. This option is open to any family that wants to give its children a large measure of control over their education. But even a more limited increase in children's intellectual autonomy, if promoted consistently, is likely to result in their developing a deeper understanding of their preferred subjects. They may, of course, also do less well in the subjects which they find less interesting. But is it not better to forgo a few facts than one's creativity? Provided that one retains a childlike attitude to learning, factual knowledge is easy to acquire when it is needed. The ability to think creatively is irreplaceable.

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Comments

Young children

Submitted by a TCS reader (not verified) on 11 July, 2003 - 19:32

"Young children usually have unfettered control over their learning, subject only to their physical limitations and to restrictions imposed for their own safety."

This is only how it appears. Actually, young children's lives are more coercively confined than the lives of any other human beings, in most cases. Babies and young children suffer a lot of distress (ie spend a lot of time in a state of extreme coercion)- an average of two hours crying a day, for babies, last time I checked- and are therefore often emotionally numbed/depressed, and learning at a much slower level than if they were uncoerced. This makes it easier for parents to think that a couple of bean-bags and an old wooden train are good enough to entirely meet their learning needs.

Uncoerced (or, relatively uncoerced) babies and children are probably more difficult to provide unfettered learning for, than any other age group, in all kinds of ways, due to their combination of high-level dependency (a big constriction for parents) and low-level learning requirements (another big constriction: not many parents enjoy reading "Thomas Tank Engine" for its own sake more than, oh, ninety-seven times. A day.).

Alice

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Learning and coercion

Submitted by a TCS reader (not verified) on 10 August, 2003 - 16:02

There are the implicit assumptions in Alice's comment that crying leads to emotional numbness and depression, which then lead to slower learning. There is no evidence for this, particularly not with small children. Infants who have suffered under colic for the first three months of life actually thrive compared to non-colicky children. Small

children are confined because they are not capable of survival in the world without the help of parents or guardians. The atmosphere and environment for unfettered learning must be created, and rarely depends on the provision of toys. Infants are like self-unpacking zip files, programmed to interact with the world in precisely those ways required for learning. Coercion becomes an issue not as a result of a need for learning, but as a result of parent's needs.

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Coercion is a result of parents' needs?

Submitted by mammal_mama on 21 January, 2007 - 18:52

I agree that I have a need to prevent my toddler from water-logging the carpet. But I can certainly help her find ways to explore the properties of water that don't damage our home. She is now in the habit of telling me "Towel," when she wants to play with water, so I'll put one down and give her the water-bottle and some containers to pour into -- or she'll say, "Bath," because she's learned that's another socially-acceptable way for her to have some splashy, rip-roarin' fun.

About the crying: I think the reason colicky, or high-need, babies tend to thrive in comparison to other babies is that these are children with greater-than-average self-determination or strength-of-purpose. I'd rather hear about comparisons between colicky, or high-need, babies who were attachment-parented, and those of similar temperaments who were left to cry-it-out alone.

My hypothesis is that the attachment-parented babies will retain more of their creativity and inquisitiveness than will the cry-it-out babies. I think at least some of the energy of the cry-it-out babies will be redirected to dealing with the anger and anxieties they carry as a result of un-responsive parenting.

Susan

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