

Biological Foundations for Self-Directed Education

Originally published on PsychologyToday.com at my blog, "[Freedom to Learn](#)".

In many previous posts I have contended that children come into the world biologically designed to educate themselves. The evidence comes from observing the amazing learning capacities of children before they start school ([here](#)), the ways that children and adolescents in hunter-gatherer cultures educate themselves ([here](#)), and the ways that children today educate themselves at democratic schools ([here](#) and [here](#)) and in unschooling families ([here](#) and [here](#)).

In this post I wish to be a bit more precise about the biological design for self-directed [education](#). It lies largely, I suggest, in four powerful drives that exist in all normal children: *curiosity*, *playfulness*, *sociability*, and *planfulness*. The foundations for these drives are encoded in our DNA, shaped by natural selection, over our evolutionary history, to serve the purpose of education. Our standard schools quite deliberately suppress these drives, especially the first three of them, in the interest of promoting [conformity](#) and keeping children fixed to the school's curriculum. In contrast, self-directed education—as it occurs in unschooling families and at democratic schools—operates by allowing these natural drives to flourish. Here I will elaborate just a bit on each of these drives and how they interact with one another to promote education:

Curiosity.

Aristotle began his great treatise on the origin of knowledge (*Metaphysica*) with the words, "Human beings are naturally curious about things." Nothing could be truer. We are intensely curious, from the moment of our birth to, in many cases, the moment of our

death. Within hours of birth, infants begin to look longer at novel objects than at those they have already seen. As they gain mobility, first with their arms and hands and then their legs, they use that mobility to explore ever-larger realms of their [environment](#). They want to understand the objects in their environment, and they particularly want to know what they can do with those objects. That's why they are continuously getting into things, always exploring. That's why, once they have language, they ask so many questions. Such curiosity does not diminish as children grow older, unless schooling quashes it, but continues to motivate ever more sophisticated modes of exploration and experimentation over ever larger spans of the environment.

Children are, by nature, scientists.

Playfulness.

The drive to play serves educative purposes complementary to those of curiosity. While curiosity motivates children to seek new knowledge and [understanding](#), playfulness motivates them to practice new skills and use those skills creatively. Children everywhere, when they are free to do so and have plenty of playmates, spend enormous amounts of time playing. They play to have fun, not deliberately to educate themselves, but education is the side effect for which the strong drive to play came about in the course of evolution. They play at the full range of skills that are crucial to their long-term survival and wellbeing.

- *They play in physical ways*, as they climb, chase, and rough-and-tumble, and that is how they develop strong bodies and graceful movement.

- *They play in risky ways*, and that is how they learn to manage [fear](#) and develop courage ([here](#)).

- *They play with language*, and that is how they become competent with language.

- *They play socially*, with other children, and that is how they learn to negotiate, compromise, and get along with peers ([here](#)).

- *They play games with implicit or explicit rules*, and that is how they learn to follow rules.

- *They play imaginative games*, and that is how they learn to think hypothetically and creatively.
- *They play with logic*, and that is how they become logical.
- *They play at building things*, and that is how they learn to build.
- *They play with the tools of their culture*, and that is how they become skilled at using those tools.

Play is not recess from education; it IS education. Children learn far more in play, and with far more joy, than they could possibly learn in a classroom. (For more on what children learn through play, see [here](#).)

Sociability.

We humans are not only the most curious and playful of mammals, but also the most social. Our children come into the world with an instinctive understanding that their survival and wellbeing depend on their ability to connect with and learn from other people. All humans, but especially young ones, want to know what those around them know and share their own thoughts and knowledge with others.

Anthropologists report that children everywhere learn more by watching and listening to the people around them than through any other means.[1]

Our most unique adaptation for [social life](#), which enhances tremendously our ability to learn from one another, is language.

Almost as soon as they can talk, children start to ask questions. They don't want to be told about things that don't interest them, but they almost demand to be told about things that do. Language allows us to share all sorts of information with one another. It allows us to tell one another not just about the here and now, but also about the past, future, and hypothetical. As the philosopher Daniel Dennett put it in a chapter on language and [intelligence](#), "Comparing our brains with bird brains or dolphin brains is almost beside the point, because our brains are in effect joined together into a single [cognitive](#) system that dwarfs all others. They are joined by an [innovation](#) that has invaded our [brain](#) and no others: language." [2] Self-directed learners, eagerly and naturally, hook themselves into that network. Today, because of the Internet, that

cognitive system is bigger than ever before. Young people with access to the Internet have access to the whole world of hypotheses, ideas, and information. Self-directed education has never been easier.

Planfulness.

We, far more than any other species, have the capacity to think ahead. In fact, we are driven to do so. We don't just react to immediate situations; we anticipate future situations, make plans for them, and follow through on those plans. This is the most consciously cognitive of our basic educative drives, and it develops more slowly than the others. As children grow older, they become increasingly able and motivated to plan ahead, and ever further ahead. This is the drive that leads self-directed learners to think about their life [goals](#), big and small, and to deliberately seek out the knowledge and practice the skills needed to achieve those goals. Cognitive scientists refer to this capacity to make plans and carry them out as *self-directed executive functioning*. Research by such scientists has shown that children who have ample free time to play and explore on their own and with other children, independent of adults, develop this capacity more fully than do children who spend more time in adult-structured activities.[3]

That is not surprising. When children create their own activities, without adult control, they continuously practice the ability to make plans and carry them out. They make mistakes, but they learn from those mistakes.

See also [Free to Learn, alternativestoschool.com \(link is external\)](#); [self-directed.org \(link is external\)](#) (to find out about the Alliance for Self-Directed Education), and join me on [Facebook \(link is external\)](#).

References

[1] Lancy, D. F., Bock, J., & Gaskins, S. (2010). Putting learning into context. In D. F. Lancy, J. Bock, & S. Gaskins (Eds.), *The anthropology of learning in [childhood](#)*, 3–10. Lanham, MD: AltaMira Press.

[2] Dennett, D. C. (1994). Language and intelligence. In J. Khalifa (Ed.), What is intelligence? Cambridge: Cambridge University Press.

[3] Barker, J. et al (2014). Less-structured time in children's lives predicts self-directed executive functioning. *Frontiers in Psychology*, 5, 1-16.