



# “Let Children Play!”: Connecting Evolutionary Psychology and Creativity with Peter Gray

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“There’s two aspects of education, knowledge and skills. Curiosity is how children acquire knowledge, play is how they acquire skills.” - Peter Gray

“To be completely engaged with what you are doing in the here and now...realize it is play.”

- Alan Watts

“To produce the world we want, wouldn’t we be better off letting people pursue what they’re interested in and become really good at it rather than try to channel everybody to be doing the same things?”

- Peter Gray

This series approaches creativity and technology from a range of disciplinary perspectives—such as psychology, neuroscience, business, arts, sociology, and more—aiming to understand the current state of research by speaking with some of the top researchers in the field. In acknowledging and including diverse perspectives, in this article, we approach creativity from the perspective of evolutionary psychology with Dr. Peter Gray as our guide. Dr. Gray is a psychologist focused on the role of play and curiosity in learning and education. His work has been seminal in the field of psychology, and has practical and political implications that can help to re-envision education in more humanizing and culturally sustaining ways. Our conversation with Dr. Gray covered a wide

range of topics, and this article seeks to capture the breadth and depth of these ideas.

## Introduction: The Timeliness of Dr. Gray’s Work

Recent COVID-19 shelter-in-place precautionary measures have caused an abrupt global shift to fully online technology-mediated learning. Concerned that the rush to move online may promote already-present dehumanizing practices, some educators and scholars have called for more care and attention to issues that affect the humanity of children’s educational experience. In this article, we discuss how Dr. Peter Gray’s scholarship takes an evolutionary approach that has implications for creative and inclusive pedagogy and policy in all learning contexts, online or face-to-face, formal or informal, and elementary or university. To better understand the connection between play and creativity in a technology-mediated world, and given the current COVID19 crisis, we met with Dr. Gray over Zoom. Through the lens of evolutionary psychology, he highlighted the following topics for educators and scholars to consider when rethinking teaching and learning in humanizing ways to encourage creativity, curiosity and play. We, the authors, structure our conversation with Dr. Gray around six broad themes. These are *curiosity and play as natural paths to creative learning*; *evaluation of creativity*; *the role of adults in childhood play*; *standardized testing and high-performance culture*; *creativity, play and mental health*; and *creativity through technology*.

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## Curiosity and Play as Natural Paths to Creative Learning

Though Dr. Gray does not identify as a creativity scholar, his work provides some useful insights into the value of creativity

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and how it can be supported and developed. He defines creativity as “anything that has a novel aspect to it, something that is new, but that is new in a way that somehow is meaningful.” We, too, have previously described creative products as novel, effective, and whole (Mishra et al., 2013).

Dr. Gray’s interest in creativity emerges as a consequence of his background in evolutionary psychology and interest in how humans (and other mammals) learn. Learning, he argues, is a key evolutionary need that helps humans and other mammals survive and succeed in a complex and dynamic world. Dr. Gray sees an important role for curiosity, play and sociability—which he defines as natural drives or impulses that help children learn and direct their *own* learning. By playing together and being curious, children pick up language, learn and hone new skills, acquire knowledge, and gain confidence to be in the world by interacting directly with it. Describing his study of anthropologists, he explained how in hunter-gatherer societies play is the foundation of their social existence (Gray, 2009). Further, he also reminded us that the drive to play is not limited to human beings and is natural to all young mammals:

Children are playful. All young mammals are playful and that’s how they learn. They’re curious about the world. As soon as they come into the world, they’re looking around...They’re moving to get their hands on things, to explore things, to figure out what they can do with these things in the world out there. They’re especially interested in other people. They want to know, they’re watching and listening to other people and figuring out what it is that people in this world do.

The sociability aspect of play is often lost in creativity discourses. According to Dr. Gray, play and curiosity, though often portrayed as individualistic drives, are inherently intertwined with sociability. They evolved through natural selection, to assure that generational knowledge and skills are passed on to coming generations. Children learn by socializing and playing with others, including adults, to pursue their curiosities. In fact, Dr. Gray makes a direct connection between these drives (curiosity, play and sociability) and education. As he said:

Curiosity is how children acquire knowledge, play is how they acquire skills. They play at activities that are important to human beings everywhere. Further, we are an incredibly sociable animal. We are the animal that has language. Children learn language completely on their own. Nobody teaches children their native language. They pick it up [through curiosity and immersion]...Curiosity, playfulness, sociability, these are the ways that children educate themselves when we give them the freedom to do that.

Thus, curiosity, play and sociability are three natural drives that are inherently educational. This does not mean, however, that these impulses are all powerful. These drives, he argues, can be suppressed if the freedom to thrive is not allowed. Like fire, these drives need freedom to breathe and burn, and are extinguished by limitations and oppression. But they also need to be guided and framed into constructive explorations through collaborating, tinkering, playing, and problem solving. As is clear, this has significant implications for how we think about education and learning. Though these may be impulses driven by evolutionary pressures, they still need support and nurture. In other words, learners broadly, and students in school, need assistance through socialization to learn to use these drives in creative ways. As Dr. Gray put it:

Social play always involves negotiating how to get along with one another. [Children] are playing at moral issues. ‘You hurt me, what are we going to do about this?’ They are resolving these problems. They are playing at how to control their emotions.”

A crucial mediator that connects play with creativity, according to Dr. Gray, is imagination. It is through imaginative thinking that children play with new ideas and possibilities of being, which by definition, are creative acts. He argues that playing with imagination is where children naturally get creative as they pretend to be someone else, they are practicing imaginative play and hypothetical thinking. Connecting play with creativity, he stated:

When you’re involved in hypothetical thinking, you are thinking of things that aren’t right in front of you. You are creating a scene in your head and working it out logically: ‘if this is true, then what else has to be true? How do I have to behave?’ Children play in those kind of ways all the time. This is how I look at childhood and also part of how questions of creativity come into my world.

Adults play an important role in this process. They serve an intentional role, in providing structures and opportunities for children to be curious and playful, allowing them to imagine new possibilities of being and knowing. They serve as models who validate, foster and nurture play and curiosity in children’s everyday lived experiences. This role that adults play becomes even more important and salient at a time when children’s lives are increasingly being controlled and regimented, both at school and outside of it, depriving them of this most natural of processes of learning, i.e. play (Dickey et al., 2016).

## Evaluating Creativity

This perspective on creativity, driven by curiosity, play and sociability—rather than the more individualistic, psychological stance typical of most creativity research—raises significant questions about both whether and how creativity should be evaluated. Not only has Dr. Gray been an active critic of standardized testing, he has also raised concerns about evaluation of creativity. His approach offers a more humanizing reminder that we can choose not to evaluate people. “What I think is really important—if you expect creativity—is not to evaluate it,” he emphasized, “And if you are going to evaluate it, evaluate it secretly with no feedback.” In other words, the idea of evaluation needs to be removed from students’ experience, thus keeping them safe from fears of judgment, and leaving them free to play and pursue their personal curiosities and interests. The research on this is clear: an awareness of being judged has been found to limit creativity (McVeigh, 2014; Rainford, 2020). This occurs, as Dr. Gray argues, because passing judgement on creativity means that “instead of allowing your mind to flow free, you are now focusing on something particular and on how somebody might evaluate it.” Cautioning against judgement-based evaluations, Dr. Gray suggested that assigning a mark of evaluation to creativity—such as points, “gold stars,” or an “F”—causes a child’s focus to shift from personally-driven creative play to the pursuit of a better evaluation from the evaluator.

It is not that all feedback is bad. In fact, feedback plays an important role in creativity—but it should be a different kind of feedback than offering a grade or a judgement. Feedback that is organic to the free-flowing creative process, that seeks to engage rather than critique, is critically important.

Constraints and direction also play a role in creative processes (Onarheim, 2012). For instance, asking students to write a poem is a constraint that limits the creative artform to poetry, yet it also allows for creativity, as long as students do not feel they are being evaluated. The process becomes self-satisfying and students can share with peers and with teachers as if they were peers, expecting constructive feedback and not judgment.

Although Dr. Gray offers a way into evaluation by suggesting it be done secretly, his core suggestion is to think beyond evaluations and let children be curious and play. This, clearly, has implications for standardized testing, behavior discipline and assessment-oriented schooling that are driven by an urge to control. This pressure to control comes from a range of factors, including but not limited to an ongoing emphasis on quantifying every aspect of children’s education. This urge to control suppresses play, because play is counterproductive to the neoliberal aspects of educational policy that target profit for corporations and businesses such as educational testing companies, and computer and internet-based technologies.

Dr. Gray is deeply critical of the current state of standardization and testing in today’s schools (see: Gray, 2011, 2013).

## Standardized Testing and High-Performance Culture

As political interests have marketized the educational landscape, neoliberal policies, practices, and beliefs have brought attention and pressure on schools to perform (Mehta et al., 2020). The labor of neoliberalization falls on schools, who put it on teachers, such that teachers must add more performance-oriented work for students and involve parents to surveil student performance. Quoting Dr. Gray, parents are, “drawn into schooling as sort of assistant teachers...expected to monitor homework, to make sure their kids do the work.” Dr. Gray shared his concern that,

Parents get indoctrinated into this idea that they’re supposed to always be teaching their child in one way or another. That plays into the idea that I should be putting my child in these kinds of adult-directed things (extra-curricular lessons, classes, etc.). So children are more and more in these adult-directed activities rather than making up their own games and playing fantasy games and figuring out how to solve their own problems.

Centralization of schools also plays a role in suppressing creativity and play. According to Dr. Gray, when schools were locally controlled, the community could run schools and decide on curricula: “Teachers were trusted to teach in the classroom.” The familiarity of the community made school a place to socialize, play and learn. Creativity and curiosity had more time to breathe. Later, when financial aid to schools began to come from the state and the federal government, it came with strings attached as performance expectations. Funding agencies at state and federal levels, distant from the classrooms, have expected to see results on paper, and test scores became the measure of “learning.” Consequently, test scores became the measure of school performance, putting schools in competition with each other. In this, teachers feel the brunt of the pressure to perform to keep the funding. While federal funding for schools is itself a good thing, the strings that are attached in the form of distant standardized measurements is deeply problematic to students’ creative and humanistic development. Further, Dr. Gray cautions against centralization and standardization, as they counter a natural drive for diversity:

The more you centralize education, the more uniform it becomes and the orientation is towards how kids do on tests, which removes creativity. As a society, we don’t want everybody to be the same. We want different

people. We need different people. We need some people who are inventors, who are collectors. We need people who are sticklers to the rules, and some who have wild imaginations... To produce the world we want, wouldn't we be better off letting people pursue what they're interested in and become good at it rather than channeling everybody to the same things?

This sense of allowing children to be who they are and follow their interests is not one that is prevalent in most educational discourse. More importantly, the freedom to play that children enjoy (or not) is highly contingent upon the role of adults in directing children's lives. Adults have a significant influence on how kids spend their time, and how (or how much) they are able to play.

### The Role of Adults in Childhood Play

Unfortunately, when it comes to creativity and play, the role of adults has been largely negative. Dr. Gray argues that creativity cannot be taught. Rather, it is natural to us as long as the drives of play, curiosity, and sociability are allowed to thrive. However, creativity can be suppressed, which is what he asserted the present state of schooling can do to children to some degree, as rarely any time is available for curiosity and play.

To direct our attention to the impact of schooling (in its present form) on creativity, Dr. Gray referred to Kyung Hee Kim's "The Creativity Crisis." Kim (2011) found that ever since the mid 80s, U.S. scores on the Torrance Test of Creative Thinking have been declining at every grade level in school. Creative thinking has steadily declined over time among Americans of all ages, especially in kindergarten through third grade. This persistent decline, from 1990 to 2008, was found to begin in young children.

One reason behind this decline, Dr. Gray argued, is corporate and professional work's valuation of productivity and efficiency-driven ethics that often manifest at a cost of creativity. He argued that this mindset has also impacted what we deem worthy of children's time and energy. We start training children in academic procedures beginning at an early age, which is counter to how children naturally learn:

All these hours are mostly being wasted. There is no evidence that all this amount of time that we're forcing children to do schoolwork is making them any smarter, making them any better, even on the very things we're trying to teach them... We've turned childhood into a period of resume building, sadly. It's as if everything that children do is supposed to be somehow increasing their chance of getting into Harvard.

The emphasis that adults (parents, teachers, administrators, policymakers, vested business people and other stakeholders) have in schooling has severely curbed children's natural drive to play, pursue curiosities, and be creative. Dr. Gray affirmed that neoliberal policies, such as No Child Left Behind, that push for a competition-driven free-market approach in educational systems, have severely harmed creativity and childhood. He remarked that:

...ever since No Child Left Behind and these changes that have occurred in school, creative things have been taken out of school... We are not letting children be children... We have deprived children of play.

Neoliberalism in education has been strongly critiqued (Giroux, 2012), yet continues to lurk within policies and practice, (especially within the fields such as educational technology or creativity) in the guise of *standardization*, *innovation*, and *best practices*. These educational approaches have sociopolitical implications, as they tie school funding to expectations of ranked and standardized student performance. Such practices have been criticized as dehumanizing, as they put additional pressure on and occupy the time of students, teachers, parents, and administrators (Mehta & Aguilera, 2020). This ongoing decline in childhood creativity and play also has a concerning impact on creativity and mental health: one of the biggest current challenges to our wellbeing.

### Creativity, Play and Mental Health

From about 1960 to today, there has been a continuous decline in children's freedom to play, and a gradual and equally steep increase in different forms of mental health-related issues in children. Depression and anxiety have seen a continuous rise. Speaking of these mental health concerns, Dr. Gray emphasized that:

A third of school aged children are suffering from a clinically significant anxiety disorder and at least 20% are suffering from depression, which at some points reach a level that would be diagnosed as major depressive. The suicide rate among school age children is six times what it was in the 1950s. And the rate of suicide during the school year, when school is in session, is double what it is during the summer when school is off. Similarly, the rate of mental health admissions for school children is double during the school year, than when it is off.

This suggests a correlation between mental health and play. Dr. Gray connects the rise in depression and anxiety with the steady decrease in time for play and curiosity-driven activities

in school and at home. Technology is a complex part of this equation, and here, there are opportunities and cautions.

## Creativity through Technology

The relationship of technology and creativity is complicated. On one hand, in an increasingly digital world, play can find more possibilities through technology. Children have more access to technology like computers with touch screens. They often are already using these technologies as a tool to play and create new things, exploring different digital possibilities because the distinction between the digital and the non-digital is irrelevant for play. That said, many parents and teachers may not consider sitting at a computer to be creative, and they may have valid concerns about screen time.

On the other hand, Dr. Gray complicates this concern by reminding us that, “the screen is a platform for all kinds of things.” He suggests that digital tools are protean and like any other educational tool or setting, they can both provide or detract from creative possibilities. Thus, some opportunities to play on screen can lead to very highly creative activities, while others may not. Dr. Gray directs our attention to existing new literacy practices of preteens and younger children who are using internet-based communication services, such as social media and instant messaging, to collaborate and share ideas. Dr. Gray suggests that in any situation, it is better for children to play with each other than not. Thus, these communication channels allow them to play in new ways and think of creative things we have not considered yet.

Discussing the studies that showed correlations between video games screen time and Torrance Tests of Creative Thinking scores, Dr. Gray addressed parents’ general concern:

So many adults have this view that kids’ minds are rotting because they’re sitting there in front of the screen. Quite the opposite. They’re becoming creative. There’s also, by the way, a positive correlation between hours played on video games and IQ scores. And there’s a lot of research showing cognitive strengthening as a result of playing video games.

According to Dr. Gray, while schools are assigning non-creative work to students, video games have been a saving grace for children, allowing them to play and be creative in ways that are in their control. Video games are not the only creative outlets in digital realms. Dr. Gray argues that technology in general is freeing up people to play, follow curiosities to do things that they like and want to master. With more automation, the need for monotonous and non-creative jobs may decline, leaving people free to create and pursue passions.

An additional, and as important, implication of the penetration of digital technology into our lives, is that it takes away certain tasks that are inimical to creativity and provides us with the freedom to focus on what is truly important. As he underscored in our conversation:

All the non-creative things that we teach children in school, we don’t have to teach them. We don’t have to teach spelling...the computer corrects my spelling and it has even taught me how to spell, because it gives me this immediate feedback if I misspelled it.

He thus offers a perspective on learning and schooling that focuses on what is truly important. A strong takeaway from our conversation may be a vision for schooling in the future that other scholars, such as Zhao (2012), have shared:

We don’t need people working on assembly lines anymore. We don’t need people punching numbers. We need people to do creative things. So, I think our lesson from technology is that we can allow ourselves, we can allow our children to do creative things and not force them to do all these non-creative things that are no longer necessary because technology has made them no longer necessary.

Evolutionary psychology has taught us that after millions of years of natural selection, the drives of play, curiosity and sociability have become the fuel for our lifelong self-directed learning. Curiosity and play drove humanity to manipulate nature to its advantage, to create tools from it and from them more tools. These tools and technologies have become advanced enough to soon reach a point when extant social beliefs that promote non-creative, non-critical, mechanical, standardized, and homogenized policies and practices may make room for curiosity and play to drive learning—for creativity to flourish.

## Conclusion

Dr. Gray’s evolutionary approach provides a unique view on creativity and also offers insights into broader issues of schooling, teaching and learning. His research and scholarship indicate a more unrestricted view of play and schooling, where learning is driven by the primary impulses of curiosity, play and sociability. He suggests that these impulses, combined with imagination, are what lead to creativity. Thus, standardized schooling driven by top-down standards, with a lock-step approach towards children’s learning and development, is fundamentally mistaken, going against the natural processes that both ignite learning and creativity and are ignited by it. As Dr. Gray argues, the existing systems we have today are



doing a huge disservice to our students and young learners, with significant negative consequences for their wellbeing. He offers a more liberating view of learning and education, which so far has remained restricted to pockets of innovation, but deserves a wider audience and application.

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