

What puzzles should we play to develop resilience in the 21st century?

This is a root of the meta crisis: we have more complexity in the world than our institutions, our government, and our culture have the capacity to respond.

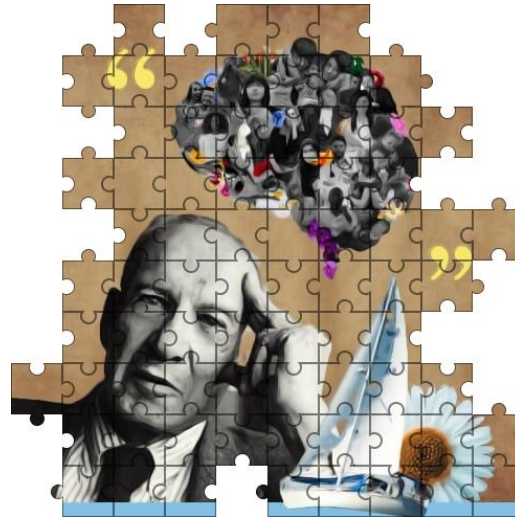
- Tristan Harris at Skoll World Forum 2023.

A complex, unprecedented jigsaw puzzle whose solution does not even exist. That is how Tristan Harris presented the current world's complexity at Skoll World Forum 2023 [1]. Global financial risk, misinformation, the concentration of wealth, domestic extremism, and cyber-attacks. These issues create a disordered and fragmented image with confusing contours and alarming colors to be organized and assembled by us as a society. According to Harris, the world's complexity must be followed by the steering wheel driven by our culture and governance. When it can operate only in three dimensions but faces an ocean of ten dimensions, our ability to navigate successfully is inferior to the dimension of the challenges that arise on our horizon. *"And right now, our ability to make sense and respond to that complexity is at a lower capacity rate than the complexity of the world."* We are adrift with the challenge of putting this puzzle together.

I love jigsaw puzzles. Arranging all those pieces of irregular shapes and colors that share subtle traits settles me down because it invites me to pay attention to the moment. I appreciate the time spent calmly observing the pieces, noticing nuances in their colors and shapes that lead to fitting and unfitting. Besides, the absence of fundamental dichotomies attracts me. It is a game in which no pieces are opponents and all demand attention. Our success as jigsaw players stems from constant observation and testing of its parts, which are equally relevant to our final goal: to build something greater, harmonic, and cohesive from the proper arrangement of smaller components.

In January 2023, I played a kind of speech jigsaw puzzle. It was a contest to choose the theme and artwork for the XII National Brain Week, an event to publicize the advances and benefits resulting from the study of the brain nationwide, promoted by the Brazilian Society of Neuroscience and Behavior (SBNeC) and an integral part of the Brain Awareness Week (BAW). I spent a few days working hard on assembling a puzzle of theoretical references, academic experiences, scientific evidence, and visual elements. This endeavor resulted in my idea of a theme and art about the *cultivation of resilience* and the duty of the scientific community to foster this conversation with society. By the end of the month, I discovered that SBNeC had selected my submission to represent the XII National Brain

Week in Brazil. I saw my art print on posters of scientific events organized throughout Brazil, and my text inspired professors and researchers to lead discussions and local scientific events about the neuroscience of resilience.



We have the opportunity now to extend this discussion and expand on this discursive jigsaw puzzle. Inspired by Peter Drucker's legacy and mobilized by Tristan Harris's analysis, we can push the boundaries of Neuroscience and Psychology to understand what fosters resilience development today. Professors Hila Lifshitz-Assaf and Sarah Lebovitz's study reported in the Harvard Business Review [2] may open this discussion with some insight into it. When they observed thirteen hackathon teams involved with developing innovative health technology devices, they discovered that the most successful teams abandoned standard collaboration techniques to remain flexible to test different approaches. As a result, they developed innovative and compelling products in just three days. They equalized the variation of techniques with continued flexibility, and the outcome was impressive. This evidence illustrates how navigating challenging events nowadays may benefit from one of Drucker's principles: the ability to balance change and continuity to succeed [3]. What can we learn about it by observing younger generation's players efforts to assemble today's puzzles?

Generation Z and Millennials: how they become resilient from today's puzzles

In 2021, Bobby Duffy published *The Generation Myth* [4] to discuss the concept of *generation*. According to him, it captures the social and kinship relationships of all people born and living at approximately the same time. Based on Karl Mannheim' generation theory,

we usually assume that historical context strongly affects the formation of a birth cohort (people who were born and grew up in the same period), and such effects tend to persist throughout life. According to Duffy, the problem is the indiscriminate adoption of this concept as an explanation for societal behavior.

In his book, he suggests that there are essentially three mechanisms acting on long-term changes: epoch effects (experiences that affect everyone, such as the coronavirus pandemic), life cycle effects (changes resulting from maturation or aging, such as getting married or having children) and cohort effects" (such as beliefs and behaviors common to people of a generation). Thus, purely generational explanations for the different behaviors observed in society are reductionist because they focus on cohort effects and ignore other effects. People in their twenties, for example, are often considered dissatisfied with their jobs and frequently look for new work opportunities. Young people are disposed to change jobs voluntarily more than their parents, but this difference in behavior has been noticed since 1980. Therefore, what underlies their willing to change is a period effect, not a cohort one.

The pandemic has hit younger people directly. More than twenty-five percent of Gen Z and Millennials surveyed by Forbes reported losing their jobs or being placed on temporary leave because of the pandemic [5]. Another twenty-seven percent of Millennials and twenty-three percent of Gen Zs reported working fewer hours, while some worked longer hours without receiving a corresponding raise. Still, recent research suggests that millennials and Gen Z can handle adversity. Even though they are deeply affected by the pandemic, they seem alert to opportunities amidst the chaos that may answer their constant questions – their *self-assessment tool*. Peter Drucker would say they behave as generations of nonconformists who ask, “*What is the right way for the future?*” [6] and are ready to lead change by resilience. It raises a question: What is the origin of such resilience?

The psychology of resilience

If the current world is complex, understanding how our emotional and cognitive resources emerge to cope with it is no less challenging. It is reasonable to say that science considers it a mosaic whose construction depends on the individual’s origin, family, organizations, society, and culture. Assuming a general conception that resilience is a profound and active process of adapting to the adversity of stressful events, whether violent or precarious life circumstances [7], we can say that the brain is a great resilient leader. It manages our responses to stress to reduce its damage to our full functioning, and it happens

more commonly than we tend to assume. According to Dr. George Bonanno [8], the human brain is constantly leading resilient processes. Our capacity to recover from adverse events is the rule, not the exception. Most of us gradually tend to overcome stressful events and achieve stable and healthy functioning. However, the factors involved in this process vary as much as the contexts in which the experiences occur, such as cultures and generations.

Dr. Rachel Yehuda argues that if we think of resilience as a stable trajectory, then we can consider the existence of biological or genetic underpinnings as important predictive factors [9]. However, when we observe the different resilience processes we go through, we quickly identify an organism actively interacting with an environment - modifying and being modified by it. It does not exclude biological or genetic contributors, but it does influence our perception of how environmental events contribute to biological change. Yehuda assumes that factors such as better support systems, better opportunities, and better DNA make some people more resilient than others.

One of these possible predictive factors stands out for Bonanno: flexible self-regulation. It is the ability to carry out and regulate continuous behavioral adjustments to the adverse experiences we experience [10]. Essentially, the flexibility of those who experience adversity determines the chances of that person adopting an adequate and productive response strategy - a promising overcoming path. The dynamism of today's world requires skills to navigate its inconstancy. Younger generations can constantly improve their flexible self-regulation when engaging in knowing and *managing themselves* [11], a process well described by Peter Drucker. So how can we achieve it? By embracing challenges that motivate us to navigate much more than to arrive. Jigsaw puzzle principles may be a good representation of them.

What we learn from jigsaw puzzles

Jigsaw puzzles are widely present in Western cultures. This type of game essentially explores the human capacity to decompose and reconstruct [12]. Its origin dates to 18th century, in England, and its name referred to the fact that the image to be assembled was fixed on wood and divided into small pieces with the help of a jigsaw tool. Such tool produced lines, curves, and cuts in the wood [13]. But what I consider specially interesting about Jigsaw puzzles is the fact that its initial purpose was to teach Geography through maps. A London cartographer, John Spilsbury, was supposed to have produced the first "jigsaw" puzzle around 1760, and it was basically a map glued to a flat piece of wood, which was cut

according to the lines of the countries. In other words, the advent of jigsaw puzzles seems to be linked to learning to recognize places other than our own, and, consequently, navigate between them.

Not by chance, this game inspired teaching and leadership approaches. For example, the jigsaw technique is a pedagogical approach that organizes classroom activities to make students dependent on each other to achieve their goals. They are divided into groups, in which each student assumes a complementary task. It is a cooperative learning method that combines individual responsibilities' variability and the constant commitment to achieving team goals [14]. And the psychosocial gains from these experiences are known to science. Emotion regulation consists of a central part of this learning process [15].

In collaborative learning situations, emotion regulation manifests itself in how we perceive and interpret the emotional reactions of each one of our peers [16]. We regulate our emotions when we identify and influence which emotions we experience and communicate, individually and in groups [17]. When group members are synchronized, our socially shared regulation is activated. By supporting our peers in regulating challenging situations, we allow co-regulation to occur [18] and the dichotomy between winning or losing gives way to the purpose of building something bigger from collective efforts. It is an infinite game experience.

“A finite game is played for the purpose of winning, and infinite game for the purpose of continuing the play. [19]”

James P. Carse's 1986 book *Finite and Infinite Games: A Vision of Life as Play and Possibility* starts with this idea. It describes many of the challenges we face every day as finite and infinite players. We are finite players when we engage in situations that mimic board games and online games, based on the assumption that beating our adversaries to makes us winners – and, thus, better players. We act as infinite players when we choose not to work on winning or losing but to keep on playing. In this case, we win when we learn to do better from our trials and errors.

Nearly three centuries later their origin, jigsaw puzzles are still popular but slightly different. Initially, the purpose was to learn Geography by assembling cut-out maps; now, we practice cognitive flexibility when becoming obsessed with solving "infinity puzzles." With no fixed shape, starting point, or edges, the most recent version of jigsaw puzzles invites us to create the final game scenario and no longer reorder a pre-established outcome. We assemble

them in different ways - as many as we can conceive. The underlying principle of infinity puzzles relies more on the continuous process of trial and error than on the rigid dichotomy of winning or losing.

When we look closely at the daily challenges in our professional, educational, and personal lives, we realize they can be played as finite or infinite jigsaw puzzles. It is up to us to decide if our ultimate goal when embracing challenges is to win (and thus deal with the risk of losing) or to learn to engage in a continuously improving experience and help others do the same.

Infinite players lead resilient societies

We started this conversation inspired by the concerns of Tristan Harris, whose leadership spirit is strongly supported by his story of resilience while discovering himself as an infinite player. Harris is the executive director and co-founder of the Center for Humane Technology. Before working on his values, he was a design ethicist at Google and, consequently, a finite player whose efforts were more aligned to widen the gap between our tools and navigation skills and the exponential potential of technologies to difficult our autonomy in the world. Harris decided to stop contributing to Google's team when he realized he could not follow his purposes as a player at a company driven by different gaming strategies and goals.

Tristan Harris's story inspires us to outline our strategies in the face of the adversities of the contemporary world. We are facing a big puzzle whose dimensions are expanding daily. We can see it as a long board game or online game whose arrival distances itself daily from our point of departure. We can also see it as a unique infinite puzzle whose size constantly expands, but it allows us to act on them, reinvent their contours and designs, and be autonomous over the image we are creating.

When commenting on Drucker's legacy, Judith Roding wrote, "*Our voyage is an artistic and not just scientific endeavor.*" [6]. Her words remind us of Peter Drucker's defense of the balance between change and continuity. The scientific purpose of exploring the oceans of challenges ahead will be more easily achieved if we navigate creatively and flexibly, taking advantage of different opportunities to change. At the same time, the continuity of our goals and values can benefit from the inevitable changing needs we encounter. Eventually, we may discover that the endless and confusing puzzle we have been trying to piece together reveals a beautiful map of our resilience and limitless autonomy as players and voyagers.

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