

## A comparative analysis of Brazil and France in the PISA-OECD results on creative thinking for Sociological Education

### Abstract

The OECD's PISA 2022 creative thinking assessment offers a novel lens to compare national educational philosophies. This paper comparatively analyses Brazil and France to identify Brazil's unique strengths. Findings reveal that Brazilian students demonstrate significant advantages in iterative-critical skills ("evaluating and improving ideas"), visual expression, and greater creative resilience among socio-economically disadvantaged students. These aptitudes are linked to a lower prevalence of a "fixed mindset" and remarkably high educational aspirations. Drawing on theories from Bourdieu, Freire, and Mills, we argue these findings signify a distinct "pedagogy of resilience" in Brazil, which contrasts with France's model of integrated academic capital. This study contributes a sociological reinterpretation of PISA data, challenging monolithic definitions of creativity and highlighting the value of culturally specific pedagogical assets.

**Keywords:** Field. Subfield. Sociology Teaching. Brazil.

**Armela Dino**

Complutense University of  
Madrid  
E-mail:  
[armeladino@gmail.com](mailto:armeladino@gmail.com)

### Introduction

The Organisation for Economic Co-operation and Development's (OECD) Programme for International Student Assessment (PISA) stands as a pivotal international benchmark for evaluating educational systems (OECD, 2022). In its 2022 cycle, PISA introduced a pilot assessment dedicated to creative thinking, defining this competency as "the ability to generate, evaluate and improve ideas to produce original and effective solutions, advance knowledge and create impactful expressions of imagination" (OECD, 2023; Runco, 2014). This definition extends beyond a narrow artistic interpretation, embracing "little-c" creativity — the everyday creative skills that 15-year-old students globally can reasonably demonstrate (Runco, 2014; Sawyer, 2012). The assessment is structured around three

core ideation processes: generating diverse ideas, generating creative ideas, and evaluating and improving ideas. These processes are measured through 32 open-ended tasks situated in four distinct domains: written expression, visual expression, social problem solving, and scientific problem solving (OECD, 2022).

Creative thinking is increasingly recognized as a vital 21st-century competency, yet its significance for sociology extends beyond mere skill acquisition. It is a pedagogical tool with the potential to democratize knowledge production and challenge dominant social narratives (Nussbaum, 2010). Within sociological teaching, creative thinking is fundamental to fostering the “sociological imagination”—the capacity to connect personal experiences to broader social forces (Mills, 1959). This study frames creative thinking not just as a cognitive process but as an act of sociological inquiry itself. For example, generating solutions to social problems or creating visual expressions can be powerful mechanisms for students to articulate their understanding of social structures and their own agency within them (Freire, 1970; Mills, 1959). To understand the divergent creative outcomes between nations, this paper will draw on a broader theoretical framework. We will mobilize concepts such as Pierre Bourdieu’s theory of cultural capital and Basil Bernstein’s work (1977) on pedagogic codes to theorize how national educational systems may implicitly value and cultivate different forms of creative expression. This approach allows us to investigate how Brazil’s educational context might foster a distinct, resilient form of creative thinking, even in the face of socio-economic disadvantage.

This paper undertakes a comparative analysis of Brazil’s and France’s performance in the PISA 2022 creative thinking assessment. The study draws on a secondary analysis of the publicly available PISA 2022 dataset, specifically Volume III, “Creative Minds, Creative Schools,” which focuses on creative thinking. Our method involves a systematic comparison of scores for Brazil and France against each other and the OECD average across the assessment’s core domains and ideation processes. The objective of this study is to interrogate how these divergent performance profiles reflect deeper socio-educational dynamics, identifying where

and why Brazil demonstrates relative strengths despite its lower absolute scores. By doing so, this research aims to provide actionable insights for educators and policymakers, identifying unique national assets that can be leveraged to cultivate creative thinking within sociological teaching specifically and the Brazilian educational system more broadly.

The comparative selection of Brazil and France is deliberate and theoretically grounded. The historically significant influence of French sociological thought on Brazilian academia provides a unique context for comparison, allowing for an analysis of how educational outcomes may diverge even when intellectual traditions are shared. Furthermore, this pairing juxtaposes a founding OECD member (France) with a key non-member partner country (Brazil), offering a critical lens on how creative thinking manifests across different socio-economic and educational landscapes. This comparison allows us to explore how a competency like creative thinking, often associated with resource-rich educational systems, is cultivated and expressed within Brazil—a nation with a distinct cultural and pedagogical context. By examining Brazil's performance against a traditional academic benchmark, this study seeks to uncover and theorize alternative models of educational resilience and creativity.

## 1 PISA's Methodology and Contextualisation

The PISA 2022 Creative Thinking test was designed to capture both divergent and convergent cognitive processes associated with what Runco (2014) describes as “little-c” creativity — creativity applied in everyday contexts rather than exceptional artistic or scientific domains (OECD, 2022; Runco, 2014). The assessment comprised 32 tasks, each targeting three core ideation processes: Generate Diverse Ideas (the ability to produce multiple, distinct solutions); Generate Creative Ideas (developing original and practically useful ideas); and Evaluate and Improve Ideas (critically assessing and refining ideas for better outcomes) (OECD, 2023). These tasks were embedded within four domain contexts — written expression, visual expression, social problem solving, and scientific problem solving — reflecting the widely

accepted view that creative competence is highly domain-specific (Sawyer, 2012; Amabile, 1996). Because each task was open-ended, scoring required trained human raters applying standardized rubrics and coding protocols to ensure reliable evaluation across countries (OECD, 2022).

The PISA 2022 assessment engaged approximately 690,000 students, representing an estimated 29 million 15-year-olds across 81 participating countries and economies (OECD, 2022). In Brazil, 10,798 students from 599 schools participated, representing roughly 76% of the national 15-year-old population (OECD, 2023). In France, 6,770 students from 282 schools took part, covering an estimated 93% of the national age cohort (OECD, 2022).

This difference in cohort coverage makes France's higher coverage rate more representative of the population, while Brazil's lower coverage may leave certain student groups — such as those in remote or under-resourced regions — underrepresented. Nevertheless, both countries have the majority of their 15-year-olds represented in the study.

As a brief summary on the latest development in both countries, firstly, Brazil's educational landscape has experienced significant reforms to foster students' critical and creative engagement with social issues (Gatti and Barreto, 2009). One milestone was the reinstatement of sociology as a mandatory subject in 2008, which reinforced the role of the humanities in shaping reflective citizenship (Menezes, 2012). Brazilian pedagogy is deeply influenced by Freire's (1970) problem-posing education, which prioritizes dialogue, critical reflection, and co-construction of knowledge.

Brazil also promotes transversal competencies such as socio-emotional skills through tools like the SENNA Inventory, which measures identity formation and self-efficacy (Primi et al., 2021). The National Common Curricular Base (BNCC) has institutionalized these competencies as core to the curriculum, aiming to ensure equitable access to quality education nationwide (Costin & Pontual, 2020; Resende, 2024). However, implementation challenges remain due to regional resource disparities and uneven teacher training (Amaral & Gonsalves, 2017; Berg et al., 2020).

France, which the PISA 2022 report categorizes as showing moderate success in fostering creative thinking (OECD, 2022), emphasizes developing students' capacity for critical social analysis within its national curriculum (Howard, 2023). French sociological education integrates social sciences and humanities to expose students to theories and case studies, encouraging autonomy in research and project-based learning (Manning et al., 2023). However, systemic factors such as the heavy reliance on standardized testing (e.g., the Baccalauréat) and persistent socio-economic disparities limit equal access to creative learning opportunities (Popham, 2001; OECD, 2022).

## Overall Performance Comparison

A foundational comparison of the PISA 2022 Creative Thinking results reveals a significant disparity in overall performance between Brazil and France as an average in all the tests including Mathematics, Reading, Sciences, and Creative Thinking, the later objective of this study. Students in Brazil achieved a mean score of 23 out of a possible 60 points, which is substantially lower than the OECD average of 33 points. In contrast, students in France scored a mean of 32 points, placing them on par with the OECD average. This quantitative difference indicates that France's overall creative thinking performance is considerably higher than Brazil's. Consequently, the subsequent analysis of Brazil's "outperformance" will not pertain to absolute overall scores, but rather to specific, nuanced aspects of creative thinking or the enabling factors that contribute to its development. This sets the stage for a deeper, more granular comparative examination.

Further analysis of proficiency levels highlights this disparity. In Brazil, only 46% of students attained at least a baseline proficiency (Level 3), a figure significantly less than the OECD average of 78%. Moreover, a mere 11% of Brazilian students were identified as top performers (achieving Level 5 or 6) in all PISA domains, compared to the OECD average of 27%. Conversely, in France, 78% of students achieved at least baseline proficiency, aligning with the OECD average. Similarly, 26% of French students were categorized as top performers, closely

mirroring the OECD average of 27%. These figures underscore France's much stronger capacity to ensure foundational skills across its student population and to cultivate a higher proportion of top-tier thinkers compared to Brazil. This points to systemic challenges in Brazil and the need for more widespread foundational skill-building due to its persistent regional and socio-economic disparities (Amaral & Gonsalves, 2017; Cunha, 2020).

The PISA 2022 assessment also provides insights into creative thinking performance relative to students' achievements in core academic subjects like mathematics and reading. In Brazil, students' creative thinking results were notably above what could be expected based on their performance in mathematics. However, their creative thinking results were below what could be expected based on their reading performance. In contrast, students in France demonstrated creative thinking results that were above what could be expected based on both their mathematics and reading performance.

This differential pattern of relative performance suggests a distinct interplay between cognitive skills in the two countries. Brazil's positive deviation relative to its mathematics scores indicates that creative abilities may be developing somewhat independently or even compensating for academic performance in mathematics. This implies that creative thinking in the Brazilian context might represent a distinct strength, perhaps less conventionally academic, and not solely dependent on traditional proficiency in this domain. The fact that Brazilian students exhibit creative thinking abilities beyond what their mathematics scores might predict could suggest that they are finding alternative pathways or informal contexts to develop their creative thinking. For France, the consistent "above expected" performance across both core academic subjects suggests a more integrated development of creative and academic skills. For sociological teaching, this observation is significant: it implies that in Brazil, fostering creative thinking might not necessarily require a prerequisite of high mathematics scores. This opens valuable avenues for pedagogical approaches that can leverage students' existing creative potential, even if their

traditional academic performance in mathematics varies. This also suggests that creative thinking in Brazil might be more broadly distributed across different academic profiles, offering unique opportunities for inclusive creative development strategies. This suggests that in Brazil, creative thinking may develop more independently of mathematics, reflecting the broader Brazilian educational focus on socio-emotional and transversal competencies (Primi et al., 2021; Resende, 2024). This also aligns with Freire's (1970) perspective that problem-posing pedagogies lay beyond traditional content mastery.

This divergence can be interpreted through a Bourdieusian lens. France's integrated performance, where creative, mathematical, and reading skills are mutually reinforcing, may reflect an educational system that values and rewards a specific, holistic form of cultural capital—one where abstract, academic competencies are tightly interwoven. In contrast, Brazil's de-coupled creative strength suggests that its educational culture may recognize and cultivate forms of creative capital that operate outside of this traditional academic hierarchy. From a Bernsteinian perspective, France's system may reflect a strongly classified curriculum where success in one domain is expected to correlate with others, while Brazil's approach, influenced by Freire, may represent a weaker classification, allowing creative competencies to flourish more independently. This highlights that what PISA measures as "creativity" is not a universal skill, but one whose expression is shaped by the very structure and values of the national pedagogic code.

For sociological teaching, this finding is significant. It implies that Brazil can build creative capacities even where mathematics outcomes lag, by leveraging students' existing creative potential through contextual and culturally relevant pedagogies (Menezes, 2012).

The following table summarizes the overall comparative performance:



**Table 1:** PISA 2022 Creative Thinking Overall Performance (Brazil vs. France vs. OECD Average)

|                                             | Brazil         | France         | OECD Average |
|---------------------------------------------|----------------|----------------|--------------|
| Mean Score (out of 60 points)               | 23             | 32             | 33           |
| Percentage of Students at Level 3 or Above  | 46%            | 78%            | 78%          |
| Percentage of Top Performers (Level 5 or 6) | 11%            | 26%            | 27%          |
| Relative Performance (based on Mathematics) | Above Expected | Above Expected | -            |
| Relative Performance (based on Reading)     | Below Expected | Above Expected | -            |

## Dissecting Performance: Ideation Processes and Domain Contexts

### *Comparative Analysis Across Ideation Processes*

The PISA 2022 Creative Thinking test disaggregates performance into three core ideation processes: "Generate diverse ideas," "Generate creative ideas," and "Evaluate and improve ideas." A detailed comparative analysis reveals a critical area of Brazil's relative strength.

In Brazil, students scored relatively higher in tasks that required "evaluating and improving ideas" than in others, with their relative success in this category positioned above the OECD average. This indicates a comparative advantage in the ability to critically assess and refine existing ideas to achieve creative outcomes. Conversely, Brazilian students struggled relatively more with tasks that required "generating diverse ideas" and "generating creative ideas," performing below the OECD average in both these categories.

In contrast, students in France scored relatively higher in tasks that required "generating creative ideas," showing a relative success of 5-10% above average. They, like students in many other participating countries, struggled relatively more with "generating diverse ideas," showing a -5% to 0% relative success. Their performance in "evaluating and improving ideas" was slightly positive, with a 0-5% relative success.

This distinction in strengths is highly significant. Brazil's proficiency in "Evaluating and improving ideas" may suggest a well-developed capacity for critical analysis, synthesis, and iterative refinement. This aligns strongly with the principles of Paulo Freire's "problem-posing education," which is deeply embedded in Brazilian



pedagogical philosophy. Freire's approach emphasizes critical reflection, dialogue, and the co-creation of knowledge, naturally fostering skills in assessing and refining ideas through an iterative process of understanding and action. This matches Freire's (1970) principles of problem-posing education, all closely tied to evaluating and refining ideas in sociological analysis (Mills, 1959).

To expand on this, the skill of "evaluating and improving" is the cognitive engine of the sociological imagination. Mills did not frame this concept as a single flash of insight, but as an iterative process of questioning, critiquing, and reformulating one's understanding of the link between personal troubles and public issues. Therefore, Brazil's strength here is not just a cognitive skill; it is a disposition toward the critical, dialogical inquiry that lies at the heart of sociology. It suggests a pedagogical foundation that, in line with Freire, trains students not merely to have ideas, but to engage with them critically as part of a collective process of knowledge construction.

France's primary relative strength in "Generating creative ideas" might reflect a different pedagogical emphasis, perhaps on individual ideation or conceptual novelty, which may be less focused on the iterative refinement process. For sociological teaching in Brazil, this inherent strength in "evaluating and improving ideas" is immensely valuable. Sociology frequently requires students to critically analyse existing social theories, evaluate the efficacy of policy solutions, and refine their understanding of complex social phenomena through ongoing inquiry and revision. This robust capacity can be strategically leveraged to design curricula that emphasize critical assessment, structured debate, and the iterative development of sociological arguments and solutions, making it a key area where Brazil demonstrates outperformance in a sociologically relevant cognitive skill. Thus, Brazil's iterative-critical strength can be harnessed in sociological teaching, where students frequently analyse and refine social concepts, theories, and policy debates (Amaral & Gonsalves, 2017).

## *Comparative Analysis Across Domain Contexts*

The PISA 2022 Creative Thinking test tasks were also situated in four distinct domain contexts: written expression, visual expression, social problem solving, and scientific problem solving.

In Brazil, students demonstrated higher proficiency in tasks that involved "visual expression" relative to their performance in all other tasks. Conversely, they struggled more with tasks involving "social problem solving" and "scientific problem solving". In France, students showed higher proficiency in tasks that involved "written expression," "visual expression," and "scientific problem solving" relative to their performance in other tasks. (See Table.)

Brazil's notable relative strength in "Visual Expression" is particularly noteworthy. While France also exhibits strength in this domain, Brazil's proficiency stands out more significantly given its lower overall performance, indicating a particular aptitude or engagement with visual forms of creative thinking within the Brazilian student population. This emphasis on "Visual Expression" in Brazil could be linked to the nation's vibrant cultural landscape, which is rich in visual arts, music, and performance. Such a cultural environment might informally foster visual literacy and creative expression among young people. Furthermore, this observation aligns with the strong positive association found between out-of-school digital leisure activities and creative thinking performance in Brazil. This suggests that informal learning through digital media might be significantly contributing to specific domain-context strengths, particularly in visual areas. For sociological teaching, this finding offers a compelling pedagogical direction: integrating visual methodologies and creative visual projects (e.g., photo essays, documentary film analysis, infographics, or multimedia presentations) into the curriculum could be a highly effective strategy in Brazil, such as seen under Resende (2024). Leveraging students' existing strengths in "visual expression" can enhance engagement, facilitate deeper understanding of complex social issues, and provide alternative pathways for demonstrating sociological imagination, making it a practical area where Brazil can build upon its

creative thinking capacity. Research shows such informal contexts can significantly shape domain-specific creative thinking (Runco, 2014; Primi et al., 2021).

This strength in visual expression can be theorized as a powerful, non-textual manifestation of the sociological imagination. In a society like Brazil's, collective cultural practices—from the visual storytelling of Carnaval and street art to the proliferation of memes and videos in digital activism—provide a rich vocabulary for interpreting and critiquing social reality. C. Wright Mills' concept is not confined to the written word; it is about the ability to grasp the interplay of history and biography within society. Brazil's visual aptitude may therefore represent a culturally embedded mode of doing sociology, where students learn to "see" social structures and express their understanding through compelling visual narratives. This informal curriculum equips them with tools to represent social inequality, identity, and agency in ways that are immediate and widely accessible

Table 2: Comparative Relative Success Across Domain Contexts

| Domain Context             | Brazil Relative Success (% difference) | France Relative Success (% difference) |
|----------------------------|----------------------------------------|----------------------------------------|
| Written expression         | Struggled more                         | Higher proficiency                     |
| Visual expression          | Higher proficiency                     | Higher proficiency                     |
| Scientific problem solving | Struggled more                         | Higher proficiency                     |

Internal Factors: Socio-Economic Divides, Gender Gaps, and Student Perceptions

Socio-Economic Disparities and “Resilient Creative Thinkers”

Socio-economic status (SES) remains a strong predictor of creative thinking performance in both Brazil and France, mirroring global trends. In both countries, socio-economically advantaged students significantly outperformed disadvantaged students in creative thinking. The score difference was 11.4 points in Brazil and 11.2 points in France, both larger than the OECD average difference of 9.5 points. This indicates that socio-economic background is a substantial determinant of creative thinking outcomes in both nations.

However, a critical distinction emerges when examining the proportion of creative thinking variation explained by SES and the presence of "resilient creative thinkers." Socio-economic status explained 12% of the variation in creative thinking performance in Brazil, which is on par with the OECD average (see Figure 1). In France, conversely, SES explained a higher 16% of the variation, indicating that socio-economic background is an even stronger predictor of creative thinking outcomes in France compared to Brazil.

Furthermore, "resilient creative thinkers"—defined as disadvantaged students who score in the top quarter of creative thinking performance within their own country—show a notable difference. In Brazil, 12% of disadvantaged students were identified as resilient creative thinkers, a figure close to the OECD average of 13%. In contrast, only 10% of disadvantaged students in France achieved this level of resilience.

Brazil's higher percentage of "resilient creative thinkers" and a lower proportion of creative thinking variation explained by SES suggest that while socio-economic disadvantage is a significant barrier in both nations, it is less determinative of creative thinking outcomes in Brazil. This outperformance in fostering resilience points to potentially more equitable distribution of creative opportunities or a stronger emphasis on socio-emotional factors that enable students to overcome adversity. This outcome is likely linked to Brazil's explicit educational policies, particularly those promoting socio-emotional learning and equity through frameworks like the National Common Curricular Base (BNCC). The BNCC's aim to ensure consistent and equitable educational experiences for all students, regardless of their location or background (Primi et al., 2021; Resende, 2024), could contribute to this resilience by providing a more universal foundation for skill development. France's higher influence of SES on creative thinking might reflect a more stratified educational system where creative opportunities are more closely tied to socio-economic advantage, making it more challenging for disadvantaged students to excel. For a sociological journal, this is a crucial aspect of why Brazil demonstrates a specific type of outperformance. It highlights Brazil's relative success in promoting

educational equity within the domain of creative thinking, indicating that its systemic efforts, despite overall lower scores, are fostering a vital capacity for social mobility and individual flourishing among its most vulnerable populations. This provides a strong argument for strengthening and expanding these equity-focused initiatives (Freire, 1970; Costin & Pontual, 2020).

From a Bourdieusian perspective, France's system, where SES explains a higher variation in performance, appears to be a more efficient engine of social reproduction. In this model, the educational system effectively legitimizes and converts the economic capital of advantaged students into academic and creative cultural capital. Brazil's higher proportion of "resilient creative thinkers," however, points to cracks in this reproductive cycle. While inequality is stark, the system appears to be less deterministic. This resilience can be understood through a Freirean lens of agency and "conscientização". It suggests that despite structural barriers, a significant minority of disadvantaged students are able to leverage pedagogical and cultural resources to develop critical and creative capacities, effectively challenging the notion that their socio-economic position predetermines their intellectual potential.

### *Gender Gaps in Creative Thinking*

The PISA 2022 results indicate a consistent gender gap in creative thinking performance across both Brazil and France, mirroring the OECD average. In both countries, girls consistently outperformed boys in creative thinking by an average of 2.5 score points, aligning with the OECD average gender gap of 2.7 points.

The gender gap persists at the higher end of the distribution in both nations, with a larger share of girls attaining Level 5 or 6 (top performers) compared to boys (Brazil: 12% girls vs. 9% boys; France: 29% girls vs. 22% boys). Conversely, the share of students who do not reach baseline Level 3 is larger among boys in both countries (Brazil: 58% boys vs. 50% girls; France: 26% boys vs. 18% girls). While this indicates a consistent pattern of female advantage in creative thinking, and a broader trend of female advantage in certain cognitive and socio-emotional domains (Nussbaum,

2010), it does not highlight a unique area of relative outperformance for Brazil compared to France on gender dynamics.

## *Student Beliefs, Attitudes, and Social-Emotional Characteristics*

Student perceptions and beliefs about creativity reveal significant qualitative differences between Brazil and France. Regarding the belief that creativity is possible in nearly any subject, 79% of students in Brazil agreed or strongly agreed, slightly lower than the OECD average of 82%. In France, this figure was higher at 84%.

A more profound distinction emerges in the prevalence of a "fixed mindset"—the belief that one's creativity is an unchangeable trait. In Brazil, 43% of students held this belief (see Figure 1), which is generally associated with higher creative thinking scores. This figure is notably lower than in France, where a substantial 64% of students reported a fixed mindset about their creativity. This represents a critical psychological advantage for Brazil, as a fixed mindset is negatively correlated with creative thinking performance. A lower prevalence of a fixed mindset is strongly linked with better creative thinking performance (Dweck, 2024). The lower prevalence of a fixed mindset in Brazil is strongly linked to its explicit educational policies and pedagogical philosophies such as Freire's (1970) emphasis on agency, dialogue, and growth — and the policy framework of the BNCC, which explicitly supports socio-emotional development (Primi et al., 2021). Brazil's National Common Curricular Base (BNCC) emphasizes the development of transversal competencies, including socio-emotional skills. The SENNA Inventory, a key tool in Brazil, specifically assesses identity formation and self-efficacy, which are foundational for cultivating a growth mindset—the belief that abilities are malleable and can be improved through effort. These initiatives actively promote the idea that abilities are not static, but can be developed. In contrast, France's higher prevalence of a fixed mindset might reflect a more traditional educational system that, despite ongoing reforms, may implicitly emphasize inherent talent or a more rigid definition of intelligence, potentially reinforced by its strong standardized testing culture. For a sociological journal, this qualitative

outperformance is fundamental: a growth mindset is a prerequisite for sustained creative development, resilience in the face of challenges, and a willingness to engage in iterative problem-solving. This highlights how national educational philosophies and cultural perceptions of ability, shaped by policy and pedagogy, can profoundly impact student psychology, creating a more fertile ground for creative growth in Brazil, even if overall absolute scores are currently lower.

Regarding attitudes, in Brazil, 82% of students agreed that doing something creative satisfies them, while 38% reported difficulty using their imagination. In France, 78% were satisfied by creative activities, and 26% reported difficulty using their imagination. Both countries reported high levels of social-emotional characteristics such as curiosity, perspective-taking, and persistence, which are identified as markers of creative thinkers and creative capacity (Runco, 2014; Amabile, 1996). In Brazil, 82% liked to know how things work (curiosity), 61% wanted to understand why people behave as they do (perspective-taking), and 56% completed tasks even when difficult (persistence). France showed similar figures: 79% curiosity, 69% perspective-taking, and 58% persistence. all of which are traits strongly correlated with creative capacity.

### *Higher Education Expectations*

A striking difference between the two countries is observed in students' aspirations for higher education. In Brazil, a remarkable 85% of 15-year-old students expect to complete at least a higher education degree (International Standard Classification of Education -ISCED - 5 or higher). This figure is significantly higher than the OECD average of 70% and substantially higher than France's 67% (see Figure 1). The PISA report explicitly notes that these highly aspiring students demonstrated stronger creative thinking proficiency, even after accounting for their mathematics and reading performance and socio-economic characteristics.

Brazilian students exhibiting significantly higher aspirations for higher education, which are positively correlated with stronger creative thinking



proficiency, suggests that high educational ambitions act as a potent driver for developing creative thinking skills. High educational aspirations are often indicative of strong intrinsic motivation, persistence, and a future-oriented mindset. These are all socio-emotional characteristics that PISA identifies as "distinctive markers of creative thinkers". In a country like Brazil, where access to quality education and opportunities has historically been unequal, high aspirations might represent a powerful drive for social mobility and self-improvement. This drive can translate into a greater willingness to engage deeply with challenging tasks, persist through difficulties, and actively seek out opportunities for intellectual growth. For a sociological journal, this points to the profound role of social and individual aspirations in shaping cognitive development. It suggests that the societal value placed on higher education, coupled with individual desires for upward mobility, acts as an informal but powerful catalyst for developing creative thinking and changing the sociological status. (Mills, 1959; Nussbaum, 2010). This is an important factor where Brazil shows a particular strength, highlighting the complex interplay between individual agency, socio-economic context, and the cultivation of key 21st-century skills.

These high aspirations are not merely individual ambitions; they are a collective exercise of the sociological imagination. In a context of profound inequality, the desire for higher education represents an understanding of the link between an individual's life chances (biography) and the broader social structure (history). Students are, in effect, identifying education as the primary structural pathway to transform their social reality. This future-oriented mindset, as Mills would argue, is a form of creative and critical thought in itself—it requires students to analyse their position and envision a different future, thereby fuelling the very persistence and motivation that PISA identifies as markers of creativity. This drive for social mobility becomes a powerful, informal curriculum in developing agency and creative problem-solving.

## Educational Environment and Pedagogies: A Comparative Lens

### *Pedagogies Conducive to Creative Thinking*

Student perceptions of pedagogies conducive to creative thinking reveal notable differences, highlighting Brazil's comparative strength in fostering a creative-friendly school environment.

Regarding teachers providing enough time for creative solutions on assignments, 63% of students in Brazil reported positively, aligning with the OECD average (63%). In France, this figure was lower at 54%. A more significant disparity emerges concerning teachers valuing student creativity: a substantial 76% of students in Brazil reported that their teachers value student creativity, surpassing the OECD average of 70% (see Figure 1). In stark contrast, only 51% of students in France perceived their teachers as valuing student creativity, a figure substantially lower than the OECD average. Similarly, for teachers encouraging original answers, 74% of Brazilian students agreed, exceeding the OECD average of 64%. In France, this figure was again lower at 51%. Finally, Brazil also showed a higher percentage of students feeling they are given a chance to express their ideas at school (71%), slightly above the OECD average (69%). France lagged at 61%.

Brazilian students report significantly higher levels of pedagogies conducive to creative thinking, particularly concerning teachers valuing student creativity and encouraging original answers. This represents a clear outperformance in the perceived creative-friendliness of the school environment. This positive perception is likely a direct outcome of Brazil's explicit policy emphasis on transversal competencies and socio-emotional learning, as outlined in the National Common Curricular Base (BNCC). These frameworks encourage educators to integrate creative pedagogies and actively value student input and expression. Furthermore, the enduring influence of Paulo Freire's (1970) problem-posing education, which champions dialogue, critical reflection, and active student participation, naturally fosters an environment where students feel their ideas are valued and original

answers are encouraged. France, despite its curriculum reforms, continues to grapple with a "standardized testing culture", which might inadvertently constrain teachers' perceived freedom to foster open-ended creative exploration and inadvertently prioritize rote learning over creative expression. This highlights a reason of why Brazil qualitatively outperforms France in fostering a supportive creative environment. A school culture that actively values and encourages student creativity is foundational for developing creative thinking skills. This suggests that Brazil's policy direction and underlying pedagogical philosophies, even within a system facing resource challenges, are more effectively translating into a perceived creative-friendly classroom environment, offering a valuable model for other nations seeking to integrate creativity into education.

### *Access to and Attendance in Creative Activities*

School principals' reports on student access to and attendance in various formal creative activities further distinguish the educational environments in Brazil and France. Brazil reports high access and significantly higher student attendance rates in all listed creative activities compared to France and often the OECD average. For instance, 39% of students attend art classes (OECD average: 27%), 22% attend drama (OECD average: 11%), 39% attend creative writing (OECD average: 16%), and 20% attend computer programming (OECD average: 17%). This indicates a greater practical engagement with creative pursuits within the Brazilian school system.

In contrast, France reports moderate access to these activities but generally lower student attendance rates compared to both Brazil and the OECD average. For example, only 15% of students attend art classes, 8% drama, 9% creative writing, and 12% computer programming.

Brazil's significantly higher student attendance rates in all listed formal creative activities compared to France and often the OECD average indicate a greater practical engagement with creative pursuits within the school system. This higher participation suggests a stronger emphasis on, or greater accessibility to, these

activities within Brazilian schools, potentially driven by the BNCC's focus on transversal competencies and holistic development. The BNCC encourages a broader educational experience that includes artistic and expressive domains, contributing to the development of creative skills through direct engagement. This practical engagement provides students with concrete opportunities to apply and refine their creative abilities in structured settings, complementing the theoretical aspects of creative thinking. This is a clear where Brazil demonstrates outperformance, highlighting a more active and widespread participation in formal creative development pathways.

### *Digital Activities: Learning vs. Leisure*

The utilization of digital tools for learning and leisure purposes also presents a nuanced picture of creative thinking development in both countries.

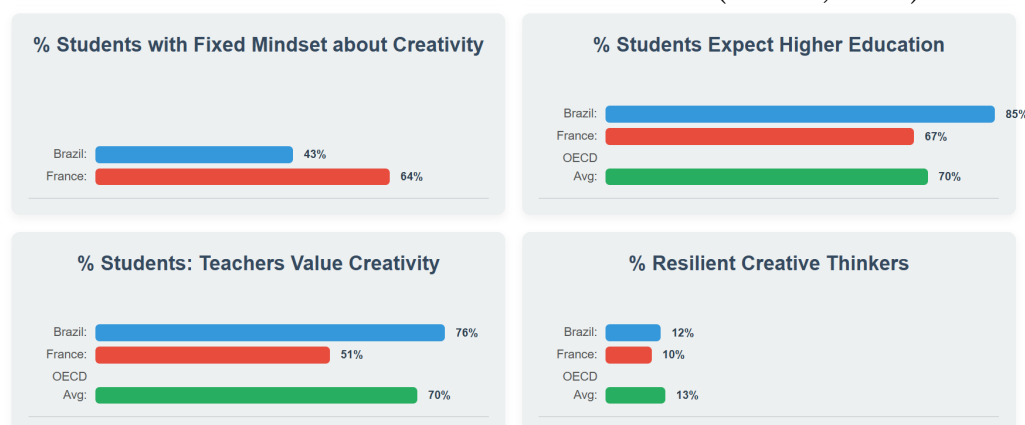
For digital tools used for learning purposes, 48% of students in Brazil reported using them for one hour a day or more at school, lower than the OECD average of 55%. Similarly, 39% used them for learning outside of school on a typical weekend day, also lower than the OECD average of 50%. In France, 42% of students used digital tools for learning at school for one hour or more, and 47% did so outside of school on weekends, both slightly below the OECD averages. Generally, this type of digital tool use (for learning) shows a positive, but modest, association with students' performance in creative thinking, similar to its association with mathematics performance.

However, a significant difference emerges in the impact of digital tools used for leisure. While 32% of students in Brazil spend more than one hour a day on digital leisure activities at school (OECD average: 35%), and this type of use is generally negatively related to creative thinking performance across OECD countries, the picture changes substantially for out-of-school leisure. A substantial 81% of students in Brazil spend more than one hour a day on digital tools for leisure outside of school on a typical weekend day, comparable to the OECD average of 80%. Interestingly, students in Brazil who engage in digital leisure activities outside of school for more

than an hour a day scored 5.8 points higher than their peers, even after accounting for gender and socio-economic profiles. Specifically, digital leisure activities such as playing video games and browsing social networks for an hour a day or more on the weekend were associated with stronger creative thinking performance (respectively 1 and 3 score-point differences). In France, 83% of students spend more than one hour a day on digital tools for leisure outside of school, but this was associated with a smaller increase of 2.1 points in creative thinking performance.

Brazil exhibits a stronger positive correlation between out-of-school digital leisure activities and creative thinking performance (+5.8 points) compared to France (+2.1 points). This suggests that informal learning environments, particularly through digital engagement, are more effectively contributing to creative skill development in Brazil. The specific positive associations with video games and social network browsing in Brazil indicate that these platforms, often visually rich and interactive, may be fostering creative problem-solving, narrative engagement, or visual literacy in ways that translate to higher creative thinking scores. This highlights the importance of recognizing and leveraging informal learning pathways, especially those culturally resonant and widely adopted by youth, for enhancing creative thinking in Brazil. This may be another explanation of why Brazil shows a particular strength, pointing to the potential of integrating these informal digital literacies into formal educational strategies.

**Figure 1.** A comparative look at key performance indicators and perceptions between Brazilian and French students (OECD, 2023)



## Conclusions

This comparative analysis reveals more than a simple disparity in scores; it uncovers two sociologically distinct models of creative thinking. France's performance aligns with a model of **integrated academic capital**, where creativity is tightly interwoven with traditional scholastic skills and, as **Bourdieu's** work would predict, is more efficiently reproduced along lines of socio-economic status. It represents a form of creativity that is highly valued within a traditional, strongly classified educational system.

In contrast, Brazil's results point to a **pedagogy of resilience and agency**. Here, creative thinking appears de-coupled from conventional academic hierarchies, demonstrating strength in areas that reflect a **Freirean** emphasis on critical dialogue and problem-posing. This model is characterized by: an iterative-critical disposition ("evaluating and improving ideas"); a non-textual, culturally embedded mode of communication ("visual expression"); and a remarkable resilience against socio-economic determinism. We argue that this constellation of skills, fostered by a growth mindset and high aspirations, represents a powerful, practical application of **C. Wright Mills' sociological imagination**. It is a creativity born not just from academic knowledge, but from the process of critically navigating and aspiring to transform one's social reality. This paper, therefore, does not simply document a deficit; it theorizes an alternative, potent form of creative thinking cultivated within Brazil's unique socio-pedagogical context.

These findings offer a clear mandate to move beyond conventional instruction and transform sociological pedagogy in Brazil by strategically leveraging these inherent national strengths. The goal is not merely to improve test scores, but to cultivate a more critical, engaged, and equitable sociological classroom.

Given the proficiency in "evaluating and improving ideas," curricula should be built around student-led problem-solving. Rather than delivering static knowledge, educators can frame units on inequality, urban development, or social change as complex

problems that require students to critically assess theories, debate policy solutions, and iteratively refine their own sociological arguments. This approach validates and builds upon the Freirean critical disposition already present in students.

Capitalizing on the aptitude for "visual expression" is more than a novel teaching technique; it is a way of legitimizing a non-textual form of the **sociological imagination**. Assignments like photo essays on community issues, documentary analyses of social movements, or the creation of infographics to explain social data should be central to the curriculum. Furthermore, by critically integrating the digital leisure activities where students are already excelling, educators can bridge informal and formal learning, using social media content and video games as texts for sociological analysis.

The presence of "resilient creative thinkers" and the prevalence of a growth mindset are Brazil's most significant assets for promoting educational equity. Policy and pedagogy should double down on the socio-emotional frameworks (like the BNCC) that foster these traits. For sociology teachers, this means creating classrooms that explicitly value student agency, encourage intellectual risk-taking, and connect sociological concepts to students' high aspirations for social mobility, reinforcing the idea that they are capable of shaping both their own futures and the society they inhabit.

Ultimately, this research challenges a monolithic interpretation of creative thinking as measured by international assessments. By providing a deep sociological reading of Brazil's PISA 2022 results, this paper recasts the narrative from one of simple underperformance to one of distinct, culturally and pedagogically embedded strengths. Brazil's model of creative thinking—iterative, visual, resilient, and aspirational—offers a valuable counterpoint to more traditional academic models and provides a powerful framework for cultivating the sociological imagination. It demonstrates that the most potent forms of creativity may not always be reflected in the highest scores, but in the capacity to critically and hopefully engage with the complexities of the social world.



## References

- Amabile, T. M. (1996). *Creativity in context: Update to the social psychology of creativity*. Westview Press.
- Amaral, L., & Gonsalves, M. (2017). Teacher training and educational inequalities in Brazil. *Educational Review*.
- Berg, J., Vestena, C. L. B., & Costa-Lobo, C. (2020). Creativity in Brazilian education: Review of a decade of literature. *Creative Education*, 11(3), 420–433.
- Bernstein, B. (1977). *Class, codes and control* (Vol. 3: Towards a theory of educational transmissions, 2nd ed.). Routledge & Kegan Paul.
- Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). Greenwood Press.
- Bourdieu, P., & Passeron, J.-C. (1977). *Reproduction in education, society and culture*. Sage Publications.
- Costin, C., & Pontual, T. (2020). Curriculum reform in Brazil to develop skills for the twenty-first century. In *Audacious education purposes: How governments transform the goals of education systems* (pp. 47–64).
- Cunha, M. (2020). Equity and innovation in Brazilian education. *Journal of Comparative Education*.
- Dweck, C. S. (2024). Personal perspectives on mindsets, motivation, and psychology. *Motivation Science*, 10(1), 1.
- Freire, P. (1970). *Pedagogy of the oppressed*. Continuum.
- Gatti, B. A., & Barreto, E. S. (2009). *Professores do Brasil: Impasses e desafios* (Vol. UNESCO). UNESCO.
- Howard, J. R. (2023). Discussions in the college classroom: Promoting sociological literacy. *Teaching Sociology*, 51(3), 195–208. <https://doi.org/10.1177/0092055X231157891>
- Lima, V. C. (2024). History, reforms, challenges and perspectives: The past and present of sociology teaching in Brazil. *Sociological Teaching*, 05–28.
- Manning, L., Murray, F., Hall Lang, E., Munsey, B., & Wigington, T. (2023). Learning experiences within helping disciplines: Faculty and student observations. *Journal of Pedagogical Sociology and Psychology*, 5(1), 31–43. <https://doi.org/10.33902/jpsp.202315517>
- Menezes, J. (2012). Sociology and education in Brazil: A historical perspective. *Revista Brasileira de Educação*.
- Mills, C. W. (1959). *The sociological imagination*. Oxford University Press.
- Nussbaum, M. C. (2010). *Not for profit: Why democracy needs the humanities*. Princeton University Press.
- OECD. (2022). *PISA 2022 results (Volume III): Creative minds, creative schools*. OECD Publishing. <https://doi.org/10.1787/765ee8c2-en>

OECD. (2023). *PISA 2022 assessment and analytical framework: Mathematics, reading, science and creative thinking*. OECD Publishing. <https://doi.org/10.1787/8fef034a-en>

Popham, W. J. (2001). *The truth about testing: An educator's call to action*. Association for Supervision and Curriculum Development.

Primi, R., Santos, D., John, O. P., & De Fruyt, F. (2021). SENNA inventory for the assessment of social and emotional skills in public school students in Brazil: Measuring both identity and self-efficacy. *Frontiers in Psychology*, 12, 716639.

Resende, L. (2024). National common curricular base and creative thinking in Brazilian schools. *Educação & Sociedade*.

Resende, M. V. A. (2024). *Currículo do futuro, Base Nacional Comum Curricular e decisões docentes: Um estudo em escolas do Distrito Federal do Brasil* [Tese de doutorado, Universidade de Coimbra].

Rogers, K. B. (2023). Developing an introductory course design that promotes sociological literacy. In *Handbook of teaching and learning in sociology* (pp. 37–54). Edward Elgar Publishing. <https://doi.org/10.4337/9781800374386.00012>

Runco, M. A. (2014). *Creativity: Theories and themes: Research, development, and practice* (2nd ed.). Academic Press.

Sawyer, R. K. (2012). *Explaining creativity: The science of human innovation* (2nd ed.). Oxford University Press.

Schleicher, A. (2019). *Trends shaping education 2019*. OECD Publishing. <https://www.oecd.org/education/trends-shaping-education-22187049.htm>