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"Cognition beyond the Convention": Reconceptualising thinking and creativity in the modern ways of information processing (to increase the cognitive modifiability for Educational futurism

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ABSTRACT :

In the evolving landscape of education, creativity and critical thinking are foundational to preparing learners for the future. This paper argues against the oversimplification of creativity as merely divergent thinking, especially in the context of educational literature . By exploring various models of creative thinking—ranging from lateral and heuristic to intuitive and system-based approaches—this paper proposes a reconceptualised framework that accommodates cultural, psychological, and cognitive dimensions of thinking. It also examines how socio-cultural contexts shape cognitive processes, emphasizing the need for an inclusive and holistic understanding of creativity in educational practices.

Keywords: creativity, critical thinking, the oversimplification of creativity as merely divergent thinking, system-based approaches, socio-cultural contexts.

Introduction

The question of *how* and *how much* we think is crucial in shaping modern educational paradigms. With the rapid evolution of information processing and technology, educational futurism calls for a renewed focus on how creativity and critical thinking are defined and fostered. Unfortunately, traditional education systems—often reduce creativity to divergent thinking alone. This narrow view not only limits pedagogical approaches but also undermines the multifaceted nature of creative cognition. The question is how much we think and in how many ways we think. In today's educational field, critical thinking holds a very important place. It is deeply connected with creativity as well. Thinking plays a significant and crucial role as the foundation of creativity. Now, the question is, what type of thinking? Personally, I never believe this to be the correct information.Divergent thinking is considered synonymous with creativity, but if we analyze it properly, creativity is expressed through many types of thinking. Divergent thinking is just one part of it. Another issue in Bengali books is that when asked to name creative research-oriented psychologists, only Torrance and Guilford are mentioned.Sternberg, D. Bono, and other psychologists are rarely mentioned.Personally, I believe there are several levels of creative thinking. The first level is lateral thinking, then comes divergent thinking, followed by parallel thinking, heuristic thinking, and lastly intuitive thinking. The highest level of thinking in creativity is intuitive thinking.

Beyond Divergent Thinking: A Multidimensional View

Divergent thinking, often equated with creativity, refers to the ability to generate multiple solutions to a problem (Guilford, 1967; Torrance, 1974). However, this is only a fraction of the broader spectrum of creative cognition. Edward de Bono (1970), for instance, introduced *lateral thinking*—a mode of thinking that moves sideways instead of forward and emphasizes novel approaches to problem-solving. De Bono's concept challenges the binary of right and wrong answers by promoting unexpected pathways.

Furthermore, Sternberg's (1996) triarchic theory of intelligence also includes *creative intelligence*, which involves generating novel ideas and solutions. In addition to lateral and divergent thinking, scholars have proposed heuristic thinking (trial-and-error methods), parallel thinking (non-adversarial cognitive flow), and ultimately, intuitive thinking—often seen as the highest form of creative processing.

Levels of Creative Thinking

Adam Jorlen's framework (2016) categorizes creative thinking into several levels: divergent, lateral, aesthetic, systems, and inspirational thinking. These levels provide a hierarchical and nuanced approach to understanding how creativity unfolds in different contexts (Fig. 1). Intuitive thinking, the apex of this framework, remains underexplored by current neurobiological models but is understood through instinctive and reflexive processes.

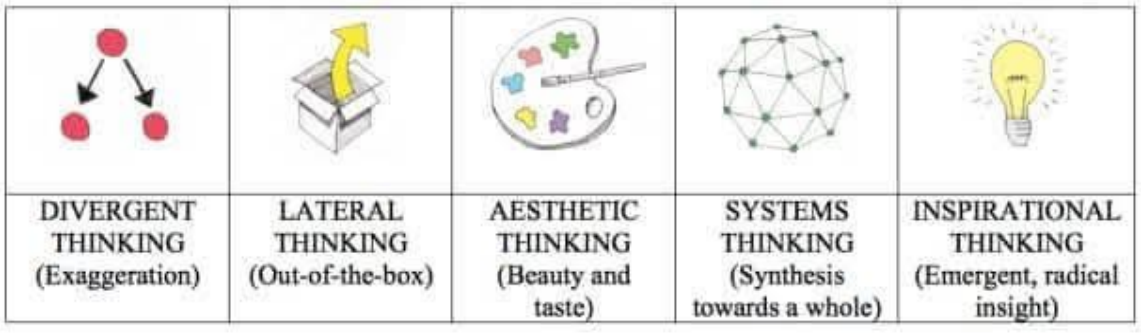

Fig. 1. *Jorlen's Levels of Creative Thinking*

Cultural Contexts of Thinking

Thinking is not a universal process detached from context. According to von Glasersfeld's (1995) radical constructivism, all knowledge is built upon prior cognitive structures shaped by individual experiences. Paulo Freire (1970) in his "Pedagogy of the Oppressed" also highlighted how socio-cultural silences influence cognitive agency—a phenomenon he termed the "culture of silence".

Richard E. Nisbett (2003), in *The Geography of Thought*, demonstrates that Eastern and Western societies engage in fundamentally different thought processes. While Westerners tend to think linearly and individualistically, Easterners often think holistically and relationally, which influences how creativity manifests in different educational environments (Fig. 2). At times, it is said that critical interactive thinking has no cultural influence, but this is not entirely true. Even when thinking about an issue from different perspectives, there will always be a reflection of the person's own cultural perspective. Even if a child is not allowed to speak or think anything after birth, this will become their culture, which will later influence their thinking in another society. (Paulo Freire's approach) This is known as the "culture of silence" in the theory of the oppressed, meaning that the individual will neither participate in anything nor try to assert their own opinion forcefully in everything.

Regarding cultural influence on thinking, there is also an excellent book by Richard E. Nisbett, a prominent social psychologist, where it is stated that regionally and demographically, our thinking varies in different ways. The book is titled The Geography of Thought. It suggests that Eastern countries think differently from Western countries. Eastern countries think more collectively, meaning their thinking is cyclical. For example, when we think, we try to consider our parents, uncles, aunts, and others.But in Western countries, a linear approach is observed, focusing solely on self-development and self-efficacy. How to improve oneself, and how to make one's thinking independent and distinct—this is prioritized, meaning it is more individualistic thinking.

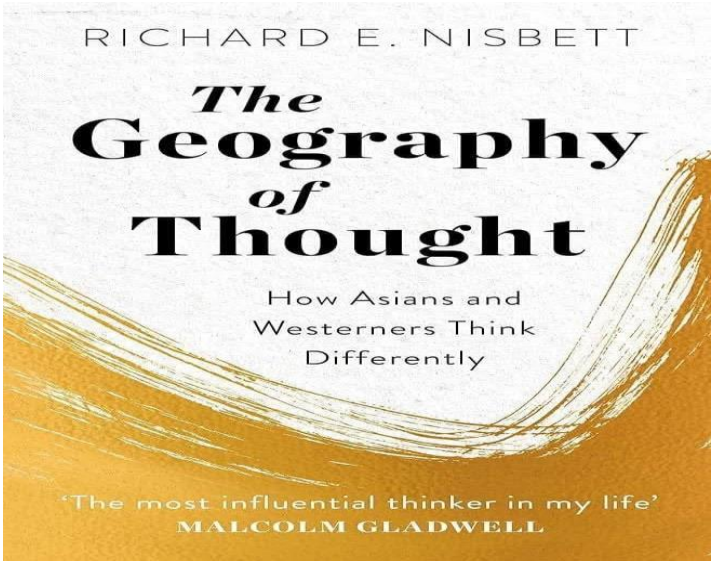

Fig. 2. *Geography of Thought (Nisbett, 2003)*

Ecological and Systemic Perspectives

Bronfenbrenner's (1979) Ecological Systems Theory further supports the idea that creativity and intellectual development are embedded in environmental layers—from immediate microsystems like family and school to broader macrosystems of culture and policy. Such an ecological lens is vital for understanding the socio-emotional and cognitive dimensions of thinking.

De Bono's concept of *parallel thinking*—operationalized through his "Six Thinking Hats" model—also aligns with this systemic approach. This method facilitates simultaneous, non-conflicting thought processes, encouraging collaborative and multi-perspective problem-solving in creative education.

Educational Futurism: A New Paradigm for Learning

Educational futurism refers to the strategic anticipation and design of educational models, content, and delivery methods that align with future societal needs, technological developments, and global challenges. At its core, it is not merely predictive but prescriptive—imagining what education *should become* rather than simply extending current trends into the future.

In the context of this paper, educational futurism becomes a crucial lens for rethinking creativity. If the future will demand more flexible, adaptive, and multidimensional thinkers, then education systems must evolve beyond linear curricula and one-size-fits-all pedagogies.

1. Creativity as a Future Competency

Reports from organizations such as the World Economic Forum (2020) consistently list creativity, critical thinking, and complex problem-solving as top skills for the future workforce. However, if creativity is misunderstood or narrowly defined—such as being equated only with divergent thinking—educators will not be preparing learners for the demands of an AI-augmented, innovation-driven world.

Educational futurism thus advocates for a broadened conception of creativity that includes:

- *Lateral thinking* for agile innovation.
- *Intuitive and heuristic thinking* for decision-making in complex, ambiguous environments.
- *Systemic and parallel thinking* for interdisciplinary problem-solving and collaboration.

2. From Industrial to Post-Industrial Education Models

Traditional education systems, built on industrial-era needs, emphasized conformity, memorization, and standardization. Educational futurism shifts this paradigm toward personalized, interdisciplinary, and experiential learning. Creativity must be taught not as an abstract quality, but as a set of cognitive and emotional habits nurtured across disciplines.

Project-based learning (PBL), design thinking, maker education, and transdisciplinary approaches are increasingly seen as core methodologies in this regard. These methods support the kind of complex, layered thinking models described by Jorlen, De Bono, and Sternberg.

3. Technology and the Digital Mind

As digital technologies become central to both learning and living, the nature of information processing is changing. Learners now grow up in environments shaped by algorithmic decision-making, media saturation, and hybrid realities (e.g., augmented and virtual reality). Creativity in the digital age includes navigating, reconfiguring, and even resisting dominant information flows.

Educational futurism therefore embraces digital literacy as a creative literacy—where coding, media-making, data visualization, and AI interaction are forms of expression and critical engagement. In this new literacy landscape, students are not just consumers of knowledge, but curators, remixers, and co-creators.

4. Cultural and Ethical Dimensions of Futurist Thinking

As we reconceptualise thinking in education, cultural variation must be acknowledged. What counts as "creative" or "futuristic" varies by context. A futurist educational approach rooted in Indian or Eastern contexts might emphasize collective intelligence, spiritual intuition, or intergenerational wisdom, as much as it does individual achievement.

Educational futurism, then, must also be decolonial and ethically aware. It should interrogate whose futures are being imagined, by whom, and for what purpose. Creativity must be reclaimed not just as a skill for economic productivity, but as a mode of resistance, care, and renewal.

Educational futurism is not about predicting the next technological tool, but about reimagining the thinking processes that underpin how we learn, solve problems, and create meaning. In this vision, creativity is not a static trait or a single skill, but a dynamic, culturally embedded, and multi-level process of cognitive engagement.

To meet the futures ahead, educators must move beyond simplistic dichotomies—like divergent vs. convergent thinking—and adopt a pluralistic, interdisciplinary, and deeply human approach to thinking. Only then can we truly prepare learners to thrive in, and shape, the unknown worlds to come.

Implications for Educational Futurism

Reconceptualising creativity as a layered and context-dependent construct offers several implications for educational futurism:

- Curriculum design should integrate multiple forms of thinking.
- Teacher training must move beyond Torrance and Guilford to include figures like Sternberg, De Bono, and Jorlen.
- Assessment models should evaluate intuitive, heuristic, and lateral competencies, not just divergent output.
- Cultural and ecological sensitivities must be embedded in pedagogical strategies.

Conclusion

Creativity in education cannot be confined to a single dimension like divergent thinking. As this paper has illustrated, creativity is a dynamic, culturally influenced, and multi-level construct that must be redefined to meet the challenges of the future. Educational futurism demands this reconceptualisation to foster truly critical, adaptive, and innovative thinkers.

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