THE DEMOCRATIC POSSIBILITIES OF THE PEDAGOGY OF MR. ERROR

LE POSSIBILITÀ DEMOCRATICHE DELLA PEDAGOGIA DEL SIGNOR ERRORE

Maria Sammarro
Università Mediterranea degli Studi di Reggio Calabria
maria.sammarro@unirc.it

Silvestro Malara
Università Mediterranea degli Studi di Reggio Calabria
silvestro.malara@unirc.it

ABSTRACT

Gianni Rodari perfects the collective in education, within the evaluation of the experience of error. Thought explores semiotics, gaming, even neuroscience. The error becomes a creative tool, in relation to the systemic-procedural reading of inclusion, to the promotion of environments in which learning is functional and activates participation in educational action.
The Rodarian teacher, who has absorbed Freinet's incorrect techniques, validates the role in intuition and self-correction, considers the self-educating aspect and, finally, reads the error within a universal planning, which becomes capable of distinguishing between error and errant, underlining that overcoming the error favors individual growth, the development of skills, cohesion and peace between individuals.

Gianni Rodari perfeziona il collettivo nell'educazione, dentro la valutazione dell'esperienza dell'errore. Il pensiero esplora la semiotica, il gioco, finanche le neuroscienze. L'errore diventa strumento creativo, in relazione alla lettura sistemico-processuale dell'inclusione, alla promozione di ambienti in cui l'apprendimento sia funzionale e attivi la partecipazione all'azione educativa.
Il docente rodariano, che ha assorbito le tecniche *errate* di Freinet, valida il ruolo nell'intuizione e auto-correzione, considera l'aspetto autoeducante e, infine, legge l'errore all'interno di una progettazione universale, che diviene capace di distinguere tra errore ed errante, sottolineando che il superamento dell'errore favorisce la crescita individuale, lo sviluppo di competenze, la coesione e la pace tra gli individui.

Introduction

> *Errors are necessary, as useful as bread, and often even beautiful: take the Leaning Tower of Pisa, for example. This book is full of mistakes, and not just spelling ones. Some are visible to the naked eye, others are hidden like riddles. Some are in verse, others in prose. Not all are childish errors, and this is undoubtedly true: the world would be a wonderful place if only children made mistakes. Among us fathers, we can say it. But it's not a bad thing for the kids to know it too. And for once, allow a children's book to be dedicated to the fathers of families, and of course also to the mothers, and to schoolteachers: to those, in short, who have the terrible responsibility of correcting — without making mistakes — the smallest and most harmless errors on our planet.*

Thus, Gianni Rodari, in the epigraph to The Book of Errors (1964), insists — through the performative title Among Us Fathers — on the possibility of connecting the terrible responsibility of correction with the very occurrence of an authentic education aimed at forming citizens of the world. The writer, overturning the traditional view of error, redefines even fatherhood, motherhood, and parenthood itself, entrusting error with the chance to create a beautiful world where mistakes, imperfections, and differences become leaven for a truly democratic school.

> "If a child writes in his notebook 'l'ago di Garda' as "the needle of Garda" instead of "lago di Garda" as "Lake of Garda" I can choose either to mark the error with a red or blue stroke, or to follow the bold suggestion and write the story and geography of this very important 'needle,' even marked on the map of Italy. Will the Moon reflect off its tip or its eye? Will it prick its nose? [...] A 'bookk' with two k's: will it be simply a heavier book, a wrong book, or a very special one?"

By giving students the opportunity to explore new worlds and develop their creativity, opening their minds to unlimited possibilities, error becomes a bridge to narrative adventure. It is an activity that encourages children to correct mistakes while playing but, more importantly, promotes the ability to think outside the box, turning a simple mistake into a compelling and unique story. Creativity becomes synonymous with divergent thinking (Rodari, 1973) when children's imagination is stimulated, when they are encouraged to go beyond set elements, when they aim to uproot conformity and convenient answers, when they step out of their comfort zones to question everything, experimenting with new solutions and perspectives

of the world. This paper aims to theoretically investigate the value of error and address some significant pedagogical fascinations of the twentieth century which, still relevant today, embody error as a democratic possibility.

1. Behavioral Design and Creative Error

Alongside Rodari—although starting from different perspectives and inquiries—many other voices have spoken. Karl Popper (2024) emphasizes the pettiness of avoiding mistakes: for the philosopher, the process of human knowledge development passes through the inevitability of error, even proposing erroneous theories, from which the logic of scientific discovery (2010) emerges and then evolves through conjectures and refutations (2009). The individual who proceeds by trial and error follows a system—common to both animals and humans—that neuroscience identifies as a process of simplification, categorization, correlation, and substitution (Rivoltella, 2024), which ultimately represents the possibility of learning itself.

The concept of prediction, as a basic mechanism of the human brain in its constant pursuit of personal and evolutionary success—and systematic avoidance of obstacles—is central to the dialectic between memory and learning, where emotions also play a role, notably through Damasio's somatic markers (1995). Error is the foundation of what Rivoltella defines as neurodidactics. Drawing from experiments by Pavlov, Thorndike, and Skinner, we understand that, for neuroscience, the predictive mechanism—especially due to the varying associations between a signal and a future event or an action and its possible consequence—triggers dopamine neurons, or "reward neurons," more intensely when the prediction fails. The brain, expecting a specific outcome, receives instead a different one—an error. Dopamine, the neurotransmitter of pleasure, is not released by the correctness of the prediction, but by the generation of experience and the redefinition of learning (Frith, 2007). The human brain works like both a Popperian and Bayesian machine: it learns from its mistakes, ensuring the greatest democraticity and elegance (Berthoz, 2019), while simultaneously initiating probabilistic predictions that allow it to readjust and self-correct actions based on experience.

This trial-and-error learning process and probabilistic function lead to three distinct learning structures—as ways of relating to the world and processing knowledge: repetition, experience, and imitation.

If learning is a neurophysiological and biochemical condition, we must understand

which situations are optimal for the individual's development and growth. Repetition is certainly one of today's most debated dynamics. If we learn by repeating, and if learning depends on the reiteration of a stimulus to trigger long-term memory fixation, we must explore how this applies in today's society and in post-pandemic schooling. The area where this discussion is most actively applied is undoubtedly gamification, understood—both in formal education and professional training contexts—as an innovative teaching method. It taps into students' desires and needs, provides ongoing and easily achievable goals, rewards to earn, and encourages individuals to engage and interact with others. Through these strategies, the so-called flow state (Csikszentmihalyi, 2021) is achieved, in which the subject is fully immersed in an activity, in a state where intelligence is not only embodied, but truly embedded—that is, immersed in the environment with which the subject interactively engages. Furthermore, the learner's intelligence is not only enhanced by the environment through personal and social motivation, but is also extended, as the technical and technological tools within that environment are used to achieve a purpose. The primary objectives of gamification—such as directing active interest toward data to be learned, messages to be understood, or skills to be acquired, and stimulating proactive and measurable behaviors—are focused within the user-centered design (UCD) approach (Gulliksen et al., 2003). This model emphasizes the needs, priorities, and attitudes of users, i.e., students. Though the UCD model originates from computer programming contexts, it aligns well with the didactic principles outlined by Universal Design for Learning (Cottini, 2019). Specifically, behavioral design helps modulate the cost-benefit ratio in order to keep goals challenging without becoming too easy or too difficult. Gamification, therefore, transforms error into something stimulating rather than discouraging, encouraging the learner to try again and view mistakes as opportunities. This is made possible by incorporating video game-style scoring systems—where rewards start from zero and move upward—instead of traditional subtractive evaluation, which penalizes based on errors.

Contrary to the traditional perspective, error should not be eliminated from human life, as Western history has often taught, nor should it be abolished by reducing the student to a sacrificial scapegoat (Recalcati, 2017). Rather, error should be encouraged in an experimental context, where the designer creates conditions that constantly challenge the learner, balancing cost and benefit, and bringing the student as close as possible to the flow state.

In this way, the alignment between universal design and user-centered design finds its most fitting expression in that creative state which Rodari envisioned as error. Paraphrasing the psychology of optimal experience, making mistakes—and being

allowed to do so without the red-pen sacrifice—defines human creativity itself and the ability to always find new solutions to complex and diverse problems.

2. The Value of Error: From Failure to Opportunity

> *"Many of life's failures are people who did not realize how close they were to success when they gave up." (Thomas Edison)*

If, as Lucangeli (2023) states, error is not just a red mark but something that causes suffering and frustration—capable of compromising future learning and the student's well-being—then it is crucial for the learning environment to be less judgmental and more receptive to individual needs:

> "It is important to create a classroom climate that encourages tolerance for mistakes, urging students to experiment, to take risks, and to learn from the mistakes they make. The connection between formative management of mistakes, the teacher's evaluative approach, and the students' emotional well-being constitutes a fundamental aspect of this transformation" (Cuzzi, 2024).

In the educational context, strategies should be promoted—such as timely and clear feedback (Hattie & Timperley, 2007), or the development of coping skills for unmet goals—that turn mistakes into resources and sources of knowledge rather than failures to be sanctioned. Teachers, by favoring formative assessment that supports students throughout their learning journey, should consider not only the final product but the entire educational process, encouraging learners to develop self-correction skills and increase their critical autonomy—even in managing errors—thanks to the feedback they receive (Girelli, 2020). The teacher—through the cognitive process of observation, aimed at understanding rather than merely judging a phenomenon—must position themselves as a careful observer of students' mistakes. From those, they should extract useful information to best support the learning process and identify strategies and solutions to overcome obstacles. Thus, error becomes a key to accessing the student's cognitive process, a signal that reveals the challenges faced during information processing (Lucangeli, 2019).

The first stage is assimilation, which I describe as the "outside-to-inside" direction: new information is absorbed by the individual and internalized. Next, in the "inside-to-inside" phase, internal processing occurs, enabling the person to reflect on the concepts just learned, to modify and integrate them—a hallmark of human intelligence. Finally, this newly acquired knowledge can be expressed outward in a phase we can define as "inside-to-outside" (Lucangeli, 2019).

The teacher shifts from being a mere knowledge dispenser to becoming a facilitator of error management, an active guide in student development. This includes creating environments where errors can be analyzed and discussed without prejudice, transforming them from obstacles into engines of growth (Agrusti, 2021). History teaches us that many great discoveries and innovations were born from repeated attempts and failures: every success is preceded by a series of "failures" that illuminated the right path forward. According to Dweck (2006), there is a fixed mindset—typical of those who believe that their basic qualities, such as intelligence or talent, are simply fixed traits—and a growth mindset, which holds that basic abilities can be developed through dedication and hard work. The researcher explains, through an experiment, how certain preadolescents with a growth mindset reacted to complex problems: they felt stimulated and excited by the opportunity to learn something new, without fear of making mistakes and confident in their ability to develop skills through those mistakes. This means being open to feedback, being persistent and resilient, being flexible and able to adapt to change and modify plans when needed. It means adopting the "virtuous" attitude proposed by Machiavelli—adjusting and modulating one's behavior, whether bold or cautious, according to circumstances and the "changes of fortune". It is therefore necessary to suspend judgment, avoid premature evaluations, and prioritize reflection and reworking of what has been produced, since mistakes are an integral part of the growth process and can be transformed into tools for self-improvement and project development. In such cases, the stance to adopt is the one proposed by Dewey (2019) through "the best way of thinking": reflective thinking allows individuals to question the logic behind their interpretations of everyday experiences, which are typically guided by past interpretative schemes. Reflective action occurs when a problematic situation arises and there is a need to create new action models, modifying or replacing previous ones. Moreover, Donald Schön, through reflective practice, investigates the knowledge and learning processes that unfold during the action itself, ultimately revealing a form of reflection-in-action that—arising from

uncertainty and discomfort—can become a generator of new knowledge. The transformations in today's working environments—unstable, uncertain, problematic, and constantly demanding updated skills—require professionals to face new realities for which they may lack adequate tools of analysis and preparation. Self-assessment can be described using Schön's definition: it is self-reflection on what one does, why one does it, and how it could be done better. Thus, self-assessment is a crucial moment in which reflective skills and evaluative awareness about one's actions coexist. Three key concepts (Perla & Riva, 2016) underpin this:

- Authenticity: creating distance between oneself and the action being analyzed, viewing one's practices critically and consciously ("What am I doing?");
- Reflection: questioning the reasons behind the action or project, examining its quality and educational value ("Why am I doing this?");
- Training – Orientation: asking "How could I do it better?" helps explore paths of growth and educational planning.

Self-reflection and self-assessment should be essential steps for students confronting error. Rather than fearing or avoiding it, they should be encouraged to actively explore the reasons behind their mistakes and analyze their causes with critical reflection and analytical skills. As Marzano (2015) affirms, encouraging students to accept mistakes as part of learning makes them more willing to experiment, challenge themselves, and overcome difficulties. This not only enhances resilience in the present moment but also in future challenges—both in life and in the workplace—supporting the co-formation of the person and the citizen.

3. Didactic Tâtonnement

Although in recent years deep learning has raised several objections to the full reliability of the cognitive theories mentioned above—due to the impact of machine learning and statistical algorithms known as artificial neural networks (Malara, 2024)—and despite the educational implications of certain methodologies rooted in computer vision, it is crucial to recognize that error can still serve as a foundation for learning processes not exclusively mediated by technology. Mister Error, far from being a condition that hinders learning, becomes the condition of existence to compete with an automaton that makes no mistakes—and perhaps

even to surpass it. In this regard, it is essential to recall Gianni Rodari's pedagogical roots and, more specifically, the legacy of Célestin Freinet's popular pedagogy, first published in Italy in 1965. Sixty years later, taking a step back from the robotic future of computer vision and deep learning to Freinet's teaching techniques may seem bold. However, both the French educator and the writer-teacher identified in their methods, grammars, and exercises many of the cornerstones of what is now considered contemporary education.
Learning by groping, or tâtonnement expérimental, is Freinet's method. This is not merely a theoretical teaching framework but a practical path for teachers, who—from printing presses to free writing, interschool correspondence to filing systems—have a set of diverse tools to apply to different contexts and problems. Tâtonnement is never blind or random; rather, it stems from Freinet's study of Ferrière and Bergson (minus Bergson's metaphysical dimension), and even meets certain aspects of behaviorism. Freinet's innovation lies in ensuring that, even in trial and error, the process does not become a rigid, mechanical repetition—like a feedback loop in an artificial neural network—but preserves room for the unexpected, a sort of Heideggerian Ereignis where being and human intersect and understanding emerges through this encounter. This dynamic, fertile, and propulsive moment represents the élan vital, the vital impulse and the possibility of error that underpins all growth and change. Tâtonnement is a continuous experimentation aimed at freeing the student—both in expression and action. The student is free, yet guided, and the space of that freedom, self-corrective and metamorphic, is the whole school village, where humans live cooperatively and in solidarity.

> "And our role, our function at this primary level that determines all subsequent construction, is to act, to try, to compare, to choose, to adjust; to choose and adjust not only raw materials or semi-forged pieces, but creative and vital elements." (Freinet, 1963)

Freinet's vision is not anarchic spontaneity: it is the promotion of student development through horizontal relationships with their environment and through the projection of a holistic human experience.

4. Pedagogies and Techniques for an Error-Free Human Capital

Without passion, there is no school: this could sum up Freinet's entire legacy. Without educational passion, without eros (Recalcati, 2014), there would be no life

wholly dedicated to education—something that has deep roots in the anthropological foundation of the educable human. Passion, far from implying sacrifice, as mentioned earlier, is élan vital, ikigai, the reason for being in Japanese tradition—literally, any moment marked by a state of persistent emotion. This is where school and life coincide. No longer a theoretical slogan, this can become the new integrative background for the entire embodied cognition system, as it promotes active and tangible learning in which bodily experience and interaction with the environment are essential. There is no school separate from the environment—be it family or natural and social surroundings—because the core motivation for school activity must be the self-expression of students' lived experiences and relationships. The tâtonnement expérimental is another lens through which Freinet's pedagogical naturalism can be read in light of embodied pedagogy—especially when the student's body and environment are enhanced by digital tools. If we compare tools—digital today, manual in the école moderne—we find striking correspondences, beginning with the enactive value of didactics (Rossi, 2011). The matter of teaching techniques (1974) is central to Freinet and represents one of his most innovative legacies. Coin (2013) argues that one cannot speak of enactive didactics without including Dewey's learning by doing and cooperative learning frameworks. Both are strongly present in Freinet's techniques: the first inductively, the second deductively. School printing and free text are perfect examples. Through printing, Freinet went beyond active pedagogy: not only did he replace student passivity and submission with autonomy and hands-on activities so that correction would come from action and environment (Montessori, 1999), but he introduced concrete tools into the classroom—presses, lead type, ink—that became the children's everyday materials, not just random activities. In Freinet's school, the workshop is the place of creation, even mistaken creation, where children's free expression and most active experiences emerge.

> "School printing has made the free expression and creative activity of our students a daily practice. Through experience—far more effective than supposedly scientific reasoning—it has opened new horizons to a pedagogy based on real interests, generators of life and work. It has restored the unity of children's thought, activity, and life; it has integrated school into the natural process of their individual and social development."

If school printing enacts enactive didactics, free text becomes a methodology that can, to varying degrees, help students achieve that flow state guided by personal and natural interest. Once again, Freinet transcends—even radically—the adult-

centeredness often attributed to Decroly and Dewey's active pedagogies. Free text is a manifesto of educational action decided by the student or group of students, whose highest goals are subjectivity, spontaneity, and authenticity. Free text and printing must be seen in continuity, as every aspect of a child's life can be seen as an extension of the culture the child lives in.

> "In our earliest childhood, we develop habits that never fade. The material, intellectual, moral, and technical lifestyles we grow up with in our families and villages will so strongly shape our future direction that it will often be impossible to escape their influence."

Free text should never be seen as raw material or as a simplistic outlet for childish fantasies. It is a foundational and possible site of democratic capital because it is chosen by the group based on its relevance to the group itself. The text's subject is problematized, related to the class's diverse representations, and mediated between teacher and student, among students, and within the group. In this mediation lies the spirit of collaboration and cooperation that turns every Freinet technique into a life technique—methods aimed at solidarity and the student's personality growth within and for the group. However, life techniques should not be confused with Freinet's pedagogical tools, since the arrival of new digital tools might make them seem outdated—artifacts of a working-class past. In truth, these techniques leave a legacy of formative integrity that speaks directly to today's reflections on ethical uses of technology and AI (Floridi, 2022), and align with current educational frameworks like TPACK (Di Blas, Fabbri, Ferrari, 2018) and DigCompEdu (Ferrari, Pasta, 2023) for assessing both student and teacher competencies. Competency itself—its definition (Cambi, 2004; Pellerey, 2004; Baldacci, 2010)—is the terrain where active citizenship is nurtured through cooperative techniques, and where students learn to become global citizens. The integration of competency-based logic into educational paths is rooted in a cultural framework that values human capital—the very asset considered precious by the entire Cooperative Education Movement, from Freinet to the present day. Baldacci (2014) defines human capital as the set of skills embodied by the individual and used in productive contexts. In today's global economy, it is an essential factor for competitiveness. Beyond legitimate critiques and necessary discussions, a clear need emerges to redefine not only the concept of competence but also to reassess error—no longer as guilt or punishment but as a trigger for regenerative pedagogy. These changes must be based on solid theoretical and epistemological foundations, with clearly stated and widely shared goals. The primary intent is to avoid blindly

aligning with market logics and instead steer educational efforts toward forming fully competent individuals with critical awareness—those who can promote human development as a pillar of global and democratic advancement.

5. Conclusion

What is error? Error derives from the Latin *error* and the verb *errare*, to wander, to deviate, to make a mistake. Like many Latin words ending in -ore—lucre, odore, sapore, dolore—it conveys a sense of suspended or undefined meaning. First and foremost, though, the etymology indicates movement, wandering, in a negative sense: deviation from the straight path. Thus, error is, by nature, divergent, unpredictable, a kind of pilgrim. Intriguingly, the Italian sbaglio (mistake) shares roots with abbaglio (blunder), hinting at the temporary nature of deviation, while errore suggests something more systematic—as if errare were a method. Beyond linguistic curiosities, these nuances carry enormous interpretive weight. At the end of his pontificate, in April 1963, Pope John XXIII published the encyclical Pacem in terris, inviting us to reflect further on the meaning of error:

> "One must never confuse error with the one who errs—even when it comes to errors or inadequate understanding of moral or religious truth. The one who errs is always, first and foremost, a human being. He retains, in every case, his dignity as a person and must always be regarded and treated according to that dignity. Moreover, within every human being there is always the innate need to break free from the frameworks of error and open up to the truth. And God's action in him never ceases. Therefore, someone who at a particular moment lacks clarity of faith or holds erroneous opinions may one day be enlightened and believe the truth" (n. 83).

Pope Roncalli urges us to distinguish between the mistake and the person who makes it. This is perhaps the most crucial step in dismantling the old red-pen tradition. The one who errs is a person. Their subjectivity is the only valid criterion for evaluating their error. And in that subjectivity, every error is an experience of novelty, of conversion, and of truth. The Pope, beyond theological discourse, calls upon all those with "the terrible responsibility to correct" (Rodari, 1964) to adopt an attitude of kindness, respect, and openness to difference—because the one who errs is never just the mistake. Once again, Rodari and Freinet's work illuminates the

modern world of assessment in education. This call to inclusiveness and the embrace of difference is echoed in Pope Francis's reflections on the pervasive "throwaway culture":

> "There are those who presume they can determine—based on utilitarian or functional criteria—when a life has value and is worth living. This mentality can lead to serious violations of the rights of the weakest, to grave injustice and inequality, where profit, efficiency, or success prevail. […] This 'throwaway culture' tends to become a common mindset, contaminating everyone. Human life and the person are no longer seen as a primary value to be respected and protected—especially if poor or disabled, unborn or elderly. Thus, people are discarded, as if they were waste."

Just as in education, where assessment must welcome error and the unexpected with nonjudgmental openness, so too in human relationships and ecology must we promote a culture of solidarity and inclusion—even of those who embody difference, heteros, and otherness. What matters in education is not economic productivity, speedy efficiency, or perfect correctness—as though learners were mere thinking machines. What truly matters are the Leaning Towers of Pisa, the misspelled "quori" (hearts), the dropped z's, and all those delightful errors that, if made only by children, would make the world a truly beautiful place.

Author contributions

Although the entire writing is the sole result of the work of both authors, Maria Sammarro edited Introduction and the paragraphs 2 and Silvestro Malara edited the paragraphs 1, 3 and 4. The conclusions were co-written.

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