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Educating with Artificial Intelligence Through an Inclusive Lens: New Horizons for Personalisation.

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Abstract:

This article explores the application of artificial intelligence (AI) in education, emphasizing the shift towards teaching methodologies that prioritize individualized and personalized learning. It investigates through legal frameworks and pedagogical theories, how AI can support the inclusion of students with disabilities and promote a broader educational approach that meets the needs of all. The essay highlights the perception that personalized and individualized practices are exclusively adopted to respond to special educational needs, envisaging their wider implementation through a universal approach to enhance inclusion and significantly enrich the educational experience.

Keywords: AI; Education; Personalisation; Inclusion; UDL.

1. Introduction

In an era outlined by relentless technological advancement, the educational sector is tasked with balancing the iteration of customary practices with the integration of innovative technologies. Tradition, viewed as a valuable legacy rather than a rigid set of conventions, can effectively contribute to shaping individuals adept at navigating the rapid changes and evolutionary challenges of contemporary society, if appropriately blended with novel and specialized approaches. This demands a delicate balance that sees conventional practices not as obstacles to overcome but as robust foundations upon which to build.

This wavering between old and new encourages a critical reflection on the use of Artificial Intelligence (AI) within the pedagogical framework, positioning it not merely as a support tool for isolated activities but as the pivot of a renewed educational design paradigm that enriches the methodological heritage without undercutting its foundational principles (Panciroli & Rivoltella, 2023).

Technological innovation challenges the educational field to confront the very definition of learning and teaching, positing that AI should not be an end in itself but should serve as a lever to enhance human potential. Artificial Intelligence arises as a possible transformative medium capable of providing highly individualized and personalized educational pathways.

Nonetheless, such an outcome brings to the fore epistemological and method-ological questions: to what extent can and should technology adapt to established pedagogical constructs? And how can it be shaped to respect and promote a diversity of experiences without diminishing the richness and complexity of human contact, which remains at the heart of the educational relationship?

The real challenge resides in navigating between the risk of education's dehu-manization due to an excessive reliance on technologies and the possibility of creating an inclusive and personalized learning and teaching mediating environment. The most critical aspect concerns the educational sector's capacity to adequately respond to the needs of a diverse group of learners through the adoption of AI.

The threat of indiscriminate digitalization of education, which overlooks dispar-ities in access and the cultural and social specificities of learners, highlights the need for an approach that values technological innovation as a mediator serving a pedagogy deeply rooted in principles of equity, dialogue, and collective growth.

Thus, intricate and complex issues arise, inviting reflection and further investi-gation into the premises for adopting a transformative process that, through the lens of Special Pedagogy aims at identifying and valuing educational methods capable of harmonizing the legacy of established pedagogical practices with the promises of disruptive innovations, creating a rich, dynamic, and intrinsically universal fabric.

In light of these considerations, the discourse, while acknowledging the indis-putable value of AI in reshaping educational practices, invites a thoughtful consider-ation of the ways and reasons for harmonizing innovation with pedagogical traditions to move towards an educational model that celebrates inclusion, promotes accessi-bility, and engages in building a democratic knowledge society (Porcarelli, 2017).

2. A New Horizon of Personalization: A Challenge for AI and Education

Emerging from this is a new perspective in the educational field marked by the valorisation of personalized and individualized practices, opening up a potential new horizon. The envisioned transformation, far from being merely theoretical, may re-flect a profound shift in the ways through which the educational process can be conceived and implemented, heralding an era where teaching is oriented towards a more accurate response to individual peculiarities.

At the heart of this change is situated the acknowledgment that each student brings a distinct universe of experiences, abilities, preferences, and challenges into the classroom. Paying attention to individual specificities, beyond representing an act of rightful consideration towards the individual, effectively enhances the educational journey. The guiding principle of such evolution is an approach that positions the learner at the centre of the learning process, regarding them not as passive recipients of knowledge, but as the main actors in their life projects (Mura, Zurru, & Tatulli, 2020). Personalization and individualization emerge as crucial strategies to facilitate a meaningful educational experience.

In this sense, individualization allows for the adaptation of the pedagogical pathway to the capabilities and needs of each student, ensuring that all can achieve educational objectives through diversified methods and timings (Block, 1972; Block & Anderson, 1978; Bonaiuti et al., 2017).

Personalization, on the other hand, delves deeper into this concept by enabling students to pursue learning trajectories that not only meet their individual needs in terms of mere instruction, but also considering their passions and interests, thereby

promoting greater engagement and motivation in their studies. Both strategies are essential for creating a dynamic learning environment that values and develops the unique potential of every student (Baldacci, 1993, 2008: Bonaiuti et al., 2017).

Highlighting these aspects are the legislative references that have progressively adapted to this vision, establishing a legal framework that not only recognizes but also promotes the adoption of inclusive and personalized teaching practices. This progression reflects an evolved pedagogical awareness towards inclusion through personalization, offering fertile ground for the implementation of innovative methodologies.

Indeed, legislation has undergone a significant evolution, gravitating towards instruction practices that emphasize the individualization and personalization of the teaching and learning process. This shift has taken root in key laws aimed at fostering inclusion, particularly recognizing the rights of individuals with disabilities and the importance of importance of an emancipatory development aimed at building a life project through a holistic approach that includes various dimensions.

Internationally, UNESCO_(2017), acknowledging the importance of student engagement and interaction with teachers, has devised a methodological approach that champions personalized education, moving away from traditional teaching practices to foster more meaningful learning experiences. A perspective highlighting the importance of employing investigation methodologies, collaborative work, and the ethical use of resources, pointing out how the adoption of personalization and individualization strategies can effectively strengthen inclusion and contribute to the development of an engaging and meaningful learning journey for all students.

Nationally, the Italian legislative framework, through Laws 104/1992, 53/2003, 170/2010, and Legislative Decree 66/2017, has laid the foundations for an education that values individual differences and meets the needs of each individual, promoting a pedagogical approach that considers inclusion as an added value for the development of every student. These regulations, while focused on the integration of students with disabilities, offer a model for the implementation of inclusive and personalized teaching practices for all students, suggesting that the expansion of such strategies beyond the context of disability could enhance educational effectiveness for all students (Cottini, 2017, d'Alonzo, 2016).

Within this framework, AI, with its capacity to customize the learning pathway, plays a pivotal role in facilitating and enhancing the design of teaching and the subsequent support for personalization and individualization. This opens up the opportunity to design and implement educational paths that can dynamically adapt to the needs and learning styles of each and every student, outlining the contours of a future where education is modular, flexible, and innovative (Zurru, 2022).

Examining the role of the Artificial Intelligence in the educational context, it is evident how it can evolve from a mere tool to a fully personalized environment (Bond et al., 2024).

Therefore, the pioneering use of AI plays a crucial role in overcoming the fragmentation and heterogeneity of educational needs, suggesting a profound revision of teaching methods and emphasizing the essential contribution it can make in promoting an inclusive educational approach. Such a methodology acts as a catalyst for tailored learning, which stimulates student autonomy and interest (Einarsson, Lund, & Jónsdóttir, 2024).

The evolution of AI from assistive technology to mediator of the learning experience prompts a critical reflection on the premises necessary to fully exploit its potential. From this perspective, AI emerges not just as a support, but as a promoter for inclusivity capable of shaping an educational experience that reflects the interests and needs of every student (Zhang & Aslan, 2021).

This scenario converts the educational environment into a space where diversity is appreciated as a source of enrichment, promoting equitable access to educational opportunities and valuing individual potential in line with each person's personal goals (Mura, 2019).

From this standpoint, an educational design that incorporates AI, and is coherent with the principles of Universal Design (Story, Mueller, & Mace, 1998), would allow for the adoption of teaching practices that dynamically adjust to the specific characteristics of each student. Thus, AI-mediated personalization does not limit itself to moderating "how" learning occurs, by customizing approaches and methodologies, but also explores the "why", promoting a learning context where every individual's right to education is fully recognized.

However, the practical realisation of this approach requires a multi-level commitment involving significant resources that include teachers' training, the structural rethinking and reorganization of existing curricula and assessment practices (UNESCO, 2020). Concurrently, their effectiveness is closely tied to the competency of the various institutions called upon to address the challenges connected to their implementation.

3. An Era of Reunified Inclusion

The integration of technological tools like Artificial Intelligence (AI) in the field of education marks a paradigmatic evolution not only in teaching methods but also in the profound understanding of educational objectives. The transition towards an individualized, personalized, and inclusive learning environment represents a commitment to the actual democratization of education, ensuring that every student can benefit from an enriching and stimulating educational experience, tailored to their needs and aspirations (Porcarelli, 2017).

Nonetheless, the discussions surrounding the integration of Artificial Intelligence (AI) into educational systems unveil a complex tapestry of issues that demand deeper, more nuanced examination. At the forefront is the imperative to manage the infusion of AI in a manner that upholds the principles of equity and mitigates the risk of exacerbating pre-existing disparities. Such concerns span a broad spectrum, ranging from the digital divide to the manifestations of bias inherent in AI systems.

Addressing the first point, the digital divide underscores a significant challenge: ensuring that the advancements brought forth by emerging technologies are equitably distributed and accessible to all students, irrespective of their socio-cultural and economic circumstances. This necessitates the development and implementation of robust strategies capable of dismantling barriers to access, thereby democratizing the educational landscape in the truest sense.

Conversely, the second point highlights the critical need to scrutinize and address the ethical dimensions associated with the training of large language models (LLMs) that underpin many AI-driven educational tools. This scrutiny is essential to prevent the perpetuation and amplification of biases that AI systems may harbour, which

could otherwise skew learning experiences and outcomes in favour of or against certain groups of students.

Equally significant are the reflections about the educators' role in the age of AI. While technology furnishes potent tools for enhancing learning, the presence of a thoughtful, empathetic educator capable of guiding and interpreting educational processes remains fundamentally central. The challenge lies in adopting AI in a manner that enriches the educational relationship rather than depleting it.

The advent of Artificial Intelligence in education heralds the dawn of an era characterized by a dual challenge and promise: that of thorough and authentic inclusion. Liberating from constructs that pigeonhole students into specific categories has become not only a coveted goal but a tangible possibility, thanks to the capabilities offered by AI. It transitions from a mere tool to a mediator environment, a pervasive facilitator with the potential to extend benefits across diverse educational contexts, unveiling new paths towards inclusivity and valuing diversity as an invaluable asset rather than an obstacle to be surmounted.

The *Era of Unified Inclusion* aims to construct an educational ecosystem where each and every student, whatever their specific needs, fully engages in the teaching-learning experience. The quest for universality and democratization, both envisioned and actualized through AI, does not imply uniformity; rather, it offers the opportunity to respect and amplify individual singularities within a personalized educational fabric.

Surmounting the primary obstacle of such an educational perspective requires, beyond technological innovation, a profound cultural shift. It is imperative to embrace an educational vision that perceives technology not as an end, but as a means to realize a society grounded in values such as accessibility, equity, and the recognition of uniqueness as a common heritage (Mura, 2011). This vision presupposes a collective commitment to the development of an inclusive pedagogy that delves beyond the surface of traditional teachings to explore the depths of human learning and its potentials.

From this viewpoint, AI emerges as a bridge towards a horizon where education is a universally guaranteed and is a personally contextualized right.

This paves the way for a pedagogical revolution where AI has the power not only to transform learning modalities but also to reform the very reasons underpinning the desire to learn.

In the *Era of Unified Inclusion*, the incorporation of AI within the educational context does not mark the end of the teacher's role; rather, it signals the transformation of the educator into a more sagacious guide, adept at navigating the intricate pathways of human learning with the compass of technology, leading each student towards the realization of the inherent potential within.

Acknowledgments

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