

THE IMPACT OF ARTIFICIAL INTELLIGENCE IN DEMOCRATIC EDUCATION: DECIDIM, FLIPPED INCLUSION AND THE CHALLENGES OF INCLUSION

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Abstract: A State can declare itself democratic, if it substantiates its being a guarantor of universal rights, in terms of pro-active co-participation and informed decisions (Davies, Harber, & Schweisfurth, 2002). Training individuals and communities to develop a culture of rights and responsibilities (Vorhaus, 2005) based on co-responsible policy models requires ethical education in interconnection, active citizenship, equal access to participatory instrumentalities (Davies, Harber, & Schweisfurth, 2002). How could the use of artificial intelligence revolutionize informed democratic participation? Decidim (Aragón et al., 2017), a platform created by the Barcelona municipal government in 2016, uses AI to filter and analyze citizen information, promoting transparency and inclusion. This technology enables more accessible and inclusive engagement by integrating community voices into the political decision-making sphere (Severino 2022) and represents an excellent example of how AI can be leveraged to foster more informed and inclusive democratic participation. In this direction, democratic education requires perspectives of systemic inclusiveness: the Flipped Inclusion model (Corona & De Giuseppe, 2015), promoting democratic values for an inclusive-prosocial community, invests in training for conscious self-determination (De Giuseppe, 2020). The challenge is to experiment with the application of the Decidim platform using the simple structural architecture of the Flipped Inclusion model.

Keywords: Artificial intelligence; Democratic education; Inclusion.



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1. Introduction: artificial intelligence between democratic participation and education

The connection between Artificial Intelligence and Democratic Education is of crucial relevance in the contemporary academic context. The existing literature, in truth still very limited, has focused in particular on democratic education and its role in the field of Artificial Intelligence. Numerous authors have underlined the im-

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portance of democratic education that promotes values such as diversity, tolerance and self-determination (Diamond, 1999; Beetham & Boyle, 1995). The research focused on a crucial question: how could Artificial Intelligence revolutionize and enhance informed democratic participation? It is important to explore the connection between democratic education and the formation of aware and engaged individuals in the context of democracy. This educational foundation represents the catalyst for human development and individual responsibility, ensuring inclusive involvement (Beetham & Boyle, 1995). Education is a process that accompanies people to emerge as free subjects. In this sense, all education systems should fulfill this objective. In a democratic society, education is essentially education for democracy: it trains citizens capable of actively understanding the world, of defining the common good together and working towards greater solidarity between men and peoples.

The construction of democracy cannot ignore the training of active citizens capable of thinking and understanding reality and therefore attentive to the change-improvement and progress of society. Education for active citizenship, in fact, must be intrinsic to every pedagogical project (Dewey, 2018), consequently education conditions the future of democracy and the existence of the world. Democratic education therefore requires today an expansion of the alphabetic repertoires that become functional when it focuses on the way in which skills are applied in a relevant way and when it is transformative, as an active learning process that involves social awareness and critical reflection, within a continuum of skills that increasingly refers to the importance of being "widely literate" (UNESCO, 1978; 1979) in a process of educational continuity and proximity.

The concept of experience is of fundamental importance here (Dewey, 2018): for there to be authentic experience, and therefore thought, a problematic, uncertain, developing situation must arise. The impact of AI on democratic education certainly represents a situation in the making, taking into account that the literature on this point is expanding and even establishing certain points on its effectiveness could appear premature. With this work we will attempt to explore the problem, identifying the context and needs, and devise solutions, planning and experimenting with the most suitable means and methods to promote an inclusive process. Therefore, the priority, to create significant connections between AI and Education, is precisely to ensure that interdisciplinary fields of study contaminate each other in a synchronous and mutual way, finding a space for discussion and project through a joint negotiation of models, intentions, actions, practices, as well as results that are both effective and ethical to enforce more participatory and concrete methods. The European Commission, with the Communication of 8 April 2019, COM(2019)168 final, Building trust in human-centric artificial intelligence, highlights how the fundamental requirements for the design, implementation and use of reliable AI systems call for values such as the capacity for human supervision, technical robustness, data confidentiality, transparency, as well as non-discrimination and fairness, the vocation towards social and environmental well-being and responsibility (OECD, 2019).

In this regard, it is interesting to find a convergence of vision between the structural phases proposed by the educational simplicity (Sibilio, 2014) Flipped Inclusion model (Corona, & De Giuseppe, 2017) and the principles affirmed by the OECD, (2019), which aspire to protect the person in his/her peculiarities, as an essential priority:

1. Artificial intelligence should benefit people and the planet. It must therefore promote inclusive growth, sustainable development and well-being;
2. AI systems should be designed to respect the rule of law, human rights, democratic values and diversity WITH transparency and responsible disclosure to ensure a just and equitable society;
3. systems equipped with automation mechanisms will have to operate safely throughout their life cycle and potential risks will have to be continuously assessed and managed;
4. Organizations and individuals who develop, deploy or manage artificial intelligence systems should be held accountable for their correct functioning.

As you can imagine, the proposed analysis opens the space to relaunch the importance of critical thinking and the need to redefine it: thinking critically means questioning the very objective of efficiency and preferring, in a totally counterintuitive way, other values. It is therefore not just a matter of educating on the critical use of the smartphone, but of developing awareness of digital capitalism, of how this guides thought and behavior, and therefore indirectly promotes new social practices. This means archiving the solutions that pedagogy had already proposed to the problem of the media, which insist on believing that the tools and not the logic constitute the educational problem.

2. Links between democratic education and active citizenship

Democratic education, as the literature on the topic also highlights, plays a crucial role in preparing individuals for responsible political involvement, promoting a culture of rights and responsibilities (Vorhaus, 2005). To educate about democracy, a training course is necessary to prepare active and participatory citizens, who constitute the basis of a democratic society. The acquisition of self-determination skills and the management of learning experiences are essential elements for active citizenship (Wood et al., 2004). These skills, integrated into education, encourage conscious participation in political life (Wehmeyer & Schalock, 2001) and contribute to the development of active and engaged citizens (Nuzzaci, 2021). A State, in fact, is democratic to the extent that its citizens (children, young people and adults) participate in decision-making processes (Beetham & Boyle, 1995), but on the condition that elements such as: rights, or the set of rights, exist protected and common to all individuals; participation, or the free involvement of individuals in the decision-making process; equity, or the fair and equal treatment of individuals and groups; informed choices, i.e. the tools for making decisions based on relevant information and reasons (Davies, Harber, & Schweisfurth, 2002, pp. 4-9). A relationship between democracy and citizenship is immediately highlighted, which suggests that these are two dimensions to which precise educational objectives can be traced back, which concern the ability of the latter to promote independence, constructive interaction with others, socially intentional, responsible and conscious action, and to allow the full social participation of individuals in the community to which they belong, providing a variety of experiential opportunities and environments, both scholastic and community, which enable the student to acquire the habitus of a democratic citizen, capable of acting democratically, at school, in the family and in society. In this, the link between

democracy and active citizenship is affirmed and strengthened, where the latter, understood as a form of participation in civil, community and/or political society, is characterized by mutual respect between individuals, non-violence and conformity to human rights (Hoskins, 2006), within which different moral, legal, ethical, identity and cosmopolitan components can be distinguished (Kennedy et al., 2008, p. 53) crossed by the goals of justice, prosperity and peace.

By virtue of the persistence of inequalities, democratic education still remains a highly "halved" practice, which requires a civic commitment that is realized only when educational actions and practices are a mirror of real democratic policies, which enable people to escape vicious circles of poverty and pursue principles of equity. In a society where alphabetic abilities expand and the notion of literacy expands to include not only language, but also all the other languages that dominate global society, modifying traditional literacy processes into more complex interpretative frameworks (multiliteracies) (Nuzzaci, 2011), the gaps are widening, producing "cultural chasms", especially where heavy inequalities already persisted. From here it is understandable to think that democracy does not exist without literacy or, better yet, without multi-literacies. There is therefore a need to redefine new literacies that are characterized by being dynamic, that is, that do not allow themselves to be caged in grids, capable of interacting with socio-materiality and interpreting its fluid contours. Only a robust information culture that is articulated in the competence of selecting data, collecting it, archiving it and retrieving it efficiently, as well as evaluating its credibility, can support new literacies that are inspired by an ethic of responsibility that translates into citizenship behaviors (digital) coherent. Without adequate education in democracy and understanding the media (Di Tore, 2023), it will be difficult to build an inclusive and democratic society. Furthermore, operating AI platforms without individuals oriented towards the common good could generate negative consequences rather than a positive impact (Benanti et al. 2021). Democratic education (Nuzzaci, 2021) is fundamental for experiencing proactive citizenship (Vorhaus, 2005), through the coordinated development of soft skills of self-determination of learning experiences (Wood et al., 2004), to encourage a conscious political life participatory (Wehmeyer & Schalock, 2001).

3. Artificial Intelligence and access to democratic participation tools: the 'Decidim' digital platform.

Democratic education reflects the catalyzing pillars of human development (Beetham & Boyle, 1995) anchored in the principles of individual responsibility, in terms of self-determination and recognition of and in differences (Diamond, 1999). Training individuals and communities to develop a culture of rights and responsibilities (Vorhaus, 2005) based on co-responsible policy models requires ethical education in interconnection, active citizenship, equal access to participatory instrumentalities (Davies, Harber, & Schweisfurth, 2002). An active and continuous learning process that undoubtedly actively involves citizens, making them participate and aware of social life, is represented by a digital platform Decidim (Aragón et al., 2017), created by the municipal government of Barcelona in 2016, which uses the Artificial Intelligence to filter and analyze citizens' information, promoting transparency and inclusion in the political sphere (Severino, 2022). The purpose of the platform is twofold: on the one hand, to encourage the development of democracy in political institutions, but at the same time also allow businesses and associations in the area to work syn-

ergistically with the Municipality. The exemplary characteristic is that the source code of Decidim is made available under a public license, which therefore allows the reuse and evolution of the program, furthermore the platform adds to the license clauses, the adhesion to a social contract, following precisely a illustrious tradition of Hobbes' Modernity. The contract explicitly intends to promote ethical and political virtues such as transparency, traceability and integrity of information. Open Source Politics has selected it as the best open source tool for participatory democracy precisely because it is suitable software for any actor wishing to engage in a participatory approach, with numerous features: participatory budgeting, debates, contributory space. In Italy it is used by entities such as the Department of Public Function and the Department for Institutional Reforms and also by the Municipality of Milan, which has based its Milano Partecipa platform on it. It is a digital tool dedicated to democratic participation. A useful and virtuous tool if used in an equally virtuous manner.

The platform not only facilitates citizen engagement, but demonstrates the importance of using AI to create an environment where community voices can be heard and integrated into the political decision-making sphere. Without adequate education in democracy and understanding the media (Di Tore, 2017), it will be difficult to build an inclusive and democratic society. Furthermore, operating AI platforms without individuals oriented towards the common good could generate negative consequences rather than a positive impact (Benanti et al. 2021). Democratic education (Nuzzaci, 2021) is fundamental for experiencing proactive citizenship (Vorhaus, 2005), through the coordinated development of soft skills of self-determination of learning experiences (Wood et al., 2004), to encourage a conscious political life participatory (Wehmeyer & Schalock, 2001). The functioning of these platforms depends a lot, as highlighted by the studies of some authors, precisely on education for democracy. In reference to this general framework, a more specific analysis of the scientific literature on AI and Education recognizes the need to redefine lines of educational research in relation to AI.

Today the problem for Media Education is represented precisely by the logic that governs the circulation of contents and the definition of behaviors (Rivoltella, 2020). The technological developments of recent years attest to how data are of ever-increasing importance, so much so that they contribute to constituting the very reality of society, a society of code (Accoto, 2017; 2019). International scientific literature highlights how AI in education is a particularly emerging sector in the field of educational technology (Baker & 4 Smith, 2019; Hinojo-Lucena, Aznar-Díaz, Cáceres-Reche, & Romero-Rodríguez, 2019 ; Luckin, Holmes, Griffiths, & Forcier, 2016; Pedró et al., 2019). For over thirty years, in fact, AI in education (AIED-Artificial Intelligence in Education) has been the subject of a broad debate which is increasingly characterized by an expanded interdisciplinarity: education, psychology, neuroscience, linguistics, sociology and anthropology.

The specific objective is to promote the development of adaptive learning environments and other flexible, inclusive, personalized, engaging and effective AIED tools, exploring their potential pedagogical opportunities (Educause, 2019; Zawacki-Richter, Marín, Bond, & Gouverneur, 2019). This year's theme of the 24th edition of the Artificial Intelligence in Education Conference promoted by AIED which was held in July 2023 in Tokyo was "AI in Education for Sustainable Society". A sustainable society is guided by the principle of achieving peace and prosperity for all people and the planet with an inclusiveness that "leaves no one behind": the key is

how to combine these principles with the pervasiveness of artificial intelligence and its development. During the international conference, research was presented on how artificial intelligence shapes and can shape education across all sectors, involving various stakeholders – researchers, education professionals, companies, policy makers, as well as teachers and students – the conference set a broader agenda on how new research ideas can meet practical needs to build effective intelligent human-technology ecosystems that support learning. In this context, the scientific pedagogical-didactic activity must constitute the whole system of theoretical research and applied experimentation, aiming at creativity as the substrate of the individual fluid connective tissue (Bauman, 2003) in light of the profound information technological changes communication and globalization. The need to adopt an ecological perspective of development increasingly emerges, in which it becomes a priority to guarantee social inclusion, as a balanced recognition and awareness of the fictitious and vulnerable certainties to which consumer society has involuntarily predisposed. We must aim for this perspective, given by linked systems of macro, meso, exo and micro propaedeutics (Bronfenbrenner, 2002) which determine the meaning and significance of the context.

4. AI and the challenges of inclusion: new models of proactive inclusion

The new learning contexts are characterized by the presence of Web-Database places which, making use of artificial intelligence applied to technologies, allow a synergistic interaction with the semantic web, a relational model of data, at the basis of phase 3.0., in which the machines not only read, but also interpret. From unidirectional Web 1.0, collaborative interactional Web 2.0, semantic Web 3.0, content connectionist and Ubiquitous Web 4.0, with connections of people and integrated into physical reality, collaboration is facilitated through the sharing of resources and skills to achieve goals shared. Interpretable semantic intelligence, which starts from keywords, frames, proceeds by association of concepts, data and metadata to a definition/declination of the semantic context in a format suitable for the question, interpretation and automatic processing. In fact, from the transformation of unstructured data into structured, unstructured information into a set (database) of structured information, semantic artificial intelligence proceeds to the assignment of a defining model of attributes and re-definition of logical relationships of levels gradually higher, capable of giving rise to automatic reasoning and inferences, such as to extract non-explicit properties from a piece of data (De Giuseppe, 2016).

It is necessary to rediscover the centrality of a social planning of learning, focused on the Person, (Mounier, 1999, p. 12) co-constructor of knowledge constructed by the learner (Berkeley, 1998) and expression of contextualized cultural, civil and existential values. It is necessary to aim for cognitive development, as a social process, (Vygotsky, 1990, ed. or. 1930-1931) deriving from interaction with peers (McKeachie, 2002, p. 144) and with expert people, in order to increase the development of critical thinking. Among the models that promote themselves as an innovative educational tool to promote democratic values in education, we find the Flipped Inclusion model (Corona & De Giuseppe, 2017).

This model, promoting democratic values for an inclusive-prosocial community, invests in training for conscious self-determination (De Giuseppe, 2020) through the 4 phases:

- 1) E-Explore, explore, identify the challenge and the problem, analyzing the context, identifying the needs;
- 2) I-Ideate, then investigate and discover new challenges and solutions, first individually and then in groups;
- 3) P-Plan, planning: the most suitable tools, resources and means for realizing the idea are defined;
- 4) S-Experiment, Experimenting, carrying out various activities in groups to collect feedback, which are then evaluated to identify and analyze the strengths.

Flipped Inclusion proposes an approach based on new non-linear methodological-didactic trajectories. Drawing foundation from the pedagogical assumptions, corollaries of inclusive teaching strategies, the systemic actions of Flipped Inclusion promote behaviors in which making a difference represents the social, civil and cultural value from which to start. It is about developing the potential of different forms of intelligence (Gardner, 1987, pp. 187-193) while respecting everyone's aptitudes; promote cognitive, collaborative, participation, development, critical thinking, evaluation and connection skills of knowledge nodes, which become available through new communication channels; enhance the many nuances of learning and every strategy that enhances cognitive, linguistic, creative and emotional abilities. We invest in the circularity of inclusive theories and practices, favoring moments of acquisition of *modus vivendi* and *operandi* that respect individuality and differences, through inclusive basic skills to be explored, re-recognized, conceived and designed, and experimented in formal contexts and informal, therefore, in the real, virtual and augmented individual (Corona, De Giuseppe 2017).

Technological interposition, altering the places and methods of teaching practice, introduces practical aspects, which are advantageous in the responsible management of research times and the use of contents, in compliance with the aims of the shared course (De Giuseppe, 2015).

The four sequential design phases, Exploring, Ideating, Designing and Experimenting (EIPS), recall the Bronfenbrennerian vision of macro, exo, meso and micro systems of systemic ecological development (Bronfenbrenner, 2002) to protect and guarantee well-being and quality of individual and collective life.

Connected to this is the educational emergency of an educational investment in the promotion of a simple logic (Sibilio, 2014), from a systemic perspective, which faces the continuous social remodulations, connected to social, real/virtual, formal fluidity (Bauman, 2003). /informal (De Giuseppe, et., al., 2018)

The simplicity logic (Sibilio, 2014) traces the four phases of FI in order to educate in the co-construction of ecological-systemic contexts. The aim is therefore to educate on the use of these platforms, thus directing technology towards and for human development and not simply for progress as an end in itself.

.5. Conclusions: Artificial Intelligence in democratic flipped inclusion: new perspective

Democratic education requires perspectives of systemic inclusiveness: the Flipped Inclusion model (Corona & De Giuseppe, 2015), promoting democratic

values for an inclusive-prosocial community, invests in training for conscious self-determination (De Giuseppe, 2020). It is therefore a form of learning in which teaching strives to involve students in the learning process, thus allowing them to have a proactive role in their own education, the same proactive role that an informed and aware citizen should have.

Currently, the direct connection between Artificial Intelligence and "flipped inclusion" has not yet been tested. However, the scientific data of the model applied to learning suggests (De Giuseppe, 2020) that the integration of democratic values through this approach could represent a significant step forward in democracy education.

Looking at future prospects, the need emerges for more in-depth experimentation on the integration of Artificial Intelligence and "flipped inclusion" to encourage more inclusive and informed democratic participation. This could lead to innovative developments in the field of democratic education, in particular there is a need for Media Education that accompanies young people to develop the appropriate skills to live in an increasingly digital world. In conclusion, the analysis of the literature, the analysis of virtuous tools such as Decidim and the "flipped inclusion" method, used to educate about democracy, represent only a beginning in a field that requires further exploration and experimentation. The invitation is therefore to adopt an ethic of care (Prinsloo, 2017) to start thinking about how we are exploring the potential of algorithmic decision-making systems embedded in AI applications in relation to education.

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