*Artículos científicos*

# Ética, estética y política de la complejidad en la escuela: enseñar competencias sociales en educación infantil

## *Ethics, Aesthetics, and Politics of Complexity for Schools: Teaching Social Skills in Early Childhood Education*

## *Ética, estética e política da complexidade na escola: ensinando habilidades sociais na educação infantil*

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## Resumen

En el presente trabajo se presenta un análisis de la situación de la enseñanza en la etapa de educación infantil con el propósito de conocer si la escuela responde a las demandas y necesidades de la era digital. Desde la perspectiva del pensamiento complejo, se analiza el papel atribuido a la infancia en la sociedad y en la cultura, y se reivindica la urgencia de atribuir a los niños y niñas el derecho a ejercer la ciudadanía como ciudadanos y ciudadanas del presente, asumiendo un posicionamiento desde el cual se entiende que ellos y ellas son creadores de cultura. Este análisis se realiza desde las tres dimensiones de la complejidad: la ética, la estética y la política, en relación con la infancia y su educación en competencias sociales y responsabilidad ciudadana desde un posicionamiento crítico. Los resultados muestran que la condición del ser humano supone convivir con errores e incertidumbres, con el azar y las paradojas, todos estos elementos de la complejidad, lo cual abre la incógnita: ¿por qué la escuela se ha vuelto un espacio aislado de la cotidianeidad e inerte de espontaneidad? Por ello, se subraya la importancia de crear propuestas que atiendan la complejidad para la enseñanza de competencias sociales para vivir y desarrollarse de forma autónoma en una cultura y realidad complejas.

**Palabras clave:** complejidad, didáctica de las ciencias sociales, educación infantil, pensamiento crítico.

**Abstract**

This work is presenting an analysis of the teaching situation in early childhood education to know if the school responds to the demands and needs of the digital age. From the perspective of complex thought, the role attributed to childhood in society and culture is analyzed, and the urgency of attributing to children the right to exercise citizenship as citizens of the present, assuming a positioning from which it is understood that they are creators of culture. This analysis is carried out from the three dimensions of complexity: ethics, aesthetics and politics, in relation to children and their education in social skills and civic responsibility from a critical position. The results show us that the condition of the human being supposes living with errors and uncertainties, with chance and paradoxes, all these elements of complexity, which opens the question: why school has become a space isolated from everyday life and inert of spontaneity? Therefore, the importance of creating proposals that address the complexity of teaching social competencies to live and develop autonomously in a complex culture and reality is emphasized.

**Keywords:** complexity, early childhood education, critical thinking, Social Science Education.

**Resumo**

No presente trabalho é apresentada uma análise da situação do ensino na fase de educação infantil para saber se a escola responde às exigências e necessidades da era digital. Na perspectiva do pensamento complexo, analisa-se o papel atribuído à infância na sociedade e na cultura, e reivindica-se a urgência de atribuir aos meninos e meninas o direito de exercer a cidadania como cidadãos do presente, assumindo um posicionamento a partir do qual se entende que são criadores de cultura. Esta análise é realizada a partir das três dimensões da complexidade: ética, estética e política, em relação às crianças e sua formação em habilidades sociais e responsabilidade cívica a partir de uma postura crítica. Os resultados mostram que a condição do ser humano envolve conviver com erros e incertezas, com acasos e paradoxos, todos esses elementos de complexidade, o que abre a questão: por que a escola se tornou um espaço isolado do cotidiano? Destaca-se, portanto, a importância de criar propostas que contemplem a complexidade para o ensino de habilidades sociais para viver e desenvolver-se de forma autônoma em uma cultura e realidade complexas.

## Starting point: the image of childhood

The image of childhood that is assumed for the approach of this work is the one that the author and pedagogue Malaguzzi (1994, 1996) claimed throughout his entire pedagogical career: the one that considers boys and girls as competent beings, with many potentialities and subjects of rights, citizens of today, facing the image of childhood as a personal project, as beings in the process of construction who are not yet capable of exercising their citizenship.

From this perspective, boys and girls are protagonists, they are political subjects, strong, powerful and competent, who are amazed, amazed, who learn how to relate to the world and who generate changes, and, therefore, they are generators and generators of culture (Dimples, 2004). This image is diametrically opposed to the one that is valid in our current culture, because both in society and in school and, by extension, in families, boys and girls are considered weak, dependent beings, more empty than full. as passive receivers. This vision establishes distances and defenses between the world of adults and the world of childhood and, in turn, due to ignorance, their worth is plundered. All this consequently prevents putting a face to childhood, understood as identity and recognition (Comber, 2001).

Considering boys and girls as a representation of human fragility translates into a dialogue and hierarchical relationship between childhood and adulthood, and leads to an almost complete silence of boys and girls with respect to politics, society and culture in which they live. they are immersed Hence, Pagès and Villalón (2013) called them the invisible, and in this case we point it out: the invisible and invisible.

If we were to consider the boy and the girl as generators of change and culture, it would be necessary to carry out a much deeper reformulation of the information and concepts that are used in the discourse, that are transformed into ideas and models and, finally, that derive in theories and paradigms that are the constituent element on which our doing, saying and thinking are configured (Alcalá, 2022; Pérez, 2012).

If we take a brief historical tour of the educational system, we can perceive that education today continues to use a model in which academicism prevails, the transmission of unilateral information organized in a fragmented and hierarchical way, whose

conception of students is of human beings. passive and that in the classroom everything ends up being translated into an adoption of uniform, static and standardized methodologies to transmit a content emptied of childhood (Jiménez, Luengo and Taberner, 2009). In addition, even today a vision of reality that is also unidimensional, linear and a passive, reproductive, totalitarian and quantitative acquisition of knowledge is still assumed, reminiscent of what Freire (1974) called banking education. This is nothing more than the result of the assumption of a modern and positivist conception that is not capable of assuming and apprehending the complexity of reality (Basto, 2012). It is the scientific world of certainties and universal truths that prevents us from seeing the complexity that underlies what is manifested, what is obvious.

This approach has infected the educational system and has resulted in the assumption of a traditional educational practice that has long since become obsolete for not responding to the great challenges of contemporary society, which is characterized by globalization and the technological revolution (Gimeno, 1999), and that "proposes citizens new stimuli and possibilities, as well as new challenges and new uncertainties due to the speed, depth, and extension of the changes in all areas of life and customs" (Pérez, 2012 , p. 49).

We live in an interconnected global village, characterized by the speed of events in all areas of life: rapid changes, the permanent bombardment of information through multiple networks, consumerism and the fragility of human values, among others. others, so a change in education is urgently needed so that it responds to this new society (Tremblay, 2012).

Ultimately, it is about developing in boys and girls the necessary skills that allow them to live in the complexity of today's society; emotional development and creative, critical and cooperative capacities to face and solve the challenges that arise, with critical social awareness that helps them identify social problems in their community and, consequently, to exercise responsible and committed citizenship . In short, it is about educating in and for complexity in all its dimensions (Riera y Hoyuelos, 2015).

## Complexity at school

This educational change is based on recognizing boys and girls as citizens with full rights, it means attributing them a role as social, political and cultural agents of equal relevance to the rest of the participants in society. And it is that in the early childhood education classroom events converge that make up a complex network of relationships that influences the participants: boys and girls, teachers, families and the rest of the

professionals who work there. They are the schedules, the routines, the quality of relationships; the approaches between people, the formal and informal dialogues, the spaces, the furniture, the light and sound landscape, the colors, the temperature, the ventilation and the subtle; the personal and the human, such as looks, silences and words, pauses, postures, contact with the other, caresses, expectations and concerns (Riera and Hoyuelos, 2015). A large number of variables that come into play through the encounter or confrontation and that, when related, are reciprocally modified, and thus form a complex fabric (Morin, 1999b).

We could define this complex framework as an aesthetic relationship, as if it were an "empathy that relates the self to things and things to each other" (Vecchi, 2013, pp. 58-59), as the structure that communicates (Bateson , 2000) and for all this, as a generator of friendly dialogues and interrelationships between all the parties, an unusual relationship between the subject and things, and between things.

So, this complexity is an ethical manifestation that implies assuming a change of perspective, of recognition, of communication, seeking to know how each person is constructed in relation to the others. An example of this is how boys and girls are capable of removing all the barriers that stand between one human being and another on a day-to-day basis: language, cultural or interest barriers, recognizing the difference and celebrating diversity.

This complexity is at the same time an aesthetic manifestation because it generates dialogues between people and things, and it is also political because it supposes a choice and a new way of living life, education and the teaching profession. A political look from a complex perspective is to assume the value of each learning process and grasp the difference, the singular and the peculiar. It is embracing diversity since renewal, change and evolution depend on it, it is understanding that boys and girls not only have much to learn but also much to teach teachers, helping them to rebuild their practice and role as teachers.

So that this approach does not sound alien to the school, in the first instance it is important to adopt a worldview that gives a perception of the whole, of the whole, of the subtle, the ephemeral and the nuances that usually escape us. Because each person who comes to school is the bearer of a memory and a history, is an inhabitant of a culture and is a member of a society that saw them grow up, has adopted and reproduces customs that determine their way of being, acting and feel. This worldview means being able to see each person as part of something much larger than themselves and capable of generating subtle changes in their environment with their way of acting, communicating, with their

words or gestures. This is what Calvo (2010) refers to when he says that we are part of a whole, and points out that complexity weaves an aesthetic framework between those gestures and words almost without us noticing it, that it is built on harmony and beauty, and affirms that on a day-to-day basis "we pass from one beauty to the other without knowing how, but fully aware of it. Complexity subtly weaves that pattern" (Calvo, 2010, p. 93).

This indivisible relationship between people, things, spaces and the feedback of all of this among themselves is interpreted by Pascal (cited in Morin, 1999b) as a natural, supportive and unusual relationship. Thus, he posits a need to know the whole in order to know the parts, and establishes the following premise:

> Being all things caused and causing, aided and assisting, mediate and immediate, and all sustained by a natural and insensible union that binds the furthest apart and the most different, I consider it impossible to know the parts without knowing the whole, just as it is impossible to know the whole. all without particularly knowing the parts (p. 13).

That is why the complex perspective requires adopting a curious look, that searches, that investigates, that gets excited, that conjectures and approaches knowing and investigating beyond the obvious.

This way of relating to the world becomes evident in childhood through his hypotheses, his creations, his investigative and naturally curious spirit, his capacity for wonder and his wonderful gift for establishing relationships between the unexpected and, seen from the eyes of adults, the unlikely. It is a global thought where "before learning to separate, children see the links between all things" (Morin, 2010, p. 127).

For adults, this way of understanding education and childhood means subjecting their own practice and day-to-day life to constant review, because both the school and relationships are dynamic, inconstant and living. It supposes, consequently, moving away from reductionism and extolling the sensitivity that had been muted and numbed by strict schedules, fixed norms and rules, and the rush to achieve academic results. It is a constant review of all the surrounding elements that allow an encounter with uncertainties in knowledge, but that on the other hand invite us to accept ignorance and mystery to free ourselves from rationalism and simplicity. As Morin (1999a) describes: "The mystery is nothing more than exclusive; It frees us from any delusional rationalization that seeks to reduce the ideal to the idea, and gives us, in the form of poetry, the message of the inconceivable" (p. 432).

Many times the school in its attempt to simplify the complex makes it superficial, as if it were adopting the role of King Midas, who by rejecting the complex makes it complicated and by not understanding complexity simplifies it making it trivial (Maeda, 2007; Kluger, 2008 ). Contrary to this, a school that assumes a complex perspective understands that both chance and uncertainty, the emergent and the unexpected have an added value for any teaching proposal that is offered.

That is why it is worth highlighting the profound humanism of complexity, for recognizing the divergent and valuing it positively, for accepting certainties but also uncertainty, since if reality is dynamic and inconstant, one cannot know or control everything. The complexity emancipates from those ties resulting from certainties, so becoming aware of the limits of knowledge is an act of humility.

## Dimensions of complexity

Although it is paradoxical to try to classify or delimit the dimensions of complexity, it is necessary to make an approximation to establish its direct relationship with all the areas that make up the school. It should be noted that even establishing these three dimensions, namely: ethics, aesthetics and politics, all of them influence each other, forming a continuum or a dynamic framework.

In this inseparable network, there cannot be one without the other. Says Nachmanovich (2005):

> Complexity is not simplicity, but a bit complicated, nor is it a mere broadening of conceptual focus. It is, or better yet, we can make it be, a different aesthetic, a vital praxis and an ethic that leads us to create and inhabit new existential territories. (p. 27).

## The ethics of complexity

This ethical dimension of complexity at school has to do with that image of boys and girls as "others" who are recognized and welcomed with respect and love.

It means recognizing the value of the present of childhood, positively valuing what is immediate: their abilities, their acquisitions, their current curiosities, accompanying them and enjoying them. Rinaldi (2021) speaks of the boy or girl as a being of the present, as a citizen of today, and not a citizen project or an investment in the future. We thus recognize the boy and the girl as a human entity in itself, as a context and generator of

contexts, as a system of its own that generates changes in the systems with which it interrelates: its classroom, its school, its family, its community and its culture. .

He also supposes understanding that childhood happens at other times and with other rhythms. This time is not linear and it is not capitulating either, but it does mean being able to stop and watch the flight of a butterfly. López de Maturana (2009) recognizes that childhood takes place in a different dimension, where the logical order becomes a historical order and this allows boys and girls to experience the past and the future at the same time, in the imaginary, which in turn becomes its own reality. As if childhood happened in that space between the unthinkable but possible, in a time that is not ours, in "that hour" that Cortázar (2018) speaks of "that can come sometime out of every hour, hole in the network of time, that way of being between, not above or behind but between" (p. 7).

This childhood is also dynamic, it is active, it is changing, it is full of potentialities. To refer to this characteristic, Malaguzzi (cited in Hoyuelos, 2004) affirms that it is found in a permanent flow, in perennial form fluens. According to him, each boy and each girl "contains within it the possibility of the possible" (p. 59). Assuming that particular time of childhood is an act of love, of a love that legitimizes, accompanies and awaits. Maturana and Varela (2003) state: "Biologically, without love, without acceptance of the other, there is no social phenomenon" (p. 164), therefore, there is no socialization and without it, there is no humanity.

That boy or girl of the present is also the possessor of a body that keeps a personal history and through which he or she creates and recreates stories. Through actions, the plot of one's own life is woven, from the trivial and everyday to the complex and public (Zapata, 2006). And it is through the body that meanings are generated, because through the body you can see, hear, taste, feel and touch.

This perception of a complex body leads us out of the boundaries of Western culture and finds that, in other cultures, such as the African, this body has no limits or barriers that separate it from the rest of beings in nature. They understand that the body is not an individualized element, but that it is part of the others (referring to alterity), of the whole (referring to totality), in short, of the cosmos itself (Calvo, 2010). The human being could be represented as a miniature microcosm within a macrocosm that is the universe (Foucault, 1992). This holistic vision does not separate the human from the world or from the body itself.

For all of the above, the ethics of complexity means abandoning absolute certainties, reductionist universal laws that only take into account the obvious and the

boundaries that separate people, things and spaces. It is a transparent ethic that ends the inside-outside dichotomy, since, as Morin (1999b) says, "we are simultaneously inside and outside of nature" (p. 18).

For this reason, the separations and defenses urgently need to be demolished, and instead establish an osmosis of relationships, create a permeable, transparent dialogue between all the parties participating in the educational act. Getting rid of walls, barriers and divisions is possible when "an encounter with the unexpected, doubt, uncertainty" is generated from the space itself. (Rinaldi, citado en Hoyuelos, 2004, p. 16).

## The aesthetics of complexity

We could approach the aesthetic dimension from multiple perspectives, but we start by rescuing the Batesonian definition that defines it as the structure that connects things or events. This way of understanding aesthetics gives it a globalizing function, which seeks to round off actions, but without forgetting the leading role of the parts.

The aesthetic that Heidegger (1996) speaks of is the one that tries to decipher the origin of things, following labyrinths of symbols and allegories. It involves following subtle clues to find connections. Understanding the aesthetic dimension of complexity presupposes a rejection of the predefined, prefixed, universalized, since this would mean adopting an attitude of indifference to the multiplicity of perspectives that can be found in any event. Hoyuelos (2006) refers to this as an attitude, as "a look that discovers, admires and gets excited" (p. 16). This look that is surprised by the beautiful and that is capable of establishing unexpected correspondences is integrated into a consubstantially divergent structure of thought that is related to finding a sensitivity and empathy for the things and individuals that are around, seeking to establish new and dynamic.

In this sense, the elements that make up the educational system and with which boys and girls relate are part of a set of unusual relationships.

Ceppi and Zini (1998) refer to the school as a three-dimensional interface that is configured "between the child, the world of others (children, adults, animals and plants) and of things" (Dimples, 2004, p. 154 ). Therefore, considering that the school is a fundamental axis in the life and development of boys and girls, and a living system that feeds back and feeds the environment and culture, it must be able to be inhabited.

Understanding the school from this paradigm translates into considering each of its parts as influential and influenced and demands the need to see it from multiple perspectives. This school is a physical and temporary school. But the time that is lived there is contemplated from an aesthetic vision, it is not capitular or sequential, it is not

limited by laws of cause-effect, but it is a present unchained without linear sequences (Acosta, 2007). This time cannot be separated from space, time and space are inseparable elements, because each thing and each place has its rhythm, its cadence and its way of developing in space (Montemayor, 2007).

Thus, the space and the type of materials selected for it are a reflection of the people who inhabit it. The type of objects selected, their distribution in space, their possibilities of use, reflect the image of childhood, development and acquisition of knowledge assumed by those who configured it. Sambola (2015) says that "spaces, as Foucault pointed out, are not neutral in terms of message" (p. 414), and that is probably why humanity throughout history has transformed space and has materialized rituals. culture as a kind of aesthetic expression. Thus, the relationship between time and space and of these with cultural meaning becomes evident.

Getting the spaces of the school to be respectful of these dimensions of complexity requires that they assume their role as generators of experiences and experiences, and therefore they must allow the people who attend them to live it and transform it with their actions. We could encompass these functions by attributing to space the essence of habitability. Heidegger (cited in Hoyuelos, 2006) refers to this as making and leaving space for people to feel sheltered, taking into account their existential temporality, and allowing them to develop a sense of belonging and welcome. He maintains that "the essence of building is allowing to inhabit" (p. 75).

Seeing the school with such potential is not to deny the conception that it should prepare for life, on the contrary, it means assuming that this is where one lives, which is why it is urgent that teachers develop critical thinking skills that allow us to glimpse these differences and enable them to educate this childhood in social skills. This school that configures living and meeting spaces is a place where everything speaks and that gives voice to boys and girls, it is a school that listens to their rights, those of the families and those of the members of the community where it is is found, it is the one that identifies social problems and commits itself from a critical position to take action to solve them. Santos (2010) and Gutiérrez (1998) recall that space is one of the most important elements of the hidden curriculum, because there is language and messages in its use, distribution and aesthetics.

Careful and beautiful spaces generate by themselves an environment of well-being that those who live in it benefit from; thus, they become facilitators of happiness, motivation, and thanks to them, it is possible to capture the aesthetics and understand the harmony of everything that surrounds us.

Regarding the motivation to learn, Pérez (cited in López, Maturana, Pérez and Santos, 2003) says that "to stimulate and enhance that motivation, you have to create living spaces" (p. 87). A living space is a space in which the elements that make it up alternate between order-chaos-order, because they are complex spaces, sometimes unpredictable, that generate uncertainty, but that, as part of the same dynamic that messes them up, these become they reorder because they are not static.

A consideration also linked to complexity is chaos theory, which recognizes the self-organization capacity of systems and their alternation between order and chaos, because they are living and because they are dynamic. Applying it to the social sciences and their didactics entails understanding that everything in the school is transformed because systems converge in it that, when they come into contact with each other, are transformed (Coderch, Notó and Panyella, 2000). Exemplifying this paradoxical theory we find fractals, those geometric objects whose basic structures are repeated at different scales and that at first glance reveal a millimetric and precise accuracy, like the turns of a snail or the arrangement of the petals of a daisy, however, These structures are neither more nor less than chaotic and complex systems that, using self-organization that makes chaos and dynamism order, make up those beautiful figures present throughout nature, in any living organism, including ourselves.

Personally, it is inevitable not to establish a relationship between that force that pushes chaotic systems in nature with that which moves any social group to organize itself to form a harmonious whole in a space and generate a climate of well-being.

The force that drives this arrangement is the one that complies with mathematical organizational principles, which we know as the number pi, the golden rectangle or sacred geometry. This number is also often called the number of beauty, which has a lot to do with that Batesonian definition of aesthetics, such as what connects and what relates, since, after all, what unites is beauty. In addition, if we carefully observe a snail we can see how each spiral turn of its shell embraces and houses the previous turn, and how each of its turns represents the whole and its parts in the same way, as Morin (2001) said.

In a certain way, the aesthetic dimension is also closely related to poetry, because through a thin imaginary thread inspired by beauty we choose some words instead of others when speaking, some materials together with others when making a composition. and a certain combination of steps on a dance floor, after all, this is how we organize thought for action in school and in the community. This narration is present in the school and is built when the particular histories of objects, spaces and people come into contact, and in this encounter a new poetry is created.

When physical spaces and their materials are cared for and designed aesthetically, they become narrative spaces. In these places, boys and girls can weave their internal narratives in relation to each other or in a shared way and thus generate a metaphorical space, which connects the child's imaginary with the abstract and unfinished, offered by the adult, which is completed with the action of those who inhabit it. Abad and Ruiz de Velasco (2011) define them as spaces that evoke, not describe.

In this sense, complexity differs from the paradigms of simplicity because the aesthetics that these manage part of an individualistic narration, which excludes the other from the process of constructing cartographies of life. But the aesthetics of complexity is networked, multidimensional and assumes a dynamic conception of the production of knowledge.

Trueba (2015) refers to aesthetics as "a flag of freedom" (p. 125) because assuming the inseparable relationship of this with education we would be claiming the principles on which the culture of childhood is based, since childhood welcomes the beautiful and in beauty he rejoices.

The school we know is a school of "ought to be", on the contrary, the school of the emergent, of unexpected relationships, of dynamic narratives and of the complex is a school of "can be".

## The politics of complexity

Politics implies the decision-making of the members of a group to jointly build the common good. This decision-making implies positioning, on the one hand, and participation, on the other, and for this it is a sine qua non condition to be present. All citizens must be present, all voices: people, groups, testimonies and realities, including those who have historically been silenced and silenced: women, old men and women, boys and girls, people with disabilities, people of color, visibly poor, etc.

Earlier we commented on the equitable relevance that some systems and others have for the conformation of a whole in which each member of society is immersed. Taking the child's own system as the center, the other systems that are related to him or her and feed each other are: those of the spaces, the teachers, the center, the families and other members of the community. Thus, the mission of this dimension of complexity is to establish dialogues between the parties, between the intimate and the political, and thereby create an osmotic macrosystem in which there are no barriers between what is "inside" and what is "outside". It should be remembered that we cannot separate this dimension from the previous ones, because they are all related to each other. Hoyuelos

(2014) says: "There is no ethics without aesthetics or without political action; just as an aesthetic or a policy cannot be understood without the other ingredients. They are intertwined and interwoven elements" (p. 46).

To assume that the political dimension is inherent in any human manifestation is to go a step further, it is to assume that our acts have value and that, like a butterfly effect, they are relevant in all the systems with which we have contact. Therefore, it is necessary to adopt an ethical view of reality. And it is that "the political is, in a certain way, what makes us human, citizens with rights and duties, members of a polis, with which we get in tune, commit ourselves and take co-responsibility" (Hoyuelos, 2014, p. 46).

Gramsci (1978) He assures that philosophy cannot be separated from politics either, because the adoption of one conception of the world over another, or the criticism that can be made of it, is in itself a political fact. The adoption of a complex vision of reality carries with it an alternative choice to the one imposed by the status quo, and this choice implies per se a reflexive criticism, contrary to the attitude of passivity that makes the people a manipulable and servile entity. This vision of society that assumes that both the intimate and the public, the personal and the social are connected, leads us to require that the school, as well as the other systems, become transparent and receptive to new perspectives, adopt a new look .

Transparency is a symbol used by Prego and Cortázar (1985) in their writings to represent the permeabilization of the world. In this regard, Batarce (2002) says:

> The phenomenon of transparency, the fact that vision can pass through an opaque surface, a material surface such as glass, still seems to me an incitement to see other things in matter than are usually seen (p. 150).

In order to abandon this dichotomy that separates, divides and limits, it is necessary to break down the barriers of the school. The barriers that we find in school can be mental as well as physical, so it is necessary to break down both to create spaces for dialogue and participation where all voices are heard.

Regarding the physical delimitations that separate the school from its surroundings, due to its organization, structure and architecture, what is urgently needed is an opening of this, the creation of an osmosis or balance between external systems: the neighborhood, the community and society, and internal systems: the school and all the elements that compose it. From this political dimension, "osmosis only means that there is a desire for a relationship between the school building and the immediate environment" (Sambola, 2015, p. 414).

It is necessary to configure transparent, permeable and osmotic spaces, through open architectures, with windows that let in the wind and sunlight, with green spaces and places of exchange that generate dialogues between the people who pass through the school, with words, with looks or with gestures of solidarity. Create livable and comfortable corners, with walls that bear witness to those who live inside and outside the school, and thus create a joint narrative between students, families and members of the community, a shared narrative, renewed, that seduces and that it spreads, that invites and receives, that does not forget its ethical and aesthetic dimension because it welcomes and celebrates life. In addition, establishing this relationship, the conscious changes that are implemented in any of the systems would have an impact on the other participating systems. That is why Gutiérrez (1998) attributes vital importance to the osmosis of space:

> When the relationship between both parts, culture and space, is close enough and there is a true rapport, the consequences are reciprocal, so that the organization of each place is also capable of influencing the culture it generates, accentuating it, favoring it and developing it. (p. 31).

A school that attends to the complexity of the events that take place there understands that these are part of an interconnected network of manifest elements: people, spaces and things, and subtle elements: culture, customs, relationships, sensations and emotions. Thus, this becomes an attentive school, which observes and listens and which values the events that take place there as a source of learning, as a manifestation of said framework and as an opportunity for communication. This attentive school ethically assumes the singularity of each human being, who configures in himself a system that influences and is influenced by others, and ethically values this same diversity of ways of learning, of relating and of vital times as a added value for everyone.

This school loves its own rhythm, because when there is no rush, the unusualness of each and every one emerges. In turn, assuming the value of each element of the school, it takes care of the aesthetics and the characteristics of the space as promoters of experiences and relationships and as a living manifestation of those who inhabit it. And, finally, a school that assumes its political function is one that understands that the immobility, taciturnity and lethargy of everyday life do nothing more than suffocate vital processes, which is why it is a curious, restless school that questions normality. and he is not afraid to incorporate alternative elements into his installations and proposals and he is not afraid to open up to the immediate environment or to society.

## Principles of complexity in school

Specifying all these dimensions of complexity, both ethics and aesthetics and politics, in education means establishing basic principles through which all participants in the educational act contribute and feel part of this change of perspectives and horizon.

The implementation of the complex perspective in the school requires structural changes, so taking into account the characteristics of each dimension we have established a series of principles and strategies:

- Create aesthetically cared-for living spaces that arouse curiosity, invite action and invite the creation of unusual stories between the space, the materials and those who pass through it.

- Offer natural materials to children, materials from the environment, recycled and reused both for their manipulation and for the configuration of the center's furniture to generate a change of look that finds beauty in everyday elements while assuming a more sustainable.

- Design transparent school architectures, with wide spaces and transparent walls that allow the inside-outside relationship to generate osmosis between the center and the environment, also using natural and friendly colors that cause serenity.

- Adopt methodologies that respect the emergent, the random and the uncertain, that embrace both chaos and order as inseparable properties of human activity.

- Understand the figure of the teacher as a guide, companion, co-creator of culture and promoter of relationships between students, family, spaces and materials and the natural, social and cultural environment.

- Offer proposals that promote personal and collective challenges and encourage the construction of joint meanings based on practical cases and relevant social problems.

- Open spaces for relationships between boys and girls, teachers, families, neighborhoods, formal and informal cultural environments, mediated by words, gestures or silences.

- Use qualitative assessment tools as a means to create shared narratives between boys and girls, teachers and families.

- Development of social and citizen awareness that assumes community responsibilities with the natural, social and cultural environment.

Of course, it is quite a challenge to carry out any type of proposal from this particular prism of complexity. The simple fact of defining complexity is a great difficulty and trying to classify it in another way is like "trying to put a straitjacket on the wind", as Najmanovich (2005, p. 27) says. However, we can affirm that it is the perspective that is most respectful of the future of childhood and of humanity itself.

## Discussion

The construction of a new school, of a single classroom or of a relationship between two people following this perspective of complex thinking supposes a radical turn in terms of how neoliberal logics have made the social and educational framework functional in our times, it supposes a act of courage and resistance in pursuit of the creation of a more committed citizenship and aware that there is an interdependence between people, spaces and socio-cultural contexts. These slow and gradual changes mean starting by rethinking the teaching culture and relationships (Hoyuelos, 2006; Riera and Hoyuelos, 2015).

Because understanding the school from an aesthetic perspective of complexity means eliminating all kinds of barriers, and embracing unusual relationships is a revolutionary act in itself that is also political, because the position taken by the teacher who sees these relationships is political. Assuming this new perspective, the teacher, as a social and political agent at the head of a school that has built bridges with his community, will create spaces that foster this union and relationship between school and city. It is also an ethical act, for understanding diversity as an added value, for respecting learning and discovery rhythms and for listening to all the voices participating in the educational act. After all, to the extent that a democratic education is advocated, it is fought for all voices to be present in it (Freire, 1982).

Following this approach, therefore, issues such as the recognition of the educational value of diversity and considering chance, the unexpected and the emergent as engines of teaching-learning processes and as an added value of the educational proposals proposed, become key elements for incorporate complexity into the classroom. This supposes a change of view on the part of the teacher and a change of attitude regarding the school and life itself, since it implies understanding the school as part of a whole, living and dynamic, in which each one of its elements, like the spaces, the materials, the people who inhabit it and the relationships they establish between them, it influences and is influenced by others. Therefore, we understand that this proposal cannot

be translated into a magic recipe, however, we can see how there are proposals in practice that embrace complexity as an indivisible part of the lesson at school (Albert and Gallardo, 2021). The teacher then becomes the intellectual agent that Giroux (1990) speaks of: socially responsible, who understands that his work responds to the needs of a changing society. Adopting a complex perspective of education presupposes a commitment to fight for the suppression of the barriers that impede a fluid relationship between the parties: boys and girls, teachers, families, culture and society.

# Conclusions

At this point, the rules applied mechanically are understood as a trivialization of humanity, society, culture and each individual in particular. Because even if education worked like a recipe book that indicated the steps to take and the exact amount of ingredients, there would be no guarantee of anything, since the result or final dish will depend on many other variables that are not specified in the manual: the humidity of the environment, the preheating time of each oven, the components and quality of each ingredient, etc.

In addition, the consideration of error and uncertainty as added values not only supposes a completely opposite approach to the way in which education is commonly understood and how it is lived within schools, but also supposes a challenge for the customs and lifestyles of the entire western society. Understanding error as a generator of diversity and evolution and uncertainty as a broadening of horizons and possibilities, seeing other people as complementary companions as well as equals, and understanding that reality is made up of complex and immeasurable elements are elements for creation of a more humane, humble and supportive society, and a new pedagogy, the pedagogy of the possible.

## Future lines of research

Understanding that every act of resistance and social change starts with the construction of a role of intellectual, reflective and critical teacher and that this is a slow and gradual process that requires gradually deconstructing the mental structure with which the school is thought of from baggage and experiences lived in the first person, these processes of analysis and reflection, of research and documentation, of reading not only the lines, but between the lines and beyond the lines (as proposed by studies on critical literacy, which allow reading the intentionality underlying all discourse), are the

ones that we understand should be promoted from the initial training of early childhood education teachers and in research on it. Thus, teachers in training will broaden the perspectives through which they observe and interpret the teaching-learning processes that occur in their classroom. Without it, any change in the classroom would be superficial and fleeting.

It would then be possible, in order to overcome the mechanism of acquisition of cognitive skills of this critical thinking, to add the commitment to social action (González-Milea, García-Ruíz and Santisteban, 2021; García-Ruíz and González-Milea, 2022) through exchange spaces between boys and girls, families and other members of the center, which will make your classroom a place to welcome the emerging, the unexpected, adopting work methodologies that advocate freedom. Because education is an act of courage, and you have to have the courage to face uncertainties and the vertigo of the unknown, embracing complexity.

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