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Despecialization and Simplexity: Toward a Pedagogical Reinterpretation of Arnold Gehlen's Philosophical Anthropology

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Abstract: This paper offers a pedagogical reinterpretation of Arnold Gehlen's philosophical anthropology through the theoretical framework of simplexity. Adopting a theoretical-reconstructive methodology, it critically revisits Gehlen's conception of the human being as a biologically unspecialized and world-open organism, examining its relevance for contemporary special pedagogy and inclusive education. Rather than treating Gehlen's anthropological categories as ontological descriptions of human nature, the study interprets them as heuristic devices for understanding the relational, mediated, and culturally situated character of educational experience. The analysis unfolds in three stages: first, it reconstructs the core assumptions of Gehlen's philosophical anthropology; second, it reinterprets them in light of the contemporary theory of simplexity; and third, it discusses the pedagogical implications of this theoretical integration. Particular attention is devoted to the notion of *original specialness*, proposed as an interpretative category for rethinking the relationship between vulnerability, learning, and educational mediation. The article argues that Gehlen's anthropology, despite its historical rootedness and the controversial aspects of the author's political biography, retains significant heuristic value for contemporary educational theory. By integrating philosophical anthropology with the epistemological perspective of simplexity, the study advances a relational and dynamic understanding of human development, offering a conceptual framework that contributes to current debates on inclusive education and the anthropological foundations of special pedagogy.

Keywords: Simplexity; Special Pedagogy; Inclusive Education; Philosophical Anthropology, Human vulnerability.

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1. Introduction

In his book *La semplessità: proprietà e principi per agire il cambiamento*, Maurizio Sibilio (2023) reflects on an issue that is as enduring as it is timely: scholars are called upon to interpret the thought of authors who produced seminal works in the past and with

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whom no direct dialogue is any longer possible. As a result, these authors become silent interlocutors of their own writings, creating an interpretative challenge for those who seek to remain intellectually honest and avoid appropriating their ideas as instruments with which to "wield the rod" in their name. The present study faces precisely this challenge. Authors of the past employed conceptual categories that may now appear outdated, requiring readers to engage with a vocabulary shaped by a different intellectual context. Yet paraphrasing their ideas too freely risks distorting their original thought. The aim here is to maintain, like a tightrope walker, a careful balance along this difficult path. Before proceeding, a few remarks concerning the nature of this contribution are in order. The study adopts a theoretical-reconstructive approach within the field of philosophical pedagogy, investigating the anthropological assumptions underlying Special Pedagogy, with particular reference to the biopsychosocial paradigm. Rather than constituting an empirical investigation, it is conceived as an exercise in conceptual clarification and interdisciplinary integration between philosophical anthropology, neurophysiology, and pedagogy. Methodologically, the analysis unfolds in three stages. First, Arnold Gehlen's anthropological paradigm is critically reconstructed. Second, it is reinterpreted in light of the contemporary theory of simplexity. Finally, the pedagogical implications arising from this theoretical integration are discussed. Gehlen's anthropological concepts are not treated as ontological descriptions of human nature but rather as heuristic devices for understanding the relational and mediated structure of educational experience. From this perspective, the notion of *original specialness* is not intended to define an essential characteristic of the human being; instead, it is proposed as an interpretative framework for rethinking the relationship between vulnerability, learning, and educational mediation within educational contexts.

Before examining his theoretical contribution, it is useful briefly to recall the figure of Arnold Gehlen (A 1904 – Ω 1976), one of the leading representatives of twentieth-century philosophical anthropology. Through an original dialogue with biology, sociology, and philosophy the three disciplinary roots that likewise characterize the theory of simplexity Gehlen developed a conception of the human being as biologically unspecialized, open to the world, and constitutively oriented toward the construction of culture through institutions, technology, and learning processes. His reflections provided highly influential conceptual tools for interpreting the relationship between nature and culture, which lies at the foundation of *simplex didactics* (Sibilio, 2014, 2023), as well as the relationships between individuals and institutions, vulnerability and mediation. In doing so, Gehlen anticipated questions that continue to occupy contemporary philosophical and pedagogical debate. Although his thought is deeply rooted in the intellectual context of the twentieth century, it retains considerable heuristic value and continues to represent an essential reference point for philosophical anthropology and for numerous fields within the human sciences. The history of ideas demonstrates that the critical reception of intellectual works must engage with the complexity of their authors' biographies, distinguishing without artificially separating historical and moral judgment from the epistemological and theoretical assessment of their scholarly contributions. This issue concerns many prominent figures of twentieth-century intellectual history, including Martin Heidegger and Konrad Lorenz, recipient of the 1973 Nobel Prize, whose works continue to be studied despite full awareness of their respective compromises with the political

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context of their time. Such a perspective does not seek in any way to relativize historical responsibility or to offer a moral rehabilitation of these authors.

Rather, it assumes that the task of scholarship is to exercise critical discernment, identifying those elements within historically situated and inevitably multifaceted systems of thought that continue to possess theoretical relevance for contemporary debate. This attitude is by no means confined to the humanities. Comparable reflections can also be found among leading figures in the natural sciences. In this regard, Giorgio Parisi (Giri, 2026) and Carlo Rovelli (2026), in his last book "*La cattiva coscienza dei fisici"* (The Physicists' Guilty Conscience), emphasize the importance of critically examining the relationship between scientists' ethical responsibility, historical context, and the value of scientific knowledge. From this perspective, Gehlen's philosophical anthropology may legitimately be regarded as a valuable theoretical interlocutor without implying any suspension of historical judgment concerning his biography.

On the contrary, it is precisely a critical awareness of the complexity of the historical context in which his thought developed that makes it possible to undertake a scientifically rigorous reading of his conceptual categories, whose continued reception attests to their enduring interpretative power well beyond the historical and political circumstances of their origin. It is also intended to emphasise that the claim that human beings lack specialized instinctual mechanisms or organic adaptations capable of ensuring integration within a specific ecological niche is overly categorical. From an evolutionary and ecological perspective, humans possess a range of biologically grounded adaptations, including highly developed social cognition, cooperative behavior, language-related capacities, prolonged parental investment, and exceptional learning plasticity, that have played a crucial role in enabling survival across diverse environments (Berthoz, 2021). Rather than being devoid of specialized adaptations, humans may be understood as exhibiting a distinctive form of adaptive specialization in which biological predispositions and developmental plasticity operate in continuous interaction with culturally transmitted practices.

Consequently, culture and institutions should not be conceived as substitutes for biological adaptation, but rather as emergent extensions and mediators of an already highly adaptive organism–environment relationship. So, culture and institutions could just as easily be conceived as substitutes for biological adaptation as they could not, because cultures are truly diverse and differ from one another; at the same time, they can be seen as emerging extensions and mediators of an already highly adaptive relationship between organism and environment. This paper outlines just one possible line of theoretical research that seeks to draw connections between different authors on every level, particularly in their interpretation of society, given that one lived in a particular era and under a certain cultural influence, whilst the other was Professor Emeritus at the Collège de France, which was established by King Francis I of France. Inspired by humanism, the institution was founded as an alternative to the Sorbonne to promote free inquiry and became home to great thinkers who embraced the values of post-Revolutionary France, embodied in its official Latin motto, *Docet omnia*, which literally means "It teaches everything".

From a neuroscientific perspective, the title of paragraph "Speciality as an Anthropological Structure of the Human Condition", could be a issue if by "speciality" one intends a presumed fundamental anthropological structure of the human condition, the concept may be questioned because it attributes a structural status to an

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abstract and insufficiently defined construct that current neuroscience and physiology cannot substantiate in such terms. This, however, does not invalidate the theoretical value of exploring such hypotheses. Indeed, scientific knowledge often requires considerable time before speculative theoretical constructs can be translated into empirically grounded neuroscientific frameworks. Rejecting concepts such as consciousness, embodiment, or other higher-order categories simply because they are not yet fully reducible to, or directly supported by, the "hard sciences" would risk unnecessarily restricting interdisciplinary inquiry. In this respect, Alain Berthoz's work on *simplexity* provides a particularly relevant example of how theoretical speculation can productively precede, rather than contradict, neuroscientific investigation. Berthoz deliberately promoted an interdisciplinary dialogue that included philosophy, pedagogy, and other human and social sciences. This approach was exemplified by the interdisciplinary seminar on *simplexity* organized in May 2012 at the Fondation Hugot of the Collège de France, around the concept of *simplexity* understood as a fundamental property of living systems, namely, the capacity to generate simple solutions to the complex problems posed by reality and survival. The seminar brought together philosophers, mathematicians, physicists, biologists, cognitive scientists, robotics researchers, didactics scholars (i.e. Maurizio Sibilio), and architects (Berthoz, Petit, 2014). This was followed by many other meetings, which led to the publication of numerous joint works by the Collège de France and the University of Salerno; for the sake of brevity, and as they do not relate to the subject at hand, these will not be included here. Thus, returning to the subject of neuroscience and the hard sciences in general, this interdisciplinary initiative illustrates that concepts initially formulated at a theoretical or philosophical level may constitute valuable heuristic frameworks for subsequent scientific investigation, even when their neuroscientific foundations remain incomplete.

2. From Biological Incompleteness to Plasticity: Reinterpreting Gehlen's Philosophical Anthropology for Special Pedagogy

From the Salamanca Conference (UNESCO, 1994) to the present day, educational research has undergone a profound epistemological transformation, moving from paradigms primarily focused on categorization and remediation toward perspectives that conceive human diversity as an inherent characteristic of educational contexts (Ainscow et. al., 2019). This shift has been accompanied by the growing recognition that learning, participation, and personal development emerge from the continuous interaction between individuals and the social, cultural, and environmental conditions in which they are situated. Consequently, contemporary educational systems are increasingly called upon to design flexible, equitable, and accessible learning environments capable of responding to the heterogeneity of learners rather than adapting individuals to standardized educational models (Aiello, 2018). Morover, Special Pedagogy has progressively expanded its theoretical and methodological foundations, moving beyond a perspective centered exclusively on individual deficits to embrace inclusive approaches that recognize the dynamic relationship among the subject (Aiello et. al., 2014), the environment, and educational processes (Sibilio, 2012). This evolution has entailed a substantial revision of disability and diversity models, shifting attention from individual impairments toward the contextual factors that facilitate or constrain participation in educational and social life, in line with the

biopsychosocial perspective proposed by the International Classification of Functioning, Disability and Health (WHO, 2001) and subsequently developed within inclusive education research (Canevaro, 2006; Booth & Ainscow, 2011). Over time, the conceptualization and classification of disability have undergone a significant transformation, moving from a predominantly medical and individual-based perspective towards a more biopsychosocial and relational understanding. A major early reference was the International Classification of Impairments, Disabilities, and Handicaps (ICIDH), developed by the World Health Organization (WHO) in 1980. This framework distinguished between impairment, disability, and handicap, primarily interpreting disability in relation to the consequences of health conditions for individual functioning and social participation (WHO, 1980).

A significant paradigm shift occurred with the adoption of the International Classification of Functioning, Disability and Health (ICF) in 2001. Rather than focusing exclusively on deficits or limitations, the ICF conceptualizes functioning and disability as the outcome of a dynamic interaction between health conditions, individual factors, and environmental factors (WHO, 2001). Disability is therefore no longer understood solely as an attribute of the individual, but as a condition that emerges through the interaction between the person and the context in which they live. This evolution has progressively strengthened the importance of participation, accessibility, and the removal of environmental barriers, in line with the human-rights-based approach subsequently established by the Convention on the Rights of Persons with Disabilities (United Nations, 2006).

From this perspective, inclusion is no longer understood merely as the physical presence of learners with disabilities within mainstream educational settings but rather as the capacity of educational systems to recognize diversity as a resource, remove barriers to participation, and promote meaningful opportunities for learning, belonging, and active citizenship for all students (Aiello 2019). Such a reconceptualization has profoundly influenced both educational policies and pedagogical practices, encouraging the adoption of learner-centered approaches grounded in equity, participation, and the design of accessible learning environments (Hamdoun, 2023; Treesuvan & Tanitteerapan, 2016). Nevertheless, a fundamental question could remain open: what conception of the human being may provide a coherent anthropological foundation for Special Pedagogy? Every educational theory necessarily presupposes a specific understanding of human nature, of its developmental possibilities, and of the ways through which individuals construct their relationship with the world. From this perspective, concepts such as vulnerability, dependence, fragility, limitation, and the need for support are often associated with specific existential conditions rather than being understood as constitutive dimensions of human experience (Lopez, 2022). A possible answer could be found in Arnold Gehlen's philosophical anthropology. In his seminal work *Der Mensch. Seine Natur und seine Stellung in der Welt* (1940), Gehlen defines the human being as *Mängelwesen*, traditionally translated as a being characterized by "biological deficiency." In this article, however, the concept is interpreted as referring to a condition of biological incompleteness rather than to an intrinsic lack or deficit. Unlike other animals, human beings do not possess highly specialized instinctual mechanisms or organic adaptations capable of ensuring stable integration within a specific ecological niche. Their survival therefore depends on their capacity to learn, to construct cultural forms of organization, and to develop institutions capable of mediating their relationship with the environment (Gehlen,

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2010). The literature has generally interpreted this notion as describing a condition of biological incompleteness requiring compensation, according to which culture performs a predominantly compensatory function. Tools, language, and institutions are thus conceived as necessary responses to the limitations of human biological organization (Fischer, 2008; Kusak, 2015). Although this interpretation is supported by several passages in Gehlen's work, it implicitly continues to adopt the biologically specialized animal as the reference model, assigning to incompleteness a predominantly negative meaning (Marino, 2009; Rasini, 2019).

This work proposes an alternative interpretation. The hypothesis guiding the analysis is that human biological incompleteness should not be understood as a deficit requiring compensation, but rather as the expression of a specific evolutionary strategy based on the renunciation of biological specialization. From this perspective, using, of course, the categories and terminology of the time, which may seem "unpolished" to us by today's standards of special education, the incomplete character of the human organism constitutes precisely the condition that makes possible a distinctive form of adaptive plasticity and a broader openness to environmental transformations. This reinterpretation engages with contemporary developments in cognitive sciences and, in particular, with Alain Berthoz's (2011) concept of *simplexity*. Simplexity describes the set of strategies through which living organisms deal with the complexity of the world by adopting solutions that maximize flexibility and adaptive effectiveness. Within this framework, the limited degree of biological specialization that characterizes human beings could be interpreted as a distinctive mode of organizing their relationship with the world rather than as an evolutionary limitation (Sibilio, 2023).

The aim of this article is to demonstrate how this reinterpretation may provide an additional theoretical foundation for Special Pedagogy. If vulnerability, dependence on the environment, and the need for mediation belong originally to the human condition, then specialness cannot be reduced exclusively to exceptional situations or to specific categories of individuals. Rather, it refers to a general anthropological dimension that crosses the experience of every human being, although with different degrees and forms of expression. From this perspective, Special Pedagogy does not configure itself as a pedagogy of exception, but rather as a field of knowledge capable of illuminating the relational and mediated nature of educational processes and teaching-learning dynamics (Frauenfelder et al., 2013).

3. The Anthropological Paradigm of the *Mängelwesen*

Arnold Gehlen's philosophical anthropology originates from the question concerning the position of the human being within the order of living organisms. Unlike philosophical traditions that have identified human specificity in reason, language, or self-consciousness, Gehlen takes the biological structure of the human species as his starting point, placing his work within the broader project of twentieth-century German philosophical anthropology alongside Max Scheler and Helmuth Plessner (Scheler, 1928; Plessner, 1928; Gehlen, 2010). Within this perspective emerges Gehlen's well-known definition of the human being as *Mängelwesen*, generally translated as "deficient being" or "incomplete being." The expression does not imply a negative evaluation of human existence; rather, it describes a specific biological configuration:

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human beings are characterized by a relative lack of instinctual specialization, by the absence of effective natural means of defense, and by a prolonged period of developmental dependence that extends at least into adulthood, and possibly beyond.

"*Human organic deficiency and the organic peculiarities of the human being must therefore be understood in light of the fundamental idea of non-specialization [...] The concept of the 'primitive' is synonymous with that of the 'non-specialized' and, in discussions such as this, never means 'inferior' or 'of lesser value' [...]Primitive" = "non-specialized" = "original," whether understood in the ontogenetic (embryonic) or the phylogenetic (archaic) sense. By specialization is meant the loss of the full range of possibilities inherent in a non-specialized organ, in exchange for the extensive development of certain possibilities at the expense of others. Indeed, wherever regressions occur, they always constitute integral components of processes of specialization [...]*." (Gehlen, 2010, p.127-128).

Unlike other species, human beings do not possess organic adaptations capable of ensuring immediate and stable integration into a specific ecological niche (Gehlen, 1940/1983). This relative indeterminacy produces a decisive consequence. Human beings cannot rely on rigidly predetermined behavioral programs for their survival; rather, they must actively construct the conditions of their own existence:

" *[...] the human being has himself produced the conditions necessary for the preservation of his own life. For non-specialization signifies, first of all, the absence of an environment naturally suited to him, one within which he could exist in biological equilibrium; and, secondly, it entails the necessity of enabling his exposed, organically ill-equipped, and defenseless constitution to prevail through its own spontaneous self-activity [...].*"(Gehlen, 2010, p.177)

Their relationship with the world is therefore mediated by learning, technology, language, and social practices, through which the environment is progressively transformed into an inhabitable space. For Gehlen, culture does not represent a subsequent addition to human nature, but rather a constitutive requirement of it: precisely because human beings lack a definitive biological specialization, they are compelled to produce tools, forms of knowledge, and organizational structures that enable them to orient themselves within the world (Gehlen, 2010; Plessner, 1975). The category that makes it possible to understand this dynamic is that of action (*Handlung*). Action constitutes the process through which human beings organize their relationship with the environment, selecting relevant stimuli and constructing relatively stable patterns of behavior. Gehlen describes the human condition as characterized by continuous exposure to a multiplicity of stimuli (*Reizüberflutung*), resulting from the organism's limited instinctual determination. Action therefore performs a function of complexity organization, enabling individuals to develop criteria of orientation and relatively stable forms of interaction with the world. This insight presents significant affinities with contemporary perspectives according to which cognitive processes emerge from the dynamic interaction among organism, environment, and cultural artifacts rather than from mechanisms exclusively internal to the individual (Varela, Thompson, & Rosch, 1991; Clark & Chalmers, 1998; Hutchins, 1995; Clark, 2008; Gallagher, 2017). Action thus assumes a properly anthropogenic value, as it simultaneously contributes to the transformation of the environment and to the constitution of human cognitive and social capacities. Within this perspective, particular relevance is assumed by the concept of *Entlastung* ("relief"

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or "burden reduction"), through which Gehlen describes the process by which individuals reduce the burden resulting from their exposure to the world through the construction of stabilizing cultural devices. Institutions (from the family to language, from education to law and broader social organizations) perform precisely this function: they make action possible by providing shared orientations that prevent individuals from having to continuously reconstruct the criteria guiding their behavior (Gehlen, 2010) Institutions therefore respond to an anthropological necessity before being historical or political phenomena, since they enable human beings to cope with an environmental complexity that biological endowment alone, without its cultural products and historical developments, would not be able to govern. From this perspective, culture and institutions do not merely compensate for a lack; rather, they constitute the means through which human nature realizes its own possibilities. In this respect, Gehlen's theory anticipates insights that are now developed within theories of niche construction and cumulative cultural evolution (Boyd & Richerson, 2005; Sterelny, 2012; Henrich, 2015).

3.1. The Interpretative Paradigms of Gehlen's Mängelwesen

Arnold Gehlen's philosophical anthropology has exerted a significant influence across different disciplinary fields, generating interpretations that have emphasized distinct aspects of his theoretical reflection. Despite the diversity of these approaches, Gehlen's thought can be traced back to three main interpretative perspectives, each of which captures an element genuinely present in his work but tends to emphasize it at the expense of the complexity of his overall theoretical framework. The first and historically most widespread line of interpretation understands the notion of *Mängelwesen* through the paradigm of compensation. The human being is described as biologically incomplete in comparison with other animals, while culture, technology, and institutions assume the function of providing the means through which such insufficiency is progressively compensated (Gehlen, 1940/2010; Marquard, 1981; Rehberg, 2009). This interpretation finds substantial support in Gehlen's writings, where action and cultural production are presented as necessary responses to the limited biological specialization of the human organism. However, this perspective risks maintaining the model of the highly specialized animal as an implicit criterion of comparison, thereby turning "incompleteness" into a predominantly negative category. Within this framework, culture appears primarily as a remedy for an original deficiency, while the anthropological significance of the particular biological configuration of the human species remains in the background (Fischer, 2008; Lanzoni, 2022). A second interpretative line, developed primarily within sociology and political theory, focuses on the concept of *Entlastung* and on the role of institutions in regulating human action. Gehlen's work is thus interpreted as a theory of social order, in which family, law, language, and education constitute indispensable devices for reducing the complexity of experience and ensuring the stability of individual and collective action (Gehlen, 1956/2005; Rehberg, 2009; Luhmann, 1995). This perspective has contributed to highlighting the systemic dimension of Gehlen's anthropology, but it has also encouraged critical readings that emphasize its conservative character, attributing to it a tendency to naturalize existing institutions and to underestimate the

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historical, conflictual, and emancipatory dimensions of social processes (Habermas, 1981; Honneth & Joas, 1980). Although this interpretation captures a relevant aspect of Gehlen's work, it ultimately privileges the stabilizing function of institutions over the condition of openness from which institutions themselves emerge. More recently, a third interpretative perspective has progressively gained prominence. Without denying the centrality of the concepts of compensation and relief, this approach seeks to emphasize the positive implications of biological non-specialization. From this standpoint, the limited instinctual determination and indeterminacy of the human organism are understood as conditions that make possible a distinctive form of cognitive and cultural plasticity rather than as mere insufficiencies requiring correction. This orientation presents significant affinities with the tradition of philosophical anthropology initiated by Scheler and Plessner, in which human beings are defined through their openness to the world (*Weltoffenheit*) and their capacity to transcend the immediate constraints of the environment (Scheler, 1928; Plessner, 1928/1975). In recent years, this perspective has been further developed through dialogue with cognitive sciences, niche construction theory, and embodied, enactive, and extended approaches to cognition, which interpret human adaptation as the outcome of continuous coevolution among organism, environment, and culture (Deacon, 1997; Clark & Chalmers, 1998; Boyd & Richerson, 2005; Clark, 2008; Sterelny, 2012; Gallagher, 2017). This contribution develops within a critical continuity with the latter perspective, while introducing a further theoretical step. The aim is not merely to reinterpret "incompleteness" as openness to the world, but rather to demonstrate how it can be understood as the expression of a specific evolutionary strategy based on biological non-specialization. From this viewpoint, the limited instinctual determination of human beings does not represent the sign of an incomplete organization; rather, it constitutes the condition that enabled the emergence of an extraordinary adaptive plasticity, made operational through the mediation of action, culture, and institutions. Building on this hypothesis, the following section proposes a reinterpretation of the Gehlenian paradigm in light of contemporary insights emerging from evolutionary sciences and cognitive sciences.

4. Simplexity as an Anthropological Principle of Adaptation

The concept of simplexity, introduced by Alain Berthoz within the fields of neuroscience and perceptual physiology, describes the set of strategies through which living organisms cope with environmental complexity by means of functional forms of organization capable of reducing uncertainty without diminishing the adaptive capacity of the system (Berthoz, 2019). Simplexity does not correspond to a reductive simplification of reality; rather, it indicates an evolutionarily refined mode of managing complexity. Living organisms do not respond to increasing environmental information through a proportional increase in internal complexity, but rather through mechanisms of selection, anticipation, and regulation that allow them to rapidly identify what is relevant for action (Berthoz, 2004). According to Gehlen (2010), the concept of *Entlastung* ("relief" or "burden reduction") represents one of the central categories of his philosophical anthropology. Consciousness does not constitute an autonomous faculty but should instead be understood as a phase of behavior oriented

toward action. From this perspective, cognitive activity cannot be separated from the practical dimension: perception, thought, and language are structurally directed toward interaction with the environment and the organization of action (Berthoz, 2013). This approach recalls the theses of classical pragmatism developed by Peirce and James, according to which the meaning of knowledge emerges from its practical consequences (James, 1907/1975; Peirce, 1878/1992). Gehlen (2010) also refers to Sorel's interpretation (1928), which identifies anticipatory elements of pragmatism within Kantian philosophy. Even forms of knowledge apparently detached from action, such as religious contemplation exemplified by the figure of Buddha, retain an eminently practical and social function: they aim at transforming ways of life and presuppose a community capable of recognizing their value and materially supporting those who devote themselves to them. *Entlastung* therefore assumes a dual anthropological function: on the one hand, it relieves individuals from the immediate pressures of biological adaptation; on the other, it creates the conditions for the development of the symbolic, cultural, and institutional capacities that characterize human existence (Gehlen, 2010). In formulating the principle of *Entlastung*, Gehlen (2010) argues that the peculiar biological condition of human beings, characterized by organic non-specialization and openness to the world (*Weltoffenheit*), requires them to actively construct their relationship with the environment. Unlike animals, whose behavior is predominantly regulated by instinctual patterns, human beings must progressively acquire the abilities necessary for survival through experience, transforming environmental pressures into possibilities for action. The principle of *Entlastung* precisely describes this process: through action, human beings transform the limits of their biological constitution into adaptive resources, developing increasingly efficient sensory, motor, and cognitive capacities (Gehlen, 2010). According to Gehlen (2010), this transformation is made possible by the progressive symbolization of experience. Perception does not passively record the totality of stimuli; rather, it selects only those elements that are functionally relevant for action, organizing them into systems of meaning that enable the anticipation of future situations and the planning of behavior. From this perspective, consciousness represents a higher level of action control, in which operations are first simulated, designed, and coordinated at the symbolic level before being translated into motor execution. Higher functions therefore assume tasks originally entrusted to immediate sensorimotor processes, enabling a more economical, flexible, and future-oriented form of conduct. *Entlastung* thus implies an increasing mediation between the individual and the environment. Human behavior is not directed exclusively toward immediate goals but unfolds through tools, representations, and projects that refer to objectives extended in time. What appears externally as indirect behavior corresponds internally to intentional, planned activity governed by consciousness. In this sense, Gehlen (2010) attributes to higher functions the task of organizing, coordinating, and directing lower functions, thereby making voluntary control of action and the automatization of acquired operations possible. A fundamental role in this process is played by habit, which constitutes one of the main mechanisms of *Entlastung*. Drawing on Guillaume's observations (cited in Gehlen, 2010), Gehlen argues that habit progressively reduces the attentional, motivational, and emotional expenditure required by action, transforming initially conscious behaviors into stable automatisms. The automatization of acquired skills thus frees cognitive resources that can be employed in higher-level activities, promoting the development of increasingly complex abili-

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ties. *Entlastung* therefore does not simply correspond to a reduction of effort; rather, it represents the evolutionary principle through which human beings construct their cultural, symbolic, and technological world starting from their original condition of biological incompleteness (Gehlen, 2010).

By extending the principle of *Entlastung*, Gehlen shows how it operates not only within sensorimotor functions but also within social organization and the development of culture. Habits, in fact, stabilize fundamental behaviors and reduce the energy expenditure required for conscious control, thereby making new resources available for more complex activities (Gehlen, 2010). In this regard, Gehlen refers to Pavlov's studies on the conditioned reflex, observing that the automatization of responses constitutes the foundation upon which higher-order behaviors can develop (Gehlen, 2010; Pavlov, 1927). Similarly, the social division of labor and the regular satisfaction of primary needs release cognitive and motivational energies that can be invested in cultural, artistic, technological, and religious production, enabling the emergence of institutions and symbolic forms that characterize human civilization. To provide greater philosophical solidity to his theoretical framework, Gehlen (2010) also refers to Hartmann's theory of the layers of being. Higher structures of reality depend on lower levels, yet they introduce new properties (*categorial novelties*) that cannot be reduced to their material foundations (Hartmann, 1943). From this perspective, *Entlastung*r represents a transversal category that cuts across different levels of biological and spiritual organization: it can be identified in elementary mechanisms of adaptation, learning processes, consciousness, language, and institutions, showing how higher forms of human life progressively emerge from the reorganization of lower functions without being reducible to them. Drawing upon a broader tradition of pragmatist and process-oriented reflections on human action, Gehlen develops a conception of consciousness that departs from the idea of an exclusively contemplative or representational faculty. Baldwin's genetic approach to the development of the self emphasizes the role of action and interaction in the emergence of increasingly complex forms of consciousness. From this perspective, conscious processes cannot be entirely separated from the organism's practical engagement with its environment, since the development of the self is closely connected to processes of adaptation and behavioral organization (Baldwin, 1906). A related perspective can be found in Bergson's analysis of consciousness and action. For Bergson, consciousness becomes particularly salient where action requires choice, hesitation, or the consideration of alternative possibilities. Rather than functioning merely as a passive representation of reality, consciousness is therefore closely connected to the organism's capacity to orient its action within an environment characterized by change and uncertainty (Bergson, 1907/1911). This emphasis on the relationship between consciousness, action, and the interruption of habitual responses provides an important conceptual background for understanding Gehlen's account of human behavior. Dewey develops a comparable line of thought through his analysis of the reflex arc and the continuity between organism and environment. In his critique of a strictly stimulus-response model, Dewey argues that behavior should be understood as an integrated coordination between the organism and its surroundings. A problematic situation disrupts an established pattern of activity and initiates a process of inquiry and reorganization through which a new form of coordination can be achieved (Dewey, 1896). Consciousness can thus be understood not as an isolated faculty detached from action, but

as emerging within situations in which habitual forms of behavior are insufficient and require modification.

These perspectives converge with Gehlen's philosophical anthropology, in which consciousness acquires a fundamentally functional and regulatory significance. Rather than originating as a purely contemplative capacity, consciousness becomes particularly relevant when the organism's established patterns of action are interrupted by obstacles, uncertainty, or novel environmental demands. Under such conditions, previously automatized forms of behavior may no longer be sufficient, requiring a reorganization of action and the activation of more flexible forms of orientation. Gehlen's account can therefore be situated within a broader theoretical trajectory in which consciousness is understood in close relation to action, adaptation, and the organism's capacity to respond to environmental complexity (Baldwin, 1906; Bergson, 1907/1911; Dewey, 1896). Within this framework, Gehlen assigns particular importance to Pradines' analyses, according to which perception develops as a progressive anticipation of potentially harmful stimuli, allowing the organism to replace direct contact with a mediated form of knowledge increasingly detached from immediate sensory experience (Pradines, 1932; 1946). Consciousness therefore constitutes a form of biological *Entlastung*, since it enables the anticipation of danger and the organization of action without requiring direct confrontation with the environment. Gehlen (2010) concludes by drawing a clear distinction between consciousness and the fundamental processes of organic life. Vegetative, motor, and perceptual activities largely occur unconsciously and achieve their highest degree of efficiency precisely when they do not require reflective control. In support of this thesis, he recalls Kant's reflection on the impossibility for human intellect to fully comprehend the genesis of living organisms (Kant, 1790/2004), as well as Nietzsche's considerations concerning the functional superiority of the "great reason of the body" over reflective consciousness (Nietzsche, 1883–1885/1968). Consciousness, therefore, does not represent the center of psychic life, but rather an evolutionary instrument oriented toward the external world, whose primary function consists in coordinating, anticipating, and enabling flexible, project-oriented, and culturally mediated behavior (Gehlen, 2010). The relationship between *Entlastung* and simplexity emerges most clearly in the central role attributed by both theories to anticipation and action simulation. According to Berthoz (2021), to perceive is already to decide and therefore already to act or to remain still and not act – which, in any case, is to be regarded as an action in itself, namely the act of inhibiting movement. For Gehlen, human beings can act because they are able to transfer a substantial part of practical activity onto the level of representation: actual movement is preceded by virtual movement, planned through imagination and consciousness (Petit, 1990). The liberation of higher functions from immediate tasks thus enables future-oriented behavior. Berthoz describes an analogous process in neurophysiological terms: the brain does not simply react to present stimuli but constructs internal models of reality, anticipating the consequences of its own actions (Berthoz, 2004). Simplexity therefore does not correspond to reductive simplification, but rather to an adaptive strategy through which complexity is transformed into operational possibilities:

"*Chance itself possesses simplex qualities, for behind the apparent confusion it introduces lie significant advantages. [...] Neurons in the brain generate action potentials whenever the ionic balance across their*

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*membrane exceeds a certain threshold value, namely the membrane potential threshold. At that point, a brief surge of ions triggers the propagation of an action potential along the neuron's axon, thereby transmitting information about the event to downstream neurons. However, this neuronal firing, which underlies discrete coding, is probabilistic and therefore largely governed by the laws of chance. Recordings of neuronal activity reveal fluctuations with random characteristics that appear to introduce noise. Yet this noise possesses a remarkable property: it refines the information conveyed by the sensory receptor and enhances the reliability of stimulus detection by taking prior information into account and generating predictions about the receptor's future state."(*Berthoz, 2009, p. 49).

A further common element concerns the role of inhibition and automatization. In Gehlen's theory, habit constitutes a fundamental mechanism of *Entlastung*: what has been acquired through learning is progressively removed from conscious control, freeing resources for higher-order activities (Gehlen, 2010). Similarly, in Berthoz's framework, effective cognitive processes depend on the nervous system's ability to select relevant information, inhibit irrelevant possibilities, and produce rapid responses without having to reconstruct the entire complexity of a situation each time:

"*One might say, in a certain sense, that thinking consists in inhibiting and disinhibiting, that creating consists in inhibiting certain automatic or learned solutions, and that acting consists in inhibiting all the actions we do not perform. Refusing to become lost in complexity is an attitude, an intellectual stance that opens the way to re-examination."* (Berthoz, 2009, p.17)

Competence therefore consists in the ability to create a "functional simplicity" through the organization of complexity (Berthoz, 2021). From this perspective, simplexity can be considered a neuroscientific translation of Gehlen's principle of *Entlastung*: both theories describe human life as a process in which the complexity of stimulation and possibilities is transformed into operational order through systems of selection, representation, and anticipation:

"*We may therefore establish a first point in formulating the principle of Entlastung (exoneration): through action upon himself, the human being transforms the elementary burdens by which he is encumbered into opportunities for preserving his own life, since his motor, sensory, and intellectual capacities (liberated through language) develop in parallel until a well-considered conduct of action becomes possible [...] Thus, the order in which perception takes place corresponds to the distinctive mode of human behaviour [...] unspecialized, non-specific, and 'experimental' [...] Only under these conditions does the gradual 'loading' of impressions with symbols become possible [...] There gradually emerges [...] the fact that we have gained distance, broken the circle of immediacy, and become capable of foresighted behaviour, one that anticipates future impressions and whose scope extends across a broad field [...] I designate this complex interconnection by the term Entlastung ('exoneration').*" (Gehlen, 2010, pp.102-103)

The main difference concerns their analytical level: Gehlen interprets this process as an anthropological law explaining the emergence of culture, institutions, and symbolic behavior; Berthoz analyzes it as a general property of biological and cognitive systems, showing how the brain constructs efficient solutions for dealing with complex environments (Berthoz & Petit, 2006). The transition from *Entlastung* to simplexity therefore makes it possible to connect twentieth-century philosophical anthropology with contemporary cognitive neuroscience, highlighting the continuity between the

biological dimension of action and the symbolic dimension of culture. In outlining his first concept of the human being, Gehlen (2010) adopts as his starting point a biological perspective inspired by Jakob von Uexküll's theory of the environment (*Umwelt*). Animals, at least as far as we can tell at present, are characterized by a close correlation between organic structure and environment: perceptual organs, motor systems, and instincts constitute highly specialized systems functional to survival within a specific living space (*Lebensraum*) (Uexküll, 1934). Each animal species therefore possesses a specific environment to which it is adapted through innate dispositions that orient behavior toward typical situations. Human beings, by contrast, do not display such specialized adaptation: their biological constitution is characterized by a radical lack of specialization, which makes it impossible to define them exclusively in terms of belonging to a predetermined natural environment (Gehlen, 2010). The fundamental determination of human beings is therefore that of being agents (*Handlungswesen*). Human beings are not entities already completed and defined by nature, but beings who must continuously realize themselves through action. Their biological incompleteness does not simply represent a lack; rather, it constitutes the very condition of their freedom and transformative capacity. Precisely because human beings lack sufficiently specialized instincts and adequate organic instruments, they are compelled to actively elaborate the conditions of their existence through learning, discipline, technology, and social organization (Gehlen, 2010). Human beings are therefore "a task for themselves," permanently exposed to the possibility of failure, but precisely for this reason capable of projecting their own future. This conception finds philosophical anticipations in Schiller, Herder, and Kant. Schiller had already identified human specificity in the capacity to escape natural necessity through free action (Schiller, 1793/2000), while Herder interpreted the lack of instinctual determination as the condition that makes human beings responsible for their own formation (*Bildung*) (Herder, 1772/2002). Kant, in his reflections on universal history, had likewise emphasized that nature deprived human beings of the defensive instruments possessed by animals, entrusting them instead with reason and technical capacities as means through which they could autonomously construct their existence (Kant, 1784/2004). The category of biological non-specialization leads directly to the concept of openness to the world (*Weltoffenheit*), developed within philosophical anthropology primarily by Scheler and subsequently adopted by Gehlen (Scheler, 1928/2009; Gehlen, 2010). While animals live within an environment structured by biologically determined signals, human beings are exposed to an indefinite multiplicity of stimuli lacking immediate instinctual selection. This openness initially constitutes a burden (*Belastung*), because it exposes individuals to an excess of information and possibilities; however, precisely this indeterminacy makes possible the development of higher forms of adaptation through culture, language, and technology. Human beings respond to their biological incompleteness through the principle of *Entlastung*: they transform their natural limitations into operational possibilities through action and the production of material and symbolic tools. Culture therefore represents a historical and situated dimension, namely the set of artificially constructed conditions through which human beings make the world inhabitable and ensure their survival. For Gehlen (2010), there is no natural human being existing separately from culture, because culture is precisely the specifically human way of compensating for the absence of a biologically predetermined environment. This perspective also leads to a specific conception of perception. The human perceptual

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world is not a passive registration of stimuli, but the result of an active process of organization and symbolization of experience. Through the interaction among hand, movement, language, and thought, human beings construct a perceptual field in which objects appear as possibilities for use and action (Gibson, 1977). Perception thus becomes a practical anticipation of the world: what human beings perceive is not merely a set of sensory data, but a system of meanings oriented toward action (Gehlen, 2010). Gehlen's concept of the human being can therefore be summarized through the definition of the human as a biologically incomplete organism that is, precisely for this reason, open to the construction of cultural forms. Human beings do not overcome their nature by abandoning the biological dimension, but rather through a particular way of relating to it: the active transformation of their own limitations into capacities for action, prediction, and planning. Simplexity therefore makes it possible to reinterpret the relationship between complexity and adaptation according to a logic different from models based exclusively on specialization. Biological effectiveness does not necessarily derive from an increase in the structural determinations of the organism; rather, it may emerge from the capacity to maintain sufficient openness to environmental variations through flexible regulatory strategies. From this perspective, the functional reduction of complexity represents a form of adaptive intelligence: a living system becomes effective not because it possesses a specific response for every possible situation, but because it has the capacity to construct appropriate responses through processes of selection and coordination of biologically and historically available resources (Friston, 2010; Sibilio, 2023).

"*Dimensionality reduction and temporal synchronization are among the many mechanisms that simplify perception by following pathways consistent with the criteria identified here as defining simplexity. Faced with the complexity of the world, living organisms devise solutions of remarkable elegance, albeit at the cost of apparent detours that themselves contain a certain degree of complexity. Despite these detours, such solutions facilitate the construction of perception guided by the subject's intentions, anticipatory, modifiable, adaptable, and sufficiently rapid to respond when confronted with an unexpected event upon which, for example, our survival may depend. Thus, the multiplication of coding modalities paradoxically increases efficiency by simplifying the processes of neuronal computation.*" (Berthoz, 2009, p.57)

This framework allows for the establishment of a significant theoretical relationship with Arnold Gehlen's philosophical anthropology.

"*The task posed by the profusion of stimuli is resolved in such a way that, through the sensorimotor processes involved in handling things, the human being simultaneously experiences them, takes them up again, sets them aside, and eventually 'exhausts' them. [...] In this way, the world, as a 'field of surprises,' is reduced to a series of panoramically dominant centres, while things each of which contains an extraordinarily condensed body of references to possible experiences with it and to its possible 'responses,' all of which can be grasped in a fleeting glance are, so to speak, reduced to a state of stored availability.".* (Gehlen, 2010, p.225)

If human beings are characterized by relative biological indeterminacy and by the absence of highly specialized instinctual programs, their survival cannot depend on immediate adaptation to a specific ecological niche. The condition described by Gehlen through the category of *Mängelwesen* can therefore be reinterpreted not ex-

clusively as a lack, but as a condition that makes necessary a particular simplex organization of experience (Berthoz, 2009).

Simplexity therefore assumes a properly anthropological significance. It does not describe merely a neurophysiological principle of functioning, but rather a general mode through which the human species confronts the complexity of the world:

"*Simplifying in a complex world is never simple. It requires, above all, the capacity to inhibit, select, connect, and imagine. Elsewhere I have argued that the foundation of our thoughts, of the development of our highest and most abstract cognitive functions, lies in action, and that the brain has evolved so as to anticipate the consequences of an action by projecting onto the world its own perceptions, hypotheses, and interpretative frameworks.*" (Berthoz, 2009, p.8)

Learning, language, technology, and institutions can be interpreted as simplex strategies through which human beings reduce uncertainty and make inhabitable an environment that is not immediately predisposed to their survival. Such an interpretation makes it possible to understand culture not as a compensation for an original deficit, but as the expression of a specific form of adaptation founded on the capacity to transform biological incompleteness into evolutionary possibility.

5. Speciality as an Anthropological Structure of the Human Condition

One of the assumptions that have historically shaped modern educational systems is the distinction between a condition of "normality" and a condition of "speciality", the latter frequently interpreted as a deviation from a model considered standard in terms of development, learning, or participation. This distinction contributed to the initial definition of Special Pedagogy as a field primarily addressed to individuals characterized by conditions considered not fully reducible to ordinary pathways of growth and education (Canevaro, 2006; Ianes, 2014). The evolution of inclusive paradigms has progressively challenged this framework, demonstrating that educational difficulties cannot be understood exclusively as consequences of individual characteristics, but rather emerge from the dynamic interaction between subjects, environments, and systems of social participation (Bronfenbrenner, 1979; Booth & Ainscow, 2011). From this perspective, disadvantage is no longer attributed solely to the individual but is interpreted as the outcome of a complex relationship between individual characteristics and contextual configurations (Aiello et al., 2013). The anthropological perspective proposed in this contribution allows, however, for a further theoretical step. If human beings are interpreted, according to Gehlen, as biologically non-specialized organisms and, according to the paradigm of simplexity, as systems capable of dealing with complexity through distributed adaptive strategies, then the distinction between normality and speciality loses its anthropological foundation (Gehlen, 1940/1983; Berthoz, 2009). Speciality no longer represents an exceptional condition in contrast to a presumed original normality; rather, it reveals a structural characteristic of human existence: the necessity of continuously constructing mediations between organism and world. From this perspective, vulnerability, dependence, and the need for support do not constitute marginal elements referring only to certain existential conditions but

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rather dimensions intrinsic to the human condition. Human beings, in fact, are not self-sufficient organisms that occasionally rely on external tools, but forms of life whose very autonomy emerges through relational, cultural, and material systems of support (Plessner, 1975; Scheler, 1928; Butler, 2004). The human condition therefore appears to be characterized not by the absence of dependence, but by the capacity to organize increasingly sophisticated forms of mediation and cooperation. Precisely because of their relative biological indeterminacy, human beings cannot be understood as entities complete in themselves independently of the context in which they live. Their existence depends on the continuous construction of mediation systems that make it possible to transform a complex environment into an inhabitable and meaningful space. Language, technological tools, social practices, institutions, and educational devices do not represent additional elements external to human nature, but fundamental components of its own developmental process (Gehlen, 1940/1983; Clark, 2008). From this standpoint, mediation does not constitute a subsequent intervention upon an already formed subject; rather, it represents the principle through which human beings are formed (Heidegger, 1927). The human condition does not coincide with a definitive biological structure, but with a dynamic process of constructing possibilities through the interaction among organism, environment, and culture. Within this perspective, education may be interpreted as a specific form of anthropological mediation. It does not consist merely in the transmission of knowledge, but in the construction of the conditions through which individuals could progressively orient themselves within complex symbolic, cultural, and social systems. Educational processes therefore perform a simplex function: they select, organize, and make accessible elements of reality that, without adequate mediation, would be difficult to integrate into individual experience (Berthoz, 2009; Sibilio, 2012). This outcome is consistent with the bio-educational pedagogical tradition, which places at the center of its theoretical proposal the co-construction of nature and culture in the realization of learning processes (Frauenfelder et al., 2013). Teaching thus assumes the role of a device for unveiling complexity, in which the relationship between subject and environment is continuously adapted through bodily, cognitive, and relational strategies (Heidegger, 1976). Learning is therefore not a linear process of information acquisition, but a form of co-construction of the relationship with the world, in which individuals develop new possibilities for action through progressively internalized systems of support (Vygotsky, 1978; Bruner, 1996). In contemporary educational paradigms, inclusion is generally interpreted as a pedagogical and ethical-political aim directed toward promoting participation and removing barriers that limit access to social and educational contexts (Booth & Ainscow, 2011; Ainscow, 2005). This perspective has represented a decisive overcoming of models based on the separation between "normal" and "special" subjects. The anthropological perspective proposed here allows this interpretation to be further expanded. If human beings are originally dependent on systems of mediation, then inclusion cannot be understood exclusively as a strategy aimed at incorporating certain individuals into already established contexts. Rather, it describes a structural characteristic of the processes through which every individual gains access to the human world (Di Gennaro et al., 2018). Every educational experience is inclusive insofar as it enables participation through cultural tools, meaningful relationships, and mediation devices. Inclusion therefore does not intervene only when an evident difficulty emerges; rather, it constitutes the ordinary condition through which every subject becomes part of a community of shared

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meanings and practices (Butler, 2004; Biesta, 2010). Within this framework, Special Pedagogy assumes a particular theoretical role: it does not simply represent the educational field devoted to situations of greater complexity due to the risk of social exclusion but constitutes the domain in which the universal need for human mediation becomes most visible in its differences and in the diversity of historically situated experiences. Situations of disability and vulnerability, in fact, make explicit a condition that, in less visible forms, belongs to the entirety of human experience (Oliver, 1990; Shakespeare, 2013).

5.1. Implications for Educational Design from a Simplex Perspective

The reinterpretation of biological non-specialization as an evolutionary strategy and simplexity as an organizing principle of human adaptation produces significant implications for educational design. If human beings are structurally dependent on systems of mediation, then the task of education cannot be limited to the transmission of knowledge, but must concern the construction of environments capable of supporting processes of participation, understanding, and development through dynamic forms of complexity regulation (Aiello et al., 2023). From this perspective, Special Pedagogy may be interpreted as an advanced form of environmental design. Its aim does not consist in compensating for an isolated individual deficit, but rather in configuring contexts capable of making experiences, tools, and meanings accessible through different modes of participation. This approach is consistent with the paradigm of simplexity applied to education, according to which educational action constitutes a continuous process of regulation among body, environment, subject, and cultural devices (Sibilio, 2012; 2017; 2023). This leads to a conception of educational design as an adaptive and situated process. Teaching strategies cannot be considered standardized procedures valid independently of contexts; rather, they must be configured as flexible systems capable of modifying themselves in relation to the characteristics of individuals and situations (Di Tore et al., 2020). Compensatory tools, assistive technologies, educational mediators, and symbolic devices do not represent additional elements in relation to an ordinary educational model; instead, they constitute concrete expressions of the mediated and prosthetic nature of human learning (Todino, 2025; Clark & Chalmers, 1998; Hutchins, 1995). Within this framework, inclusion does not appear as the result of a corrective intervention implemented after the emergence of difference, but rather as the outcome of an educational design founded on the original variability of the human condition. The diversity of individual functioning is therefore not a problem to be eliminated, but a structural characteristic of complex educational systems, which must be designed from the outset to accommodate different modes of access, participation, and learning (Sibilio, 2002). Simplex educational design therefore adopts as its guiding principle not the search for a uniform adaptation of individuals to the context, but the transformation of the context itself so that it can generate multiple possibilities for action. From this perspective, Special Pedagogy becomes a privileged laboratory for understanding and designing the network of mediations through which every human being constructs their relationship with the world (Sibilio, 2017).

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5.2. Limitations, Clarifications, and Epistemological Implications

The thesis that the human condition is originally characterized by dependence on systems of mediation and adaptive devices does not imply the denial of empirical differences among individuals, nor their reduction to a single anthropological configuration. On the contrary, such differences constitute a structural dimension of concrete human experience and must be understood within the dynamic relationships among subjects, environments, and conditions of participation, according to an ecological perspective on human development and functioning (Bronfenbrenner, 1979; Sen, 1999). To state that every human being requires mediations in order to inhabit the world means to operate at a general anthropological level, without eliminating variations concerning the quality, quantity, and accessibility of available mediations. From this perspective, conditions of disability, vulnerability, or special educational needs are not absorbed into a generic universalization of dependence; rather, they are reinterpreted as specific configurations of the relationship between person and environment, in which different modalities of access to resources, tools, and opportunities for social participation emerge (Oliver, 1990; Shakespeare, 2013). The notion of "original speciality" must therefore be understood with particular epistemological caution. It does not claim that every individual is "special" in the same phenomenological or educational sense, nor does it intend to dissolve the differences characterizing diverse conditions of functioning. Instead, the concept operates at a structural level: it indicates that the need for mediation constitutes a general feature of the human condition, whereas the concrete forms through which this need is expressed remain multiple and historically situated. This distinction between anthropological structure and empirical configurations makes it possible to avoid both a reductionist interpretation of difference and an unfounded generalization, while maintaining separate the different explanatory levels characteristic of complex systems (Bunge, 1974; Mitchell, 2009; Clark, 2008). A further element requiring attention concerns the nature of mediations themselves. Languages, technologies, institutions, and educational practices do not constitute automatically emancipatory devices, but may assume different functions depending on the contexts in which they are employed (Fenu & Todino, 2025). Mediations can either expand possibilities for participation or become forms of exclusion and control, as highlighted by critical perspectives on education, power, and the social construction of knowledge (Foucault, 1977; Biesta, 2010). Consequently, the task of Special Pedagogy does not simply consist in recognizing the necessity of mediations, but in analyzing their quality, effectiveness, and capacity to promote autonomy, participation, and self-determination. The anthropological perspective proposed here does not replace concrete pedagogical analysis; rather, it provides a theoretical framework within which the general meaning of educational and inclusive processes can be understood. The perspective developed in this contribution finds a fundamental point of convergence with the biopsychosocial paradigm, not with the aim of replacing it, but rather of proposing a possible anthropological foundation for it. The central hypothesis is that the dynamic relationship among individual, environment, and support systems, which constitutes the basis of the biopsychosocial model, can be understood in light of the human condition as an originally mediated structure (Gehlen, 1940/1983; Plessner, 1975). De-

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pendence on mediations is not, in fact, an exclusive characteristic of situations of disability or vulnerability, but represents a general condition of human existence. Every individual constructs their relationship with the world through material and symbolic tools, languages, social practices, institutions, and educational devices. However, individual differences emerge in the ways through which these mediation systems become accessible, effective, or insufficient within specific environmental configurations. This approach is consistent with the model of the International Classification of Functioning, Disability and Health (ICF), developed by the World Health Organization, which contributed to overcoming exclusively individualistic interpretations of disability by describing human functioning as the outcome of the dynamic interaction among health conditions, personal characteristics, and environmental factors (WHO, 2001). A decisive step in this conceptual transformation was represented by the development of the International Classification of Functioning, Disability and Health (ICF) by the World Health Organization (WHO). Adopted by the World Health Assembly in 2001, the ICF marked a significant shift from earlier classification systems, particularly the International Classification of Impairments, Disabilities, and Handicaps (ICIDH), by moving beyond a predominantly disease- and deficit-oriented understanding of disability. Rather than defining disability exclusively in terms of an individual's impairments or limitations, the ICF provides a comprehensive framework for describing health, functioning, and disability across different domains, including body functions and structures, activities and participation, and environmental factors (World Health Organization [WHO], 2001). In this framework, functioning and disability are understood as multidimensional phenomena that emerge from the dynamic interaction between an individual's health condition and contextual factors. Environmental factors are therefore not treated as merely external circumstances but as integral components that may act either as barriers to or facilitators of functioning and participation (WHO, 2001). The ICF consequently introduced a standardized language for describing functioning and disability at both individual and population levels, facilitating communication across health, rehabilitation, educational, and social contexts. Importantly, the framework adopts a neutral and multidimensional approach: the presence of a health condition does not in itself determine the level of functioning or disability, since outcomes depend on the interaction between the person and the context in which they live (WHO, 2001). This orientation has also been maintained through subsequent official updates to the classification. The WHO currently provides updated releases of the ICF through its digital classification system, with the 2026-01 release representing the most recent version available. These updates refine and expand the classification while preserving its underlying biopsychosocial framework. Moreover, the International Classification of Functioning, Disability and Health for Children and Youth (ICF-CY), originally developed as an adaptation for younger populations, was subsequently merged into the ICF, thereby reinforcing the use of a unified framework across the life course (WHO, 2026). From this perspective, the historical development of the ICF can be understood not simply as a technical revision of disability terminology, but as part of a broader epistemological transformation: disability is increasingly conceptualized not as a fixed attribute located exclusively within the individual, but as a dynamic phenomenon shaped by the interaction between health conditions, functioning, participation, and environmental contexts.

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Disability is therefore interpreted neither as the simple consequence of an individual impairment nor as the mere product of social barriers, but as an emergent configuration arising from the relationship between person and context. The biopsychosocial paradigm thus finds further theoretical development within the anthropological perspective proposed here. If human functioning emerges from the interaction between organism and environment, then mediations assume a constitutive rather than accessory role. Technological tools, languages, educational practices, social relationships, and institutions represent components through which individuals construct concrete possibilities for action and participation, in accordance with approaches to extended, distributed, and embodied cognition (Clark, 2008; Hutchins, 1995; Gallagher, 2017). From this perspective, disability does not represent an exception to the general structure of the human condition, but rather a configuration in which a characteristic shared by the species becomes particularly visible: the need for support systems to organize the relationship with the world. Differences therefore do not concern whether some individuals require mediations while others are entirely free from them; rather, they concern the ways in which such mediations are constructed, made available, and integrated within life contexts. Special Pedagogy consequently assumes a privileged role in the analysis of human functioning and educational processes, particularly because its development has been informed by theoretical perspectives that challenge deficit-oriented and exclusively individualistic understandings of learning and development. Within this broader intellectual tradition, Vygotsky represents a particularly significant reference point. Although his work predates the contemporary formulation of inclusive education, Vygotsky addressed educational questions concerning children with disabilities directly through his writings on defectology. His cultural-historical approach emphasized that the developmental consequences of an impairment cannot be understood independently of the social and cultural conditions in which the child participates. As subsequently argued by scholars working in the field of special education, Vygotsky's concepts of social mediation, cultural development, compensation, and the zone of proximal development provide important theoretical resources for rethinking educational intervention beyond a merely deficit-oriented approach (Gindis, 1995, 1999; Vygotsky, 1993).

Bruner's contribution can likewise be connected to Special Pedagogy through his broader account of learning as a culturally and socially mediated process. Bruner did not develop a specific theory of Special Pedagogy; nevertheless, his emphasis on scaffolding, interaction, language, and the progressive construction of autonomy has proved highly relevant to educational approaches concerned with learners who require differentiated forms of support. In particular, the notion of scaffolding highlights how educational support can be progressively adjusted to the learner's possibilities, allowing forms of competence and participation to emerge through interaction rather than assuming that they are entirely determined by individual abilities or limitations (Bruner, 1996; Wood et al., 1976). This perspective has subsequently informed interpretations of inclusive teaching in which the teacher's role consists not simply in transmitting knowledge but in structuring environments and interactions that make learning accessible to diverse learners (Lourenço, 2012).

A further conceptual contribution can be derived from Biesta's work on the purposes of education. Although Biesta does not formulate his theory within the specific field

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of Special Pedagogy, his distinction among qualification, socialisation, and subjectification provides a useful framework for reconsidering inclusive education beyond the acquisition of academic competences alone (Biesta, 2010). From this perspective, education involves not only enabling learners to acquire knowledge and skills, but also supporting their participation in social worlds and their emergence as subjects capable of acting within those worlds. This orientation is particularly relevant to inclusive education, insofar as participation, agency, and recognition cannot be reduced to the remediation of individual deficits. Indeed, subsequent scholarship has explicitly connected Biesta's conception of education with debates on inclusion and special educational needs, using his framework to question approaches that reduce educational success to measurable individual outcomes (Rix, 2020; Hausstätter, 2014).

Taken together, these theoretical contributions provide different but complementary resources for Special Pedagogy. Vygotsky foregrounds the social and cultural mediation of development and the educational significance of disability; Bruner emphasizes the role of interaction, scaffolding, and culturally mediated learning; and Biesta broadens the meaning of education by placing qualification alongside socialisation and subjectification (Zydney, 2012). Their inclusion within a framework of Special Pedagogy should therefore be understood not as an attribution of the term to these authors, but as a subsequent theoretical dialogue through which their concepts have been interpreted and mobilized to illuminate questions of disability, learning, participation, and inclusion (Gindis, 1999; Florian, 2008; de Anna & Covelli, 2021).

From this perspective, Special Pedagogy cannot be considered exclusively a discipline addressed to particular conditions but becomes a theoretical field in which the general structure of human experience becomes particularly evident. It shows that human beings are relational, prosthetic, and simplex organisms, whose capacity to inhabit the world depends on the continuous construction of cultural, educational, and social mediation systems (Berthoz, 2009; Clark & Chalmers, 1998; Sterelny, 2012). The proposal advanced here is therefore consistent with the biopsychosocial paradigm: while the ICF describes human functioning as the result of the interaction among biological, psychological, and environmental dimensions, the anthropological perspective of original speciality highlights how this interaction does not represent an exceptional condition, but rather a constitutive characteristic of human beings as open, non-specialized organisms structurally dependent on mediation systems.

6. Conclusions

This contribution has taken Arnold Gehlen's philosophical anthropology and his definition of the human being as *Mängelwesen* as its starting point, proposing a critical reinterpretation in light of contemporary perspectives in evolutionary theory, cognitive science, and Special Pedagogy. The aim was not to overcome the paradigm of deficiency, but rather to demonstrate its theoretical scope beyond an exclusively compensatory interpretation: human biological incompleteness does not merely represent a deficit in comparison with other forms of life, but rather the evolutionary condition that made possible a distinctive adaptive strategy based on biological

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de-specialization, plasticity, and the ability to construct responses through culture (Gehlen, 1940/1983; Tomasello, 1999; Henrich, 2015).

From this perspective, the deficiency described by Gehlen assumes a different anthropological meaning: what appears as a lack of rigid biological determinations corresponds to a greater openness toward environmental, cognitive, and social possibilities. Human beings are therefore not incomplete organisms required to compensate for an originally disadvantageous condition, but rather a form of life that has transformed indeterminacy into an evolutionary resource. Biological non-specialization does not imply the absence of organization; rather, it represents a different adaptive modality, based on the capacity to learn, transform the environment, and continuously generate new systems of mediation (Sterelny, 2012; Henrich, 2015). The comparison with the paradigm of simplexity has further deepened this interpretation. The ability of living systems to address complexity through processes of selection, anticipation, and functional reduction of information does not concern only the neurocognitive level but could be understood as a general principle of adaptive organization. In the human case, this logic is expressed through the construction of languages, tools, institutions, and educational practices, which do not represent additional elements external to the biological nature of the species but structural components of its way of existing in the world (Berthoz, 2009; Hutchins, 1995; Clark & Chalmers, 1998). Human beings could therefore be interpreted as intrinsically prosthetic and pedagogical organisms, whose evolution depends on their ability to externalize cognitive functions, construct supportive environments, and transmit shared forms of knowledge. From this perspective, niche construction is not a secondary phenomenon but a fundamental characteristic of human evolution: the species does not merely adapt to environments but continuously modifies the conditions of its own existence through cultural and social systems (Odling-Smee, Laland, & Feldman, 2003).

This reinterpretation produces significant consequences at the pedagogical level. If dependence on mediation constitutes a general feature of human existence, then the rigid distinction between normality and specialness loses its anthropological foundation. Special Pedagogy cannot be considered exclusively a discipline devoted to exceptional conditions; rather, it becomes a privileged observatory of the general structure of human experience, because it reveals what often remains implicit in ordinary contexts: every learning process, every form of autonomy, and every possibility of participation results from relational processes and culturally constructed systems of support (Booth & Ainscow, 2011; Canevaro, 2006, Cottini, 2016; D'Alonzo, 2018; Mura, 2016; Giaconi et. al., 2023). Conditions of disability, vulnerability, or special educational needs therefore do not represent deviations from a presumed self-sufficient normality, but configurations in which a universal characteristic of the species becomes particularly visible: the necessity of constructing effective mediations in order to inhabit a complex world (Giaconi et. al., 2024; Sessa & Aiello, 2026a). This interpretation is consistent with the biopsychosocial model underlying the ICF, according to which human functioning emerges from the dynamic interaction between individuals and their environments and cannot be reduced either to personal characteristics or contextual conditions alone (WHO, 2001).

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In light of this theoretical path, the central thesis of this contribution can be formulated as follows: human beings are not autonomous organisms that occasionally require support, but beings whose autonomy itself emerges through systems of relationships, tools, and mediations. In this sense, specialness does not indicate a deviation from the human condition but rather one of its original dimensions: the expression of the species' ability to transform biological incompleteness into openness, creativity, and adaptive possibility.

A possible modern approach to Special Pedagogy could acquire broader theoretical significance. It is not simply an educational field addressing specific categories of individuals, but an applied theory of the human being as an open, relational, and constitutively mediated organism. The notion of "evolutionary elegance" ultimately summarizes this interpretation: human adaptive effectiveness does not derive from the perfection of biological specialization, but from the capacity to transform imperfection into a resource through flexibility, learning, and the cultural construction of the world (Berthoz, 2009). Human beings do not eliminate the complexity of the world; rather, they construct intermediate systems that allow them to reduce their immediate exposure to it. Language, technical tools, institutions, and habits constitute mediation devices that remove part of experience from direct control, making possible more flexible and future-oriented forms of action. The principle of *Entlastung* therefore does not indicate a reduction of human capacities, but rather their hierarchical reorganization: functions that were previously demanding become automated or delegated to symbolic structures, freeing resources for higher levels of planning and decision-making (Gehlen, 2010). This dynamic presents a significant analogy with Berthoz's concept of simplexity (2009). Simplexity describes the way in which biological systems address complex situations through functional solutions that do not consist in simplifying reality, but rather in constructing strategies capable of making it operationally accessible. A living system cannot process the totality of available information; it must select what is relevant for action, anticipate possible events, and construct sufficiently effective representations to guide behavior. The apparent simplicity of expert action is therefore the result of a complex internal organization (Sessa & Aiello, 2026b). The most significant point of convergence between Gehlen and Berthoz concerns precisely the anticipatory character of action. According to Gehlen, human beings are organisms capable of "foreseeing and providing": their survival depends on the ability to transcend the immediacy of present stimuli and to design behaviors oriented toward future situations (Gehlen, 2010). Consciousness, in this perspective, is not primarily an instrument of contemplation, but a device for preparing action. Similarly, Berthoz (2009) interprets the brain as a system capable of simulating future possibilities, selecting in advance perceptual and motor configurations appropriate to the organism's goals. Perception itself is therefore not a passive recording of the world, but a form of anticipation oriented toward action. From this viewpoint, *Entlastung* may be considered an anthropological form of simplexity. What Berthoz describes as a functional property of the nervous system, the ability to generate effective solutions through an organized reduction of complexity, Gehlen interprets as a fundamental law of human existence. Human beings live because they are able to transform perceptual overload, instinctual indeterminacy, and the absence of organic adaptations into instruments of knowledge and action. Culture itself could be understood as a vast simplex system: a set of symbolic, tech-

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nical, and institutional structures that enables humans to inhabit a world infinitely more complex than that accessible through biological organization alone. The "virtual" dialogue with Berthoz therefore allows a reinterpretation of Gehlen's anthropology in light of contemporary cognitive sciences. *Entlastung* appears not merely as a sociocultural principle but as the expression of a broader property of living systems: the ability to generate operational order through processes of selection, automatization, and anticipation. Human specificity therefore does not lie in eliminating complexity, but in the possibility of constructing increasingly sophisticated levels of mediation through which complexity can be transformed into an inhabitable world.

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