Bronfenbrenner's Model as a Basis for Compensatory Intervention in School-Family Relationship: Exploring Metatheoretical Foundations

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In this paper, I present the foundations of compensatory intervention in the relationship between the school and the family in poverty-related context. To do this, I analysis the metatheoretical foundations of Bronfenbrenner's (1979) ecological model which is the main basis for the models and typologies of parental engagement and school-family-community partnership. In relation with Pepper's (1942) work on world views, I particularly display the configuration of metatheories in Bronfenbrenner by insisting on its mechanistic orientations and I apply this to compensatory intervention amidst the school and the family in poverty-related context.

Bronfenbrenner's ecological model is the main basis for the models of parental engagement and school-family-community partnership (cf. Epstein, 1987). For this reason, the authors claim to bring a dynamic conception of the environment. Yet, on the other side, progressively some authors (c.f. Boulanger, 2015; De Gioa, 2009; Larose et al., 2004) display how Bronfenbrenner's ecological model is referred to by other authors in a mechanistic logic to ground the intervention in a compensatory logic –intervention that aims to compensate both the presumed risk factors child in poor area are exposed to and parents' at-risk educative practices by school protective factors that have a compensatory effect on those risks. In a paper (in French) in 2016, I argued that Bronfenbrenner's ecological model is mainly grounded in a mechanistic paradigm to respond to the fact that discussing this model's foundations is overlooked in literature while the latter can impact how authors refer to Bronfenbrenner as well as the underlying logic of intervention, particularly of poverty-related context. Authors' reaction to the paper published in 2015[2] is rather polarised. On one side, authors who mainly consider the contextualist aspect of Bronfenbrenner and develop this model tend to criticize my reference to Bronfenbrenner's mechanism. On the other side, authors who work in an ecological perspective but are not strongly attached to Bronfenbrenner in particular and who are particularly critical appreciate the critical perspective I brought and generally agree. For this reason, my argumentation needs to be both deepen to explain why I think that Bronfenbrenner's ecological model is mainly mechanistic and extent my analysis to cover –at least partially- the other orientations.

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[2] I translated it in English to share with people (from different countries) knowing well Bronfenbrenner and working on his model.

This double aim will enable me to argue for how authors and professionals referring to Bronfenbrenner's ecological model impact intervention, by risking situating it in a compensatory logic. For these reasons and to give a larger English auditory access to this debate, in relation with Pepper's (1942) work on world views, I particularly display the configuration of metatheories in Bronfenbrenner by insisting on its mechanistic orientations and I apply this to compensatory intervention amidst the school and the family in poverty-related context.

First, I largely situate ecological approaches with respect with metatheories and world views, then I suggest a general classification of Bronfenbrenner's ecological model with respect to Peppers' (1942) world views by insisting on its mechanistic orientation while also covering the other world views. Second, I demonstrate that Bronfenbrenner's theoretical propositions are mainly grounded in a mechanistic perspective and that it fits with the foundation of compensatory intervention which is very problematic in neglecting child's and parent's environmental resources and competences, particularly in poverty-related context. I display that the latter is constructed with respect to a mechanistic reading of Bronfenbrenner's ecological model.

ECOSYSTEMY THROUGH THE LENSES OF METATHORIES AND WORLD VIEWS

Ecosystemy is often described of as a model, theory, epistemology and metatheory, according to the preferred level of heuristic (Gitterman, 1996; Wakefield, 1996). The construct of ecosystemy applies transversely to different fields or areas because it pertains to metatheory that are embedded in actors' discourses and practices (Overton, 1998, 2007). A metatheory acts similarly to an epistemology as it reflects a particular view of the world, but it is situated at a more abstract heuristic level

Table 1
Presentation of the three main metatheories[3]

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[3] The content in this table is supported by the works of Sameroff (1983), Overton (1998, 2007), Wapner and Demick (1998) as well as Dixon and Lerner (1999).

	Mecanist	Organist	Contextual
General principles	- Additivity -Quantitative and discrete variables -Parts isolated from the whole	- Integrator character: the parts are apprehended inclusively in relation to the whole - The relationship between the units is part of an inclusive process rather than a unilateral causal relationship	-Change, historicity, factual character
Individual	- Passive agent -Analogous to a machine consisting of discrete parts -Reacts to external contingencies	- The conducts are the product of the complete situation ; the relation between the individual and his environment -The development of the individual is teleological (goal-oriented) and acts on an incremental basis -Change is qualitative and irreversible -The human activity: engine of change	Multidirectionality of change and plasticity -Interindividual differences -Activity of the organization in real time, embedded in systems and contexts
Environment	-External to the individual -Contingent and static according to predefined laws	-Passive world -Environment explained by the whole and by the relations between its units	-Context: historical events or systems
Individual / Environment	-The environment actively influences a passive individual, contingent relations -Stable operators determine behavior -The objects of knowledge are given at the start - Interaction: linear	-The individual is actively constructing a passive environment that receives his influence -Knowledge is the product of the relation between the individual and his environment -Interaction: processes and their structural aspects, integrative character	-The individual and his environment are codependent and influence each other on a dynamic basis -Interaction: dispersion, differentiation

Bronfenbrenner's ecosystemic theory is generally associated with a contextualist metatheory that is sometimes considered of as paired in an integrated fashion with an organist metatheory, while identifying some mechanistic aspects (Henrich, 2006; Kondrat, 2002; Ungar, 2002, 2012). Certain authors (Larose, Terrisse, Lenoir and Bédard, 2004; Marisco and Iannaccone, 2012; Sontag, 1996) have found that in the social sciences and the sciences of education, Bronfenbrenner's ecological approach tends to enrol in a mechanistic perspective, especially when combined with collaboration or participation of actors, such as teachers and parents. The main models and typology of parental engagement and school-family-partnership are grounded in such a mechanistic metatheory (Boulanger *et al.*, 2011; Boulanger, 2016; De Gioia, 2009). In reference to Pepper's (1942) world view –which is one of the main sources of Overton's (1998, 2007) work on metatheory (table 1)—, I propose a schematic classification of Bronfenbrenner's ecological foundations (Figure 1).
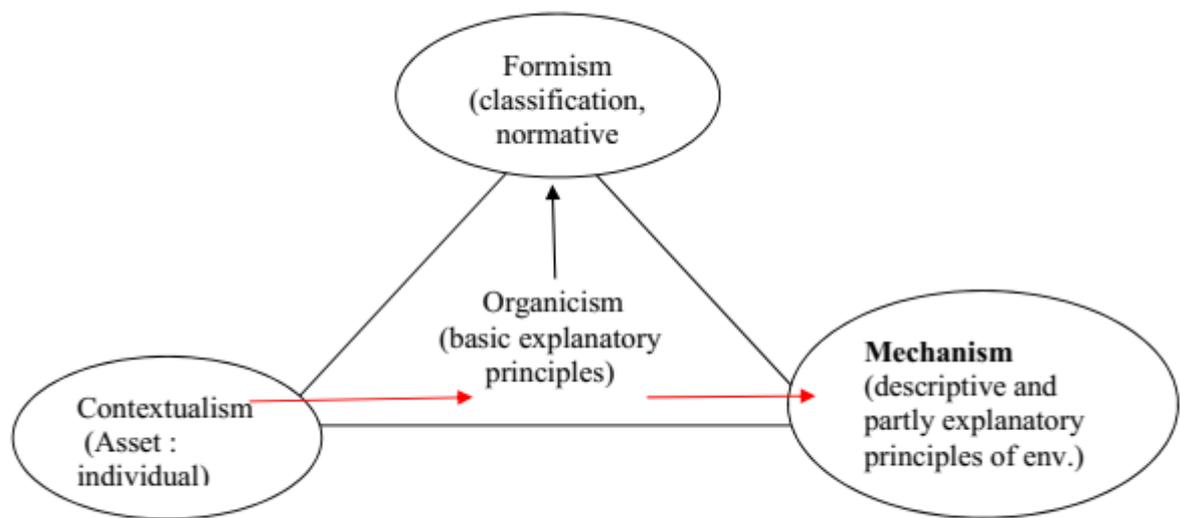
Figure 1. Bronfenbrenner's world views foundations: An integrative classification

My goal is not to present a systematic and complete analysis of Bronfenbrenner's foundations nor to fully demonstrate the classification I propose, but to generally present this integrative classification through the main world view principles underlying Bronfenbrenner's ecological approach. I insist on the general configuration of this classification, in order to display its strong mechanistic component that will be analysed in the next section.

Bronfenbrenner's asset –how he starts his theoretical presentation— is contextualism. Contextualism has ever changing but organised event as the unit of analysis. In contextualism, the extended and large encompassing aspect of environment –the distal dimension of Bronfenbrenner's approach—is overshadowed by focusing on integration. In fact, while present in Bronfenbrenner's approach, contextualism is put aside by the other world views as implicitly indicated by this example:

> *"Here the emphasis is **not** on the traditional psychological **processes** of perception, motivation, thinking, and learning, but on their content— what is perceived, desired, feared, thought about, or acquired as knowledge, and how the **nature** of this psychological material as a function of a person's **exposure to** and **interaction with** the environment. Development is defined as the person's evolving conception of the ecological environment, and his relation to it, as well as the person's growing capacity to discover, sustain or alter its **properties"** (p. 9; emphasis added).*

This excerpt reflects the contextualist continuity between the person and the environment and the active and creative relationship between the subject and the world. However, the process aspect is evacuated by overemphasising the content aspect – which could imply a move from contextualism and formism (more on this later)—, the descriptive and schematic presentation of the external environmental properties the person *is exposed to* –which entails a mechanistic approach (more on this later)— and the integrative aspect of the environment which is an organist tendency.

The fact that development implies reaching larger and more integrative systems –from the micro to the macrosystem (see the last excerpt)—is an organist tendency, particularly through Bronfenbrenner moves from the person (in the beginning of his book) to the environment (progressively). He describes the environment –as it is— to shed light on the perception the person must have of it. In an expansive and integrated environment, the person must have an expansive and integrated conception of the environment. Bronfenbrenner focuses less on the process of the person evolving and enlarging conception of the environment and more on the content (the components of the environment) and structure (the integrative environment) of this very perception.

More generally, in Bronfenbrenner's book there is a move from, first, emphasising events –ongoing (molar) activities— the individual made sense of and develop himself or herself through (contextualism) to, second, the properties of an integrated environment –particularly with respect to the second-order mesosystem and macrosystem— that gives sense to those events (organicism). Progressively, Bronfenbrenner moves from the (internal and as part of a context) sense ascribed to those events by the person (contextualism) to their (external) signification as part of a coherent whole (organicism). Events –often understood as what adults *do* for children— are considered of as significant if they enable a coherent action between people from different systems that hold together with respect to second-order principles –which pertain to the mesosystem and foremost the macrosystem. In relation with roles, activities and relations –which are components of the microsystem—, a system is considered of as supportive if it sustains coherence in the whole environment. Bronfenbrenner develops this idea by appealing to an organicist explanatory principle – coherence that pertains to an organicist metatheory— and to mechanistic principles by which he makes a superficial description of the environment's components (mechanistic trend and partly formist; more on this latter).

The central metatheory seems to be organicism –associated with a strong mechanistic and secondarily a formist orientations (more on this later)—defined by the integration of the elements of the universe concerned with the phenomenon under investigation. I focus now on organicism, then on its mechanistic and secondarily formist orientations by situating the aspects I just introduced in the frame of the metatheories under discussion.

The principle of coherence I referred to is the organicist's principle of truth –as far as philosophy is concerned—is described as follow:

> *"This theory of truth is known as the coherent theory. It is obviously implied by the categories of organicism and obviously presupposes those categories. In other views coherence may be treated as a gauge of truth but not as its essential nature. […] [C]onsistency is mere formal contradiction whereas coherence is the positive organic relatedness of material facts. […] It is not formal consistency but material coherence that the organicist sets up as truth"* (Pepper, 1942, p. 310).

One of the categories Pepper (1942) refers to in the second sentence as criterion for scientific truth is the degree of inclusiveness of facts collected about the phenomenon under investigation. Inclusiveness is the number of facts, their scope and their level of integration. Bronfenbrenner (1979) presented a conceptual frame «for describing and

interrelating structures and process» (p. 11) in an «integrative effort […] in the systematic study of human development in its human context» (idem). His theoretical hypothesis that mainly «derive from the application of the proposed theoretical framework to concrete empirical investigations» (idem) aim at broadly representing reality. Though «not all-inclusive» (p. 12) for its lack of attention to some dimensions such as «the mechanisms of socialization, such as reinforcement and modeling» that he nevertheless covers, he states that his endeavors «demands the construction of a theoretical schema that will permit the systematic description and analysis of these contexts, their interconnections, and the processes through which these structures and linkages can affect the course of development» (idem). Thus, he establishes an asset for the development of science toward higher levels of systematisation –which is related to determinateness as a criterion of truth as states by Pepper—and integration. In this perspective, Bronfenbrenner fits with organist's effort to reach for an ideal and ultimate description of the world as an integrated system. Here, as typically from a move from contextualism to organicism (Pepper, 1942), the process aspect is overshadowed by reaching for underlying unified structures. Organicism's focus on integration overshadows the process aspect of contextualism:

> *"The root metaphor of organicism always does appear as a process, but it is the integration appearing in the process that the organicist works from, and not the duration of the process. When the root metaphor reaches its ultimate refinement the organicist believes that the temporal factor disappears"* (Pepper, 1942, p. 281).

For this reason, organicism characterises moving away from the horizontal study of individual in proximal and emerging context –with respect to events— (contextualism) to rather delve into organic and organised structures that are transcendent to the individual while not neglecting or evacuating it (i.e., organicist principles of economy). Bronfenbrenner's macrosystem is the main second-order –Pepper's reference to transcendence in the ''material'' sense, as opposed to abstract— and unifying principles of the world:

> *"Finally, the complex of nested, interconnected systems is viewed as a manifestation of overarching **patterns** of ideology and organization of the social institutions common to a particular culture or subculture. Such **generalized patterns** are referred to as macrosystems. Thus within a given society or social group, the structure and substance of micro-, meso-, and exosystems tend to be **similar**, as if they were constructed from the **same master model**, and the systems **function in similar ways**. Conversely, between different social groups, the constituent systems may vary markedly. Hence by analyzing and <u>comparing </u>the micro-, meso, and exosystems **characterizing** different social classes, ethnic and religious groups, or entire societies, it become possible to **describe systematically** and to **distinguish** the **ecological properties** of these larger social contexts as environment for human development"* (Bronfenbrenner, 1979, p. 8; emphasis added).

In this excerpt, the macrosystem is a second-order systemic principles that unifies cohesively the other systemic aspects –including the person. When there are differences –when « the constituent systems may *vary*» (Idem; the emphasis is mine)—, and potentially contradictions, they are considered of as being subsumed under the cohesive whole they are part of (Pepper's principles of transcendence and economy). Yet, here,

the process of resolving such contradictions through synthesis that is part of organicism –though overshadowed by emphasising the ideal integrated whole—is absent from Bronfenbrenner.

Moreover, in an organist perspective, the person is only made sense of through the whole whose properties circumscribe his or her, hence Bronfenbrenner mainly describing the subject in systemic terms, and for a large extent with respect to the properties of the environment. This pertains to the organist tendency of people's –as fragment—tendency to "take the *form* [of the whole] implicit in them [...] [under the impulse of] their internal drive toward the integration which complete them" (Pepper, 1942, p. 291; the emphasis is mine). This mirror Bronfenbrenner's reference to people's drive –from Lewin— and the development that results in systemic integration.

This organist principle seems to mirror the formist reference to form the particulars (individual) must *participate* in. Here, a move to *formism* which indicates the partial formist orientation of Bronfenbrenner's organistic world view. Pepper (1949) refers to the following metaphor to present the main principle of formism:

> *"[T]he work of the artisan in making different objects on the same plane or for the same reason [...], and the observation of natural objects appearing or growing according to the same plan. [...] Here is a set of natural conditions dictating an ideal plan for such a pair of shoes. And here is the available leathers as a form which the shoes fulfill according to the skill of the artisan and the limitations of the available material"* (p. 162-163).

The artisan plan can partly be linked with the « same master model » (Bronfenbrenner, 1979, p. 8) Bronfenbrenner refers to when defining the macrosystem. Bronfenbrenner's macrosystem is effectively defined with respect to some of the formist categories: "[t]he macrosystem refers to consistencies, in the form and content of lower-order systems (micro-, meso- and exo-) that exist, or could exist, at the level of subculture or the culture as a whole, along with any belief systems or ideology underlying such consistencies." (Bonfenbrenner, 1979, p. 8).

In this context, Bronfenbrenner uses the formist categories of form and content to describe the organistic principle of coherence –consistency in the excerpt. Contrasting the research of Barker and his colleagues with his own perspective, Bronfenbrenner (1979) states that the former "concentrate on the *process* of interaction rather than its *content*» [...] [and] rather than categories dealing with the substance of the activity in the course of which these patterns of relationships were displayed" (p. 48-49). Bronfenbrenner prefers giving cues for tackling the substance of activity in patterns. This moves from the ongoing process aspect of contextualism to content –as part of structural patterns— as well as the claim on the nature (substance) of the world are part of formism.

As reflected in the first definition of macrosystem presented previously, Bronfenbrenner uses a comparative approch (cross-cultural psychology) to establish patterns of similarity and differences between cultures and their systemic properties. This is a formist way of establishing scientific truth. Similarity is used as a criterion to classify object and people, like when Bronfenbrenner speaks of categories such as social class.

Classification is parlicularly salient when he refers to one of his research: "We define as our initial objective the development of a taxonomy of molar activities in terms of their content, complexity, and interpersonal structure. [...] At the more passive extreme the first domain, entitled "nonengagement," consists of such pursuits" (Bronfenbrenner, 1979, p. 49-50). Somehow, it implicitly suggests people degree of participation in the form of engagement, as a quality (being engaged or not). This observation, which is secondarily present in Bronfenbrenner, seems to take part in his more general tendency to describe the environment with regard to some properties –mainly its integrative aspect—the person must seize.

How Bronfenbrenner makes inference pertains to the move from contextualism to a formist conception of organicism:

> *"In terms of research method, the child's evolving construction of reality cannot be observed directly; it can only be inferred from patterns of activity as these are expressed in both verbal and non-verbal behavior, particularly **in** the activities, roles, and relations **in which** the person **engages**. These three **factors** also constitute what are designated as the **elements** of the microsystem"* (p. 11).

The integration (organist) of the ecosystemic elements is determined according to patterns and contents. It seems implicit in Bronfenbrenner's approach that people must meet the normative standards of the macrosystem –as an ideal from the logic of abstract formism—or *participate* in the macrosystem –as a form situated in immanent formism. Be it normative or not, people's orientation to the environment implies them perceiving the whole range (integrativity) of the environment, in order to develop themselves. Here, an integrative (organicism) ideal (formism)[4].

Yet, the very fact of describing this environment with respect to elements indicates a *mechanistic* view of the world where the environment *externally* dictates *what* – Bronfenbrenner's reference to content—the person should adapts himself or herself to. Like with the mass and volume of a machine, the elements define the (partly) formal (formism) and integrated (organicism) environment. In the research of Bronfenbrenner and his colleagues –quoted in Bronfenbrenner (1979)— I referred to previously, how the activity is defined indicates a mechanistic orientation:

> *"Each activity was classified in four general spheres: content; "psychological momentum," as indicated by initiative, level of concentration, resistance to distraction, resumption after interruption, and so on; complexity of activity structure, as manifested in the number of molar activities carried on simultaneously, extended time perspective, and the presence of sequential subgoals; and the complexity of the perceived ecological field, as reflected in the person's participation in the interpersonal systems (dyad, triad and so on), reference to events in other setting, and the modification or expansion of the life space through fantasy or actual reconstruction of the objective environment"* (p. 50).

Without investiguing the original reference Bronfenbrenner refers to in his book, its mechanistic overtone is salient –albeit there seems to be some phenomenological

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[4] In the figure 1, formism is located in the top of the hierarchical triangle representing the organicism, in order to show that the organicist's ideal of integration seems partially formist in nature.

aspects—, in the reference to quantative variables to describe process and to the fact that the participation and perception is directed toward --*participation to* a dyad that seems to be already there, before the act of participation, and perception of an objective world that is not defined by this very perception—something external, whereas participation is in fact are constitutive of this very reality. This mechanical trend is particularly apparent in the following definition:

> "*The ability of a caregivers or preschool teachers to engage in activities that facilitate the children's development is a function of setting properties that vary with the age of the child. In settings for infants under three years, where group sizes are relatively small, adult-child ratio becomes a critical factor in influencing the ability of caretakers to engage in the kind of reciprocal, one-to-one interaction that appears to be most effective in meeting the needs and facilitating the development of the very young child. [...] Larger groups not only reduce the frequency of developmentally effective activity [engagement] on the part of the adults but also increase the possibility of children's remaining uninvolved or becoming disengaged, or caught up in tangential or counterproductive diversions with their age-mates*" (Bronfenbrenner, 1979, p. 202).

Size is a differentiated variable like mass that enables a systematic –organist determiness—description of the elements of the environment. In mechanistic therms, this is a primary quality (quantitative variables defining a machine) situated in space. In the excerpt, Primary qualities are thus used to describe the integrated environment and its formist categories, such as the kind of interaction and the effective (formist quality) activity to *engaged in*.

While formism does not ground reality in space and *time*, mechanism, particularly in its consolidated –as opposed to atomistic—version, situates the elements of nature (formism) in a spatiotemporal field that suits both a *horizontal* (contextualim) and a *vertical* (organicism) cosmology. In fact, there is a merging of the vertical categories into the horizontal, so that variables such as mass are distributed along the spatiotemporal field. For these reasons, mechanism is a potential integrative elements in Bronfenbrenner's world view. I state that he largely makes sense of organicism –that he conceived partly with regard with organicism and contextualism—through mechanism.

The mechanistic principle of truth is a linear association between a stimulus (the environment) and a response (the person) that is reflected in a logic of accomodation or linear adaptation to the environment. Bronfenbrenner's emphasis on the properties of the environment the person has to adapt to and seize –in the sense of making part of his perception— could indicate this logic. The aspects that pertain to the phenomonological world are not strange to mechanism! They are considered in a "distributive" way, as part of some configurations in the spatiotemporal fields. Pepper (1942) refers to some Gestalt authors to account for this. For the mechanist, the perceptual reactions –the trace or imprint of the object—of the person are correlated with an underlying mental structure that is associated with the structure of the environment. The sense of the world emerge at the intersection of different structural levels of the environment that are linerary –through a causal chain—and isomorphically associated and integrated (organism), hence a mechanical version of the organistic conception of the ecosystem. This logic is illustrated as follow:

"To the extent that activities refer to events occuring in other places at other time, they reflect an expansion of the actor's phenomenological world beyond the immediate situation. Thus it is possible to speak of an "ecology of mental life" with a potential structure isomorphic with that of the ecological environment. If a person in a given setting speaks about hew own activities in some other setting, either in the past or in the future, she is exhibiting the ability to create a "mental mesosystem." Television brings into the daily experience of children violent events in other place that then find violent expression in the youngster's eveyerday activities, thus adding an exo- and, perhaps, even more tragically, an entire macrosystem to the phenomenological world" (Bronfenbrenner, 1979, p. 47).

The mesosytemic mental map referred to in this excerpt seems to evolve through the sequential and integrative (organicism) move from one systemic levels to another, amidst a linear move from the external to the internal world, the former adding or expressing itself in the latter. As the systems in the hierarchical environment are isomorphically associated with the person's mental structure, the person phenomenological world –as integrated—can reflect the properties of the external integrated environment. In this logic, the person appropriates what is external. This is related to Bronfenbrenner's focus on the environment as it is, on his spatial description of it.

Generally speaking, my schematic analysis of Bronfenbrenner's world view point to a mechanistic version of organicism. By following Bronfenbrenner's argumentation, I now present some of his basic concepts –without focusing on the phenomonelogical dimensions that are progressively evacuated— in that they express a mechanistic world view and I tackle how the latter could be related to compensatory intervention.

BRONFENBRENNER'S MECHANISM: BASIS FOR COMPENSATORY INTERVENTION

One of the main laws suggested by Bronfenbrenner refers to the characterization of the relationship not only as a dyad (child interacting with an adult), but as a triad. The law is stated by the expression n + 2 where the development of the child (n) is supported by the cumulative or *additive* effect (+) of the intervention of two adults whose actions are convergent. Nowadays, we encounter this principle as common sense through the idea that parents should convey congruent messages to support the child's development. The coherence of these messages then constitutes a motivator for the child.

Activities, relationships and roles (the three components of a microsystem that relate the adults and a child) will make *sense* for him if they are compatible (or coherent, a dimension on which we will return). The meaning thus depends on the characteristics of the environment which are somehow given from outside. People are supporting if these environmental conditions are *present*:

"The capacity of a dyad to function effectively as a context of development depends on the existence and nature of other dyadic relationships with third parties. The developmental potential of the original dyad is enhanced to the extent that each of these external dyads involves mutually positive feeling and the third parties are supportive of the developmental activities carried on in the original dyad.

Conversely, the developmental potential of the dyad is impaired to the extent that each of the external dyads involves mutual antagonism or the third parties discourage or interfere with the developmental activities carried on in the original dyad" (Bronfenbrenner, 1979, p. 77).

Ecological conditions for development –that is more or less (quantitatively) present— thus largely pertained to the properties of the environment. Noteworthy, those conditions are defined in an exclusive way, considering that X conditions implies non-development, and Y conditions development (more on this later).

Both adults supporting the child's development can be part of the same microsystem such as the family or enrol in separate systems; it is the case of the teacher and the parent whose respective actions on the child are beneficial if coherent. Law n + 2 then applies not only to a proximal level (interaction within the microsystem), but also distal (the link between actors belonging to different microsystems). In contrast to the contextual perspective privileged in the introduction, Bronfenbrenner (1979) specifically mentions that regardless of their position on a scale ranging from proximal to distal (from the microsystem to the macrosystem) systems obey the same parameters, in particular the law n + 2. This tendency to define the world in a consolidated (organicist and mechanist's consolidation) and isomorphic way with regard to such a basic principle pertains to mechanism.

For its part, the exosystem refers to the system to which the individual does not participate directly, but still affects him. The idea of creating links between systems leads Bronfenbrenner to introduce the concept of mesosystem referring to the interaction between *two* microsystems. Bronfenbrenner defined it according to the same properties as those of *the* microsystem: "[i]t was stated previously that the dyad is the most versatile building block of ecological structure: it is also the functional prototype for defining optimal conditions in the operation of the mesosystem as a developmental context." (Bronfenbrenner, 1979, p. 218).

I notice that what defines the microsystem is used to qualify, transitively, the mesosystem. The action potential of the mesosystem on the child translates as:

"The developmental potential of setting in a mesosystem is enhanced if the role demands in the different settings are compatible and if the roles, activities, and dyads in which the developing person engage encourage the development of mutual trust, a positive orientation, goal consensus between settings, and an evolving balance of power in favour of the developing person" (Bronfenbrenner, 1979, p. 212).

From this excerpt, I note the *size* of the consensus. In determining whether units (roles, relationships, activities) of the microsystems converge to form the mesosystem, Bronfenbrenner (1979) is able to judge of its character as *either* harmful *or* supporting to the child.

The characterization of social phenomena by such exclusive polarities - contrasting dual options that are not interdependent and which require a choice that excludes one of them - involves the adoption of a mechanistic perspective (Valsiner, 1987). As stated by

Overton (1998), the polarization conducted by Bronfenbrenner between a system *either* positive *or* negative for the child reflects the adoption of such a logic and goes against the transactional principle of ecosystemic approach according to which the parts of a whole are interrelated. As shown by Ungar (2012), Bronfenbrenner judges of the supporting or harmful character of an action in reference to a law (the coherence) applied to any situation in a universal manner, rather than the meaning given to the experience by the actor on a contextual basis.

Bronfenbrenner (1979) does not detect the modalities of the constitution of the mesosystem and does not defines it in terms of emerging processes. He apprehends the mesosystem as a stable object defined according to a law, rather than as an emergent process. From this perspective, we have shown that the mesosystem possesses the same characteristics as the microsystem. He proceeds as follows: (a) he identifies two microsystems, (b) he determines if the objects they convey are coherent or incoherent with each other and (c), considering that these objects converge, he assumes the presence of a mesosystem. If there is no coherence, there is no mesosystem.

In the first hand, this tendency pertains to an atomistic version of mechanicism, in that separated elements are detected and added together. McIntosh, Lyon, Carlson, Everette, and Loera (2008) highlight the tendency of many authors to establish *a posteriori* links (through correlations for example) between targeted variables separately in each microsystems that are put into relation, rather than circumscribing the mesosystem as a social entity and process. Overton (1998) criticizes under this aspect the additive conception, conveyed by Bronfenbrenner, of the mesosystem considered as the sum of its parts. In the second hand, the mesosystem is situated in a consolidated mechanism, as far as the criterion –coherence—used to unify the part comes from the macrosystem.

Effectively, the macrosystem enables the integration of those elements. It is the (normative) center of gravity around which interact the systems and which integrate (organicism) such systems. The macrosystem is a "blueprint" - expression used by Bronfenbrenner in 1977 - that is to say an overall configuration which prefigures the action and provides a framework for scheduling and structuring various elements defined here according to their shape and content (Overton, 1998). From Bronfenbrenner's perspective, in a homogeneous ecosystem, divergent cultures are held in the same space depending on the convergence (organicism) of their form and content (formism). They are organized in a functional relationship (mechanism) that ensures the consistency in the generic framework in which they operate. Hence, the norms, representations, values, ideologies and *dominant* discourses of a society serve the organizing principle that shapes social interactions (and the relationship between cultures) which occur within and at the center of systems in the ecosystem.

By relating this conception of the ecosystem to a functionalist logic, some authors (Henrich, 2006; Kondrat, 2002; Ungar, 2002, 2012) showed that Bronfenbrenner presents it as an organic whole (organicism) unified by normative schemes (possibly formism). In 2005, Bronfenbrenner mentions how, in his initial model, he further defined the (partly external) conditions of interrelation between systems, instead of developing a theory of child development. He then underlines the functional component of the ecosystem, which will subsequently motivate the development of the bio-

ecological[5] model that invests more in the process dimension. However, this is done by targeting unambiguously the proximal processes at the expense of phenomena located distally.

In 1989, Bronfenbrenner presents a new principle according to which culture (macrosystem) is not foreign to other systems and individuals and it is not imposed upon them as normative benchmarks[6], but conveyed contextually in all environments and negotiated by the actors. He then brings a corrective to the static conception of culture which was emphasized in 1979. Culture is an organic whole which is imposed upon the systems in a relation of exteriority, hence its organist and mechanistic foundations.

His conception of culture leaves open the question of cultural diversity and the presence of areas of tension to which refers Lewin (1951). To Bronfenbrenner, two principles appear contradictory: the principle that implies that the systems differentiate depending on whether they appear supportive or, on the contrary, harmful for the child and the other principle according to which the components of the ecosystem are uniform. On the one hand, the author identifies a criterion for distinguishing systems and therefore to attest the presence of some variability in the ecosystem, within the limits of a dualistic perspective (*either* supporting *or* harmful). This principle differentiation –like with spatiotemporal field that differentiates itself with respect to variables such as mass— seems to be mechanistic in nature.

On the other hand, systems must be of the same nature (organicism and formism); their components must converge (organicism) and they must fit (mechanism) evenly in a static ecosystem. There is then no room for differentiation. I have shown that the identification of the mesosystem involves finding the compatible microsystems. What happens when two microsystems interact but they differ, that their components are discontinuous, when there are contradictions? There must necessarily be a criterion enabling the identification of the system that should be privileged since, ultimately, the author targets the cohesion of the whole[7].

In the context of socio-economic deprivation, one of the main barriers to the academic success of the child is the manifestation of cultural discontinuity between school and family, that is to say a difference between the roles, activities and relationships that characterize each of these microsystems (Wilgus, 2005). Since it is the family who must adapt to school, vector of the "dominant culture", a logic on which compensatory interventions are based (ibid.), it seems crucial to determine the theoretical foundations of such reasoning.

For Bronfenbrenner (1979), it is in relation to the macrosystem that is based the choice of operating between systems. In an organist logic, all these are defined narrowly in relation to the law of coherence which is applied on a downward and transitive basis

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[5] For a critical presentation of the bio-ecological model and its uses, see Tudge, Mokrova, Hatfield, and Karnik (2009).

[6] In this sense, it pertains to abstract formism.

[7] We could also conclude that, following the criterion of consistency, two interrelated but inconsistent systems do not form a mesosystem! This means that, beyond the nature of inter-systemic interactions, it is the law (here, the coherence) favored by the researcher account.

from the macrosystem, which defines the conditions of interactions between the integrated systems. Systems that are vectors of norms, representations, values and dominant discourses (macrosystem) across the community are those that support the development of the child; they are the vectors of knowledge recognized and validated in society (Henrich, 2006; Ungar, 2002). Conversely, systems whose objects are incompatible with the components of the macrosystem are likely to be excluded and to have minimal effect, or even an inhibitory effect, on the child. As indicated, this either/or logic pertains to mechanism.

An organist frame would imply studying those contradictions and focusing on how the macrosystem enable to transcend them without losing or excluding them. Here, Bronfenbrenner's approach seems rather to fits a mechanistic atomist. Yet, from a consolidated mechanistic point of view, a lever mechanism seems to enable the organicist-formist ideal of integration. One of the microsystems constitute the normative benchmark, the center around which the equilibrium is established in the mesosystem. Microsystems whose objects are consistent with those of the macrosystem are those who carry the most weight –like with the levers of a balance— or influence within the mesosystem. We then end up with a mesosystem that is set obliquely, one of the systems being drawn up as projected to the macrosystem. This logic expresses at the level of collaborative practices which often aim at standardizing parents from disadvantaged backgrounds with reference to the values promoted by the school (Keyes, 2002; Wilgus, 2005).

Once detected the microsystem that is considered harmful, Bronfenbrenner (1979) proposes to compensate for the adverse effects on the child by exposing it to opposing, therefore positive, conditions, conveyed in another microsystem, the one that represents the norm. However, it is exactly the logic at the basis of compensatory interventions; school is regarded as a protective factor counteracting the action of the risk factors which come from disadvantaged families (Larose, Terrisse, Lenoir, & Bédard, 2004). This is supposed to end in a full integration (in the sense assimilation) of parents and children from poor area to the school, while neglecting cultural diversity, incoherences and contradictions that are yet still present, but ideologically –from the impulse of the cohesive force (organist) of the macrosystem under the equilibrium level of compensation (mechanicsm)—kept hidden.

CONCLUSION

This analysis display integrative (organicism) aspect of compensatory intervention through its *mechanistic* orientations. It happens when intervention aims at integrating –in the sense of assimilating—marginalised people in the society with respect to its dominant values. Compensation is a mechanism that guarantees this integration as an ideal goal (formist aspect of organism). Contradictions, that is recognized but neglected by organicism but that is central for contextualism (Pepper, 1942), are overlooked. Yet, systemic discontinuity between school and family could be think of as a space for negotiation out of which emerge new meaning (Boulanger, 2019). Recognizing such a contextualist approach implies developing the time aspect that is generally presented in a static way in Bronfenbrenner's approach. His conception of child temporal transition implies moving from X to Y system, hence Bronfenbrenner's tendency to spatialize time. Typologies –which by definition suits a formist orientation— used to describe parental

engagement and school-family-partnership are even more static. They define A, B and C types of engagement –as a formist-mechanistic approach—the parent must engage *in*, without considering the sense ascribed to them by the parents and how the parent *move* and grow when passing from 'type' A, to B and C. What happen *between* X and Y or between A, B and C, during the ongoing present moment? Responding to this question implies recognizing contextualist *undeterminacy and change.* It could lead to moving from parent engagement –as a behavior to be externally scrutinized and compensated when not fitting with school's norms—to parent *mobilisation.* The latter entails spatiotemporal movement that is not considered by models and typology in the field of school-family-community partnership. Like Bronfenbrenner's approach, this field is filled with dialectical tensions that are a key for developing the intervention at the boundary of school, family and community.

Yet, what happens with Bronfenbrenner's ecological model? Does it need to be evacuated? Is it important in intervention, particularly at the intersection of the school, the family and the community? Why do researchers and practitioners still use it in many disciplines such as psychology, education and social work? I think that Bronfenbrenner's ecological model both fits with common sense –usual way of seeing the world— and challenge it. First, ''cutting'' the world is a usual habit we have to making sense of it when categorising it (formism), hence a possible reason for the good reception and the maintenance of this scientific theory into common sense. Yet, has anything that comes from elsewhere –a theory, a law, etc—, people make it their own by appropriating it (Moscovici, 1976). Analysing how people –mainly professionals—appropriate Bronfenbrenner's ecological model is part of my doctoral thesis in which I found that people put aside the interactive and contextual aspects of the ecological model. Here, the latter challenge people by recalling them to consider those aspects, to making the reality alive! It is useful as a map and generic principle in intervention for its boundary situation that put people ahead of their usual habit. Yet, in my doctoral thesis, I also hypothesise that Bronfenbrenner ecological model also sustains people tendency to consider interaction in a limited fashion. Recognising the interaction between systems does not guarantee a dynamic conception of the world when this interaction is mechanistically considered through referencing a level mechanism out of which the ecological elements are integrated. This fits common sense of the world and energize it by providing an ''easy way'' –at least superficial in the sense of remaining in the surface of phenomena— to understand the world.

This leads me to this question: do we have to evacuate mechanism from ecological model? Does mechanism contributes to unify (Figure 1) or disintegrates this model? For this concern, One of the reviewers (Bo Christensen) wisely asks me the following comment in the reviewing process: ''As far as I can tell your critique of Bronfenbrenner is sound, though you could have imported the same criticism from a number of other authors questioning the credibility of maintaining a mechanistic relation to the world (a sense of reductionist naturalism) while trying to keep open a space for normative relations as well. To me this just ends in a kind of dualism between an outward causal-mechanistic relation, and an inward normative relation without explaining how these two fit together''. The response to this intervention lies in the fact that mechanism situates itself in a tension between an *analytic* –considering elements instead of contexts or complexes— and an *integrative* tendency –reaching for one unified truth yet without covering a large spectrum of facts (Pepper, 1942). These tendencies repel each other

and may need a third perspective to be reconciliated. At the analytic level lies the either/or logic which is the first highlighted by Christensen. The latter referring to norm happens when the integrative tendency embraces organicism or formism. The integrative tendency also implies promoting determinacy and order over chance and indeterminacy.

Contextualism and mechanism can be combined:

> *"There is also a very strong tendency for mechanism and contextualism to combine. Many pragmatists and some mechanists exhibit this combination in various propositions. The two theories are in many ways complementary. Mechanism gives a basis and a substance to contextualistic analyses, and contextualism gives a life and a reality to mechanistic syntheses. Each is threatened with inadequacy just where the other seems to be strong. Yet, mixed, the two sets of categories to not work happily, and the damage they do to each other's interpretations does not seem to me in any way to compensate for an added richness"* (Pepper, 1942, p. 147).

A consolidated mechanism who emphasise secondary quality pertaining to perception over primary quality (such as mass) is an entrance for contextualism. Yet, as indicated in the end of the excerpt above as well as in the following one it implies risk. In the case, "[s]subjective idealism, phenomenalism, and solipsism, as historically developed, are all mechanisms trying to get without the primary categories. They can all be easily refuted (contrary to a widespread superstition) by simply examining their categorial presuppositions. For what is mechanism without a machine" (Pepper, 1942, p. 195).

One possible avenue is related to what I said previously about mechanism –here of an analytical nature— recognizing subjectivity through correlating the perceptual reactions –the trace or imprint of the object—of the person with an underlying mental structure that is associated with the structure of the environment. While, as I specified, this is analysed with respect to a causal and linear chain, this very correspondance between the world and the subject can indicate a break with the subject/object dichotomy and be pushed further into Bronfenbrenner. When I follow Pepper's presentation of mechanicism, this aspect seems to be related to the first waves of quantuum mechanism in physic that precisely contributes to overcome this ontological split while adressing the process aspect which indicates a *move from being (formism) to becoming and relating* (Stapp, 2007). For this author, Whitehead and his colleagues (1978) takes part in this trend. While somewhat fitting to my knowledge and as far as I understand Whitehead with Pepper's critic of mechanistic's limited reference to undeterminacy –where chance is considered of as a necessity—, he can bring process and dialectic into Bronfenbrenner's ecological model while also overlooking the irreversible nature of time as conceptualised by Bergson (1888). Using Whitehead to bring dialectic into Bronfenbrenner's ecological model could also be useful to bringing a solid theoretical foundations into the field of school-family-community partnerhsips, for instance with reference to the concept of overlapping that Epstein (1987) presents in a reductionnistic and atheoretical matter.

As far as metatheoretical foundations are concerned, refering to Whithead also inspire a move from categorising Bronfenbrenner in A, B, C or D category to rather delve into the dynamic nature of theorisation. Here, this ecological model has to be seen in relationship

with all categories –as displayed by Overton (1998)— by considering how the metatheoretical network of such models evolve and change and how such changes contribute to the renewal of this model. As I indicated elsewhere, implict models that do not necessarily fits Pepper's category can underly researchers modelisation as well as laypeople and professionals representation and action (Boulanger, 2015)

How actors model and appropriate it must also be adressed. Here, being (category) is replaced by becoming and relating. The same is true with the boundary between school, family and community that evolved with how it is modeled and represented. In this logic, *typ*ologies of parent engagement does not make sense, but need to be considered of as how parent action becomes (evolves) and related to other aspects of the world (non-school as still part of education, for instance). School-family-community partnerhsip field and foremost its ecological foundations also need irreversible time that could not be founded in Withehead and quantuum mechanism. It could leads to bring into this field a dialectical and irreversible conception of space and time which my evolving work aims at.

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