

# Dialectical Inferences in the Construction of Social Domain Knowledge

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## Research Article

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# Abstract

The concept of dialectical inferences was proposed by Piaget to interpret the inferences arising in the coordination of meanings within the construction of cognitive novelties in physical and logical-mathematical phenomena. First, the different uses given to the concept of dialectics in Piagetian work will be analyzed, emphasizing the original meaning of the term "inferential dialectical". Second, the results of a study on the construction of children's ideas about the right to privacy at school will be analyzed using the category of dialectical inferences. This study was based on interviews with thirty children between 7 and 12 years old living in the Autonomous City of Buenos Aires (CABA) to study the development of their ideas about this right. At the same time, we observed the school practices in which these children participate to characterize how students' personal information was treated at school. Thirdly, we propose a discussion on the construction of social knowledge, identifying the constructive activity of subjects and at the same time the peculiar interactions they sustain with social practices from which the object of knowledge is cut out.

# Introduction

In developmental psychology, constructivist trends have been characterized by the search for explanations on how a novel system of knowledge is elaborated, under the thesis that it is irreducible to its precedents. Such explanations seek to highlight the mechanisms responsible for the transformations leading from one state of knowledge to another. In this sense, Piaget (1985) proposed the theory of equilibration to explain the process by which the significant actions carried out by the subject of knowledge are coordinated: the interaction between assimilation and accommodation; between schemas and observables, etc. It is basically a process of constructive compensation in the face of imbalances and conflicts between schemas, and between these and the world. However, in one of his later works, Piaget (1980) enriched this theory when he proposed that during the constructive or equilibration phases of concepts, subjects make inferences that go from a previous knowledge system to a new one based on its reformulation. According to Piaget, this process constitutes the "inferential side" of the explanatory model of cognitive systems' equilibration. It is a peculiar way of considering the dialectic of knowledge in terms of the constructive activity of meaning. These inferences embedded in the general theory of equilibration help to pinpoint the emergence of novelty within cognitive development, because they identify a way of accessing (over time) a conclusion that involves more conceptual content than the preceding premises. The most relevant aspect of this proposal is that the contradictions emerging from the previous systems do not generate novelties or an overcoming of a certain state of knowledge on their own, but require the constructive activity of the subject, an invention of possibilities, or a reorganization by abstractions, resulting in a new level of knowledge irreducible to the previous one. Thus, the processes of reflexive abstraction (Piaget, 2001) and of generalization (1971), grasp of consciousness (Piaget, 1976), or formation of possibilities in cognitive development (Piaget, 1976), together with dialectical inferences, could explain the creative overcoming of imbalances and, thus, complement and specify the equilibration process of knowledge systems. However, Piaget (1985) was unable to formulate an overall

theory of equilibration that would acceptably articulate the dimensions mentioned above (Castorina and Baquero, 2005; Campbell, 2009).

We should stress that the proposal of dialectical inferences in the genesis of meanings had no impact on the research of later psychologists, either post-Piagetian ones revisiting Piaget's ideas (e. g. Rodriguez, 2012; Martí, 2012), or those studying it from other perspectives. Nor has it influenced the current configuration of discussions in developmental psychology, arguably because it is one of the last works written by him yet to be translated into English. Likewise, there is still a need to gather empirical evidence in developmental studies and to reach precise arguments on the characterization of dialectics in the construction of knowledge (Castorina, 2010; Jameson, 2010). This vacancy of studies regarding their potential to explain knowledge dynamics becomes even more noticeable in social domain studies, given that Piagetian work was originally conducted to interpret the development of general domain knowledge, and, specifically, logical-mathematical categories (Barreiro & Castorina, 2017). In this sense, while Turiel (1983; 2008) appeals to inferential processes to characterize knowledge construction within the social domain, he fails to explicitly resume his analysis in terms of an inferential dialectic. According to Piaget's distinction between discursive inferences within a level of knowledge and dialectics going from one level to another, it can be stated that the work of Turiel deals with "discursive" inferences (Piaget, 1980).

We must emphasize that social knowledge does not refer to the construction of new operational structures, but to concepts and assertions proper to a specific domain. Therefore, this article raises some questions concerning the equilibration process, which should be reconsidered given the peculiarities of the objects of knowledge proper to this domain, strongly associated with social conditions and practices disregarded by Piaget when analyzing cognitive structure transformation inferences. In other words, what can be understood by equilibration and overcoming in the original Piagetian proposal, should be relativized or, at least, contextualized, considering the particular construction dynamics of this type of knowledge. Specifically, social domain knowledge is not characterized by the formation of increasingly valid or advanced concepts, as different forms of knowledge coexist unable to clearly establish a more logical or valid point of arrival of their development (Barreiro and Castorina, 2012).

Within this framework, we will first address how dialectics is presented in Piaget's work, distinguishing its different modalities. Second, we will focus on the concept of dialectical inferences as it was originally conceived and introduced by Piaget in some of his empirical studies. Third, we will examine the category's potentiality and peculiarities or features that might characterize the genesis of social domain knowledge. Specifically, for the study of children's understanding of their right to privacy (Horn, 2021; Horn, Helman, Helman, Castorina, & Kurlat, 2013; Helman & Castorina, 2007). Finally, we would like to make some suggestions about the contextualization of dialectical thinking, given that inferences are produced in close connection with the social practices in which individuals participate.

## **Dialectical thinking in Piagetian theory**

Dialectics is one of the most controversial categories in the history of philosophical thought, from Taoism in Chinese culture, to the cradle of Western thought with Plato and Heraclitus in classical Greek times, through Kant, Hegel, Fichte and Marx or Engels in modern thinking. Following the different Marxist interpretations that include Althusser's structuralism, Sartre's theses, or those proposed by Gramsci, Colletti and Luporini, to Jameson's version of dialectical modalities diversity (Castorina and Baquero 2005). Furthermore, for a complete elucidation of its reinterpretation, Foucault and Deleuze's radical critique would need to be examined (Jameson, 2010).

However, a careful analysis of the philosophical arguments wielded in defense or rejection of dialectics, in its historical or contemporary versions, falls beyond the scope of this paper. Rather, we will examine its meaning and extent in Piaget's program, to interpret novelty building in the field of Developmental Psychology. Likewise, we must mention that other developmental psychologists (e. g. Bidell, 1988; Boech, 1991; Overton, 2012; Valsiner, 2012; Vigotsky, 1986, 1997) proposed a relational perspective, which they have called "dialectic" in numerous passages of their works, in the face of different problems and in a non-uniform way. In the particular case of Piaget, we must address he was not a scholar focused on the history of dialectical thought, he did not participate in debates on the category's nature, he knew very little of Hegel's version and a slightly more of Marx's theses, mainly from his conversations with Lucien Goldman, well into his work (Piaget, 1966). However, Piaget emphatically affirmed in his epistemological perspective that dialectics did not derive simply from philosophical thought, nor from its "application" to the phenomena being studied, imposing itself from outside the sciences. Rather, it was inherent to them insofar as it was relevant as an approach to historical and social processes, particularly to the processes of science making, including genetic psychology.

According to his proposal, the characteristics adopted by dialectics in research do not refer to an a priori study of concepts but to the interpretation of scientific activity, based on the interaction of theories and experiences, as proposed by the philosophy of Bachelard (1954) and Gonseth (1926). In this perspective he interpreted mathematics in dialectical terms: the concept of number is constructed on the basis of a thesis and its negation, say classes and logical relations; and a synthesis, originating it by integration (Piaget, 1968). Their conceptual elaboration is indirectly supported by the empirical verification of claims about the genesis of children's ideas.

In general terms, Piaget's dialectics refers to the constructive process of knowledge, and can be conceived in three dimensions. Such dimensions are interconnected and do not imply a single, definitive set of universal dialectical principles, or laws that would govern the world or knowledge, according to the Hegelian-Marxist *vulgate*.

In a first dimension, any thought interpreting the dynamic interaction of the parts of a system, or otherwise, a process, is only understood in terms of relationships between its components or with other processes. According to Piaget, any study on individual or historical development would be dialectical, in his words: "When dialectics reveals the specific nature of historical development with its continuous conflicts, opposition and overcoming, it is often mocked as a mechanism anyone can know. Certainly, the

dialectical spirit is broader than belonging to this or that school of thought" (1973, p. 72.). This quote can be seen in a meta-dialectical perspective (Campbell, 2009) or a very general thesis, similar to an *epistemic dramework* (Piaget and García, 1989) made up of epistemological and ontological assumptions underlying his theories and research. This can be considered to be associated with the social and historical context of his time, only partially made explicit by himself when characterizing his own work. However, this conception of the world did not directly influence his theories of cognitive development, like any other theory, but rather conditioned them. Moreover, it brought the possibility to look into certain problems concerning the genesis of knowledge, such as novelty production, or gave rise to the units of analysis of his theoretical elaboration. However, this framework did not always preside over his psychological research, as we have mentioned, since the presence of a certain immanentism in equilibration theory ruled out the limiting social conditions in which knowledge is produced; or the almost permanent absence of interrelation of the cognitive process with culture did not respond to a dialectical interpretation.

A second dimension of dialectics in the work of Piaget is a methodological position to address developmental theory elaboration problems. This approach does not replace empirical research specific methods in psychology, but makes research possible: On the one hand, the research object is seen as a dynamic unit by the articulation of opposite components, such as schema and observable; subject and object; structure and procedure, assimilation and accommodation, etc. (Castorina, 2010; Castorina and Baquero, 2005) Particularly, within the units of analysis, a multiple determinations synthesis perspective, or as a dynamic unity of what is diverse, recognizes an evident kinship with Hegel's and Marx's ideas. In other words, by studying the problems of cognitive development, Piaget approached constitutive relations in terms of their reciprocal interactions. Thus, by posing a theoretical problem, he tried to articulate the initial heterogeneity of cognitive functions or properties, introducing their systematic linkage: to integrate it gradually into a configuration of bipolar relations. That is, a totalizing unity of the opposing components, to reconstruct the genesis of knowledge (Castorina, 2010). On the other hand, guided interviews following the Piagetian clinical method can be conceived as a dialectical process, as they are characterized by two-way exchanges, a spiral between the interviewer and the interviewee, between the latter's hypotheses and the child's answers, between his counter-arguments and the child's re-elaborations.

Yet, the main problem that we will address in this paper lies in the third dimension: identifying dialectics as an inference and establishing its modalities in the field of the actual explanatory theory of cognitive development. It is here that the originality of its dialectical approach emerges, since the broader version acquires its own specificity and features, arising from the peculiarity of the very process of knowledge development, as a transformation of conceptual meanings.

## **The inferential side of the equilibration theory**

In the late seventies Piaget carried out research aiming to further understand the transformation of concepts, based on the construction of meanings generated in the equilibration processes, postulating

the dialectical inference process (Piaget, 1982): "building new interdependencies between meanings, which constitutes the inferential side of equilibration..." (Piaget, 1982, p.12). It is well known that the equilibration theory of cognitive systems (Piaget, 1985) was a intent to explain how subjects succeed in the transition from a state of lesser knowledge to superordinate states, i.e., of greater validity. Such passage was explained by a process that seeks equilibrium on the basis of a cognitive unstable situation. In this way, Piaget's constructivist epistemology proposed an explanatory theory of knowledge building, involved in cognitive development. From this perspective, cognitive structures go through successive states of equilibrium and disequilibrium. Faced with reality features of the objects that cannot be assimilated to the subject's available knowledge, there is an imbalance that, under certain conditions, expresses as contradictions between the subject's actions or assertions or between these and the objects. Disequilibrium may be followed by a phase of re-equilibration, a constructive activity involving abstractions that generate novelty. This is where dialectical inferences (Piaget, 1982) articulate conceptual meanings, knowledge systems preceding the disequilibrium (functioning as premises), and newly constructed systems (the conclusion).

It is worth clarifying that, according to Piaget, dialectical thinking only exists in moments of transformation or re-equilibration of cognitive systems, rather than when a state of relatively stable equilibrium is achieved, and where thinking produces properly logical inferences. In this sense, contradictions are forms of a disequilibrium leading to or triggering constructive activity. However, inferential dialectics refers to only to the latter. Here lies the interest of such inferences since, unlike other interpretations on dialectics, contradictions or disturbances enable inferences but do not constitute them. In other words, in order to elaborate on cognitive development, the construction activity expressed in inferences is the genuine development of dialectics. Contradictions, at the heart of dialectical approaches throughout history, cannot by themselves result in the emergence of novelty, they are a condition requiring the subject's activity.

Dialectical inferences refer to qualitative changes in the meaning of concepts, relativizing them, while subjects affirm absolute properties at the beginning of the development of ideas, or succeed in articulating the properties of objects within a system, when they were previously separated. Thus, while the equilibration theory attempts to explain the changes in knowledge systems, dialectical inferences seek to specify that a transformation of concepts occurs within these changes. This process usually takes place when integrating a structural system proper to the natural logic or mathematics elaborated by the subjects. Such inferences are produced by processes of reflexive abstraction allowing a reorganization of the system. In defining reflexive abstraction, Piaget himself uses the term *overcoming* (*aufhebung* in Hegel) to characterize the passage from one representation level to another (e. g., from a perspective representation to its theorization) and in doing so, reconstructs or reorganizes conceptual coordination, an abstraction that separates aspects of a system and reorganizes them.

A relevant distinction must be made from a logical viewpoint, deductive inferences are a necessary conclusion derivation from one or several premises. When, in a deductive inference, a proposition inevitably follows from others, the latter are said to imply the former. Clearly, in this type of inference (that

Piaget called discursive after Kant) the conclusion is included in the premises. On the other hand, from a knowledge construction perspective, Piaget appeals to a "strange" characterization when using the term "inference" in classical logic. Dialectical inferences assume a conclusion that would be inconceivable in the absence of premises, but does not necessarily derive from them, because it includes conceptual meanings that are absent in the premises, i.e. novelty. Thus, discursive (or logical) and dialectical inferences produce knowledge that is supported by other knowledge, although the former necessarily derive the meanings that are contained or implied in its predecessors (in the phases of stabilized equilibrium). On the other hand, in dialectical inferences, conclusions are inferred from the premises, but are not contained in them. Such inferences only occur in the reorganization and re-equilibration phases of a knowledge system (García, 2001).

Regarding the relationship between equilibration and dialectics, Piaget distinguishes between the causal and the significant sides of equilibration. The former refers to the operative activity that a subject performs on the world, to which they attribute a logic, insofar as it affects the systemic regulation of their own behavior. The second refers to dialectical inferences as the inferential side of equilibration, which connects the meanings of conceptual transformation, which are not dependent, but correlative to the causal relations with the world and the behavior or actions of the subject. Both dimensions are inseparable in the interpretation of the cognitive equilibration process.

Concerning these inferences in development, one can exemplify this with Piaget's classic experience on the coordination of spatial perspectives (Piaget and Inhelder, 1948), when the subject goes from focusing on the object's singular perspective to a type of thought where the different possible perspectives articulate with each other in the same integrated system. The child can infer how each side of a mountain would look like, from the perspective he sees it, and through which he conceives certain right-left or forward-backward relationships. That is to say, he succeeds in having these relations constitute a system where they become necessary (from a logical point of view) in order to think of the mountain as an invariant in a representation of perspectives. Thus, when reaching the operational concept of an invariant mountain from different perspectives, the inferences made within the new system are logical, but in their construction process they are dialectical, because they go from the non-differentiation of perspectives, to their differentiation and subsequent integration. Thus, a dialectical inference is the process leading to a new system of meanings, by a progressive articulation of perspectives starting from their non-differentiation.

Basically, Piaget (1980/1982; García, 2001) identified five modalities of dialectical inferences in the processes of knowledge construction that do not oppose each other:

1. The dialectic between subject and object where each cognitive advance on the object proves insufficient in the face of other aspects of the same object or the emergence of unexpected problems. This modality refers to the interaction between assimilation, the subject's organizing activity process, and the accommodation of cognitive structures to new properties of the phenomenon.

2. The integration of different subsystems, not necessarily contradictory but alien to each other, up to the developmental moment where they interrelate and, as a result of their conjunction, become part of a new whole that was absent in each individual system.
3. The passage from an initial non-differentiation of the properties of a phenomenon to its differentiation and, finally, its integration into a new totality. This modality implies a "leap forward" (Castorina and Baquero, 2005) of a poorly differentiated system that produces a new totality by means of a restructuration.
4. The relativization of concepts in a cognitive system, considered to be absolute (such as the difference between big and small) to a relativization as a system of differences.
5. Cognitive advancement entails a simultaneous proactive and retroactive construction. A cognitive process enabling progress in relation to the knowledge achieved so far, and at the same time, the latter triggers retroactive modifications that enrich previously created systems.

## **Inferential dialectics in the development of the right to privacy**

After introducing the characteristics of inferential dialectics, we intend to analyze their interpretative potential in the study of social domain knowledge. For this purpose, we will resort to the findings of a study about the conceptual elaboration of the right to privacy by children and adolescents aged 7 to 12 years old in the Autonomous City of Buenos Aires (CABA) in Argentina (Helman, Horn and Castorina, 2021; Helman and Castorina, 2007; Horn, 2021; Horn, Helman, Castorina and Kurlat, 2013;). During this study, we carried out clinical interviews (Piaget 1926, Delval 2001) and observations of school practices. Our findings showed that the subjects developed 4 groups of ideas about their right to privacy at school. Specifically, we were able to identify a developmental trend starting with the unrecognition of the right to privacy, progressing to a recognition of this right - albeit limited to school context conditions - until reaching the unconditional recognition of it, similar to the one established by the international conventions in force. By unconditional recognition we mean that children assert the right to privacy as an attribute that subjects possess and that no external conditions, such as proper school behavior, can restrict (Helman and Castorina, 2007; Helman, Horn and Castorina, 2021; Horn, 2021). Conditional notions, on the other hand, imply a partial recognition of the right by the subject: to benefit from it, some non-legal requirements must be met, such as behaving well in class. Not all subjects are able to construct unconditioned notions about this right, and when they do, they fail to sustain them throughout all the situations arising during the interview.

This may lead us back to the declaration of the right to privacy as a contingent socio-historical construct, related to disputes, consensus and revisions in social sciences and philosophy, as well as to socio-political struggles (Rosenberg and Sussel Mariano, 2010). It was not until the end of the 19th century that the right to privacy was recognized in the Western world for adults, and in the 1980s for children. The historical and contingent nature of this right prevents us from thinking of it as a natural condition for human beings or as a universal objective to be achieved.

In this sense, study results on the construction of children's knowledge about this right suggest a development of ideas not necessarily oriented towards the definitions of the International Convention on the Rights of the Child (UN, 1989) and other declarations of rights (Law 26.061). On the contrary, children understand the right in a more limited way than the latter, given the conditions of the social practices within which they think about the problem, particularly those carried out by teachers. The difference between children's ideas and the declarations of rights prompts us to consider the possible relationship between the cognitive construction of subjects and the declaration of rights. Since it is an indirect relationship, we suggest that the construction of this knowledge by children takes place on the basis of whether or not such a right is embedded in the social practices they participate in.

Within the context of this paper, we return to the findings of this study on the right to privacy (Horn, 2021) in the light of the dialectical inference category. For this reason, we will focus our analysis on two groups of ideas elaborated by children: *benefit expectation and conditional right to privacy expectation*. Next, we will briefly describe the arguments deployed by children in terms of each group of ideas. On the one hand, benefit expectation implies the non-recognition of the right to privacy; those supporting it, consider that the actions performed by school authorities should result in the well-being of children and prevent them from being harmed. This expectation is justified by arguments sustaining that teachers can have access to their students' personal information. Let's look at an example:

The Interviewer tells a narrative where a teacher reads out a letter that two girls were passing to each other during class and asks: What do you think about the teacher reading the letter to them?

Oriana (7; 6)<sup>1</sup>: It's ok

Interviewer: Why?

Oriana: Because in that way she knows what happens or doesn't happen to the girl.

Interviewer: Did you know that a boy your age told me that the teacher was not supposed to read it? Because it was the girl's personal business and the teacher had no business knowing about them.

Oriana: Wrong.

Interviewer: Why?

Oriana: Because afterwards, if she knows what happened to the child, she could help her.

On the other hand, the conditional respect for privacy expectation is an initial discriminatory stage of the right to privacy, while in benefit expectation there was no recognition of it, this new expectation of treating children implies that others should not have access to their personal information. However, the limit to access their personal space is subject to certain constraints that the child or situation must comply with. Relevant to the analysis of the intervention of dialectical inferences in the process of construction of

cognitive novelties is that the conditions that limit the right to privacy are identical to those mentioned in arguments used by children to support the benefit expectation. For example:

The interviewer recounts the situation where the teacher reads a letter that two girls handed to each other during class and asks: And that the teacher grabs it and reads it, do you think that... What do you think?

Jazmín (11;2) On the one hand, I don't think it's fair because they could be saying something personal, they don't want anyone to know and the teacher grabs it...

Interviewer: And so, you were saying on the one hand, you think it's unfair, you think it's unfair that she does that?

Jazmín: Yes, unfair on behalf of the teacher -she means she is acting unfairly-, because she has no business taking that paper and reading it if she doesn't know what it's about.

Interviewer: What do you think the teacher should do?

Jasmine: Uh... Call both of them and talk to them.

Interviewer: And is she allowed to read the paper?

Jazmín: No.

[...]

Interviewer: Now, suppose the child was a misbehaving child, always passing papers around and not paying attention in class. So the first time, the teacher does not read it, the second time she does not read it either, but this third time the teacher picks it up and reads it. What do you think about what the teacher is doing?

Jazmín: I think it's because the girl is disturbing others while everybody wants to pay attention. It seems to me that the teacher should take that paper and read it to see what it is about, because they are passing papers to each other all the time.

In the examples presented, the arguments used by Oriana to support the benefit expectation (Oriana: "Because in that way she knows what happens or doesn't happen to the girl") are analogous to those that condition the expectation of the right to privacy in Jazmín's answers ("I think it's because the girl is disturbing others while everybody wants to pay attention. It seems to me that the teacher should take that paper and read it to see what it is about, because they are passing papers to each other all the time."). This suggests that the conditionings to the right to privacy constructed by the subject can be interpreted in terms of the inferential dialectic being the relationship between two systems of ideas in a new totality. These two systems of ideas are, on the one hand, the benefit expectation and, on the other hand, the respect for privacy expectation. In what we have called conditioning, these two systems are interconnected and become part of a new totality. We can say that the arguments of the benefit

expectation become a subsystem integrated into the conditional respect for privacy expectation providing, precisely, the conditions that limit the recognition of the right to privacy. In this way we see a development of ideas where the first elaborations of benefit expectations are reorganized into a system of new ideas closer to the recognition of the right to privacy.

Further reasons that enable us using dialectical inferences to interpret this development is a progression towards integration seemingly revealed by the existence of an intermediate moment where these two systems coexist, albeit not fully integrated, in a category we have named alternation between the respect for privacy expectation and the benefit expectation (Horn, 2021). In this case one same child considers two mutually opposing types of expectations, such as:

"Interviewer: recounts the situation where the teacher reads a letter that two girls handed to each other during class and asks "What do you think about what the teacher did?"

Gonzalo (10; 2): It's fine.

Interviewer: Why?

Gonzalo: Because when you're in class you don't play, you don't run, you don't pass notes to others. That's for recess.

[...]

Interviewer: Okay. Let me tell you: a boy your age told me that maybe it was not ok that the teacher took it and read it because it was the girls' business and she had no reason for reading it and interfering with their stuff.

Gonzalo: That's fine too.

Interviewer: Why is that okay?

Gonzalo: Because she doesn't have to mess with the girls' stuff.

Interviewer: And what you said before that you thought it was okay for her to read it because it was during class time?

Gonzalo: Well, yes, both of them are fine." (Horn, 2021, p. 11)

We consider that such responses may arise because children only evaluate the beneficial aspect or the respect for privacy aspect, but are unable to integrate both meanings into a greater totality.

This situation can also be understood as a relativization of children's ideas in the constructive process. When children hold benefit expectations, the notion is absolute in nature, as intrusions into their personal space are only interpreted on the basis of this expectation. To the extent that they can interpret the situations presented in the narratives used by the interviewer as an intrusion into personal space, the

benefit expectation is relativized as a consequence of starting to alternate and, mainly to bring its meaning closer and closer to the right to privacy, that is, with the acknowledgement of an expectation of respect for privacy, this expectation becomes part of the conditioning factors or is dismissed in the few cases where unconditionality is found.

<sup>1</sup> Age in years followed by months.

## **Dialectical inferences based on social practices involving the right to privacy as an object of knowledge**

As already mentioned, besides conducting interviews with children and adolescents regarding the right to privacy (Helman & Castorina, 2007; Helman, Horn & Castorina, 202; Horn, 2021), we observed the school practices in which they participated (Horn, Helman, Castorina and Kurlat, 2013) based on the assumption that there is a constitutive relationship between children's ideas and their social conditions. In the aforementioned study (Helman & Castorina, 2007; Helman, Horn, & Castorina, 202; Horn, 2021) the latter were elaborated from the observation of teaching practices. We were particularly interested in identifying teachers' actions aimed at disclosing private aspects of their students. These actions are the background against which subjects cut out their object of knowledge. Below, we will present observation record excerpts that highlight how personal information is handled in the school we surveyed. In the following observational record, a teacher publicly reveals some student's personal information. Such actions have been identified quite frequently within classroom situations:

Observation 4. 8/10/09. P. 11.

During class, an adult walks up to the open classroom door and talks to the teacher: I've come to pick up Eloisa.

The teacher, in a loud voice: Oh, come on in, since you are here, I'll give you her report card. Eloisa has been feeling a little sick since this morning, she went to the bathroom twice. (She says it out loud, clearly audible to the rest of the students in the classroom).

We also found that on some occasions, teachers are respectful of the personal space. However, we must point out that this kind of action is less frequent. The following excerpt is presented as an example:

Observation 1. 29/9/09 P. 7

Recess is noisy. It is impossible to hear what children are saying to each other.

The first-grade teacher (MR) addresses all her students: Don't run!

Teacher Carla pulls Juana (J) away from a group of peers she was playing with and tells her something only audible to her.

In the previous excerpt, we can see that the teacher generates a space for conversation differentiated from public space.

We could also see that the teachers' actions may have other intentions than safeguarding the privacy of information. On some occasions, we found that their interventions go beyond personal space, openly, while other times beneficial intentions can be identified as corrective and exemplary indications.

Observation 1. 29/9/09 P. 15

The teacher (MR) returns to her desk and says: So, Eloisa (E), are you going to tell me how you figured it out? Eloisa, how did you solve it? By counting? We know we can't solve it by counting. I'm surprised that you got the results right and you don't work things out. There are only two ways: either you guessed the results, you have a crystal ball, or you cheated by copying from a classmate.

(E) is still standing behind the desk saying nothing.

(MR) speaks to her again in a loud voice: Eloisa, did you guess?

(E) says in a very low voice: I cheated.

(MR): Well, hand me your communications notebook. Because I don't take you for a fool. I if I say let's go to recess, let's go to recess. If I say let's go to breakfast, let's go. Because I already moved you because you were copying. Where should I put you so you don't cheat? Because later you can't copy because the teacher yells and you get confused.

From the above excerpt, we can assume that disclosing what the student did served a corrective purpose. In this sense, the disclosure of students' actions occurred more frequently whenever they had infringed a school rule.

The elaboration of social notions by children implies reconstructing an object of symbolic knowledge based on social practices: gestures, indications, comments made by social actors within an institution. In previous research on the notion of school authority (Castorina & Lenzi, 1989), we defined this characteristic as the transience of the object such as school authority, which made conceptualization difficult. In the case of the right to privacy, children must elaborate a notion about this fleeting and symbolic practice as occurs with all objects of social knowledge, with the added complexity that respect for this right is sporadic and not systematically recognized within school practices. That is, only in some situations are teachers respectful of their students' right to privacy.

## Final Remarks

First of all, a problematic opening arises from the above: the difference between children's ideas and the declarations of rights invites us to think about the possible relations between the cognitive construction of the subjects and the international declaration of rights. According to our results, children's development

would go in the direction of the prevailing social belief about rights in our society, and not towards the declaration. Therefore, we can suggest a contextual and historical incarnation of common sense philosophy, ideas about rights and ethics of philosophers and theorists of the hegemonic social group, in collective belief expressed in children's social practices and beliefs. On the other hand, as previously exposed, the analysis of the study data showed that in school practices the recognition of children's right to privacy is not systematic and is frequently violated when students transgress school rules. On the other hand, the results obtained from the interviews showed the subjects suspended the recognition of the right to privacy when school rules were infringed and in few occasions they recognized the unconditionality of this right. This convergence between what we have observed in the classroom and children's ideas prompts us to raise a discussion about the production conditions of the latter.

Let us return to the fact that teachers do not systematically recognize children's right to privacy within school practices, implying that the subject's possibilities of abstraction depend on school social practices lacking a clear delimitation of the right. This situation may partially explain that, in our data analysis, dialectical inferences are limited and may not always lead to advanced levels of knowledge. Moreover, we have argued that inferential dialectics is not imposed on the development of ideas, as an a priori shaping their course, but rather emerges from the child's cognitive elaboration of his or her practices. Children rebuild their notions about the right to privacy in their interaction with the teachers' interventions.

The development of ideas in our approach is not linear because it takes place in a context of institutional relations that either enables or impedes it. Due to the intervention of these conditions in school practices, subjects may elaborate weak dialectical inferences, revealing that these do not necessarily lead to an unconditioned version of the right to privacy. It should be clear that from our approach these conditions do not determine the abstractions made by the subjects, but are understood as a contextual background where something occurs, in this case dialectical inferences. That is to say, the school institution establishes the personal space, the way children's spaces are treated, and it is within this intervention of the school system that children are able to think about their right to privacy. It is about a regulation by collective norms, by contextual conditions that enable certain types of ideas, in positive and negative terms, that give rise to productive elaborations or disable the development of certain ideas that cannot emerge in that context. Only under these conditions, "in their presence", the subject can construct knowledge by articulating conceptual meanings. Moreover, neither the elaborated ideas, nor their development can be understood without considering them as part of a dynamic unity between intellectual activity and the context that enables and directs, in part, the thinking process. These statements are close to the idea of catalysis (García Palacios, Shabel, Horn, & Castorina, 2018; Valsiner, 2014;) that rejects the idea of a context that linearly determines development but rather enables or reinforces a certain direction.

Now, from an epistemological point of view, we can analyze the peculiar relationships arising within social knowledge between the subject and the object of knowledge. When interacting with the institutional actors in school practices, the subject constitutes the object "right to privacy", however, the intentionality of other institutional actors, as social objects, affects the subject of inferences. In other words, they guide cognitive activity. We would like to take up Habermas' idea (Lenzi & Castorina, 2000)

that social knowledge produces an “object’s revenge on the subject”, meaning that the children's commitment to the school institution largely structures the elaboration of certain ideas. The peculiarities of the social object act literally rather than metaphorically on the subject. That is to say, the social subject's activity implies assuming an intentional reciprocity with other interacting actors such as teachers or school principals. It not only involves interpreting the intention of others, but also what society, in this case the school, intends for him/her. In short, in the context of institutional relations, intentionality emerges as a characteristic of the relationship between subject and object of knowledge.

In summary, in the case of the notion of the right to privacy, children must elaborate it in opposition to the disciplinary intentions of the educational system, or in the loopholes it allows. They must cut out a space alien to the intervention of teaching practices, or at least, consider the diverse modalities of teachers' intervention, who do not always recognize privacy. Generally speaking, such intervention is not determinant, and creates opportunities to think, or to construct ideas.

Lastly, we are interested in highlighting an aspect involved in the construction of knowledge, the subject's vivid commitment in his/her interaction with educational actions. Cognitive elaboration requires estrangement from those experiences that involve him/her affectively. We may state that the construction of knowledge on social life issues, as opposed to those referring to natural objects and phenomena, implies considering the experiences and interpretations of the actors from "within" their experiential participation in those events, charged with affections and beliefs. In general terms, social knowledge cannot be achieved unless an epistemic continuum is considered, ranging from the affective and evaluative commitment of the social actors to the phenomena they intend to understand and the "distancing" required to get to know them. In other words, to conceptually reconstruct lived experiences one must transform them into objectified knowledge by means of abstraction and systematization efforts that are part of the dialectical inference process under analysis. This dialectic between commitment and intellectual construction - already highlighted by Elias (1989) regarding social sciences - bears testimony to the peculiarity of how dialectical inferences are made concerning social knowledge. A dialectical rationality that develops independently of the vivid link it establishes with school practices stands in opposition to this affective and evaluative commitment to the object of knowledge.

## Declarations

**Authors’ contributions statement:** Axel Horn, José Antonio Castorina and Alicia Barreiro work together in writing the manuscript. Axel Horn had more participation in sections dedicated to the study on right to intimacy and José Antonio Castorina in the sections on dialectics in Piagetian work. Alicia Barreiro contributed through along the different sections discussion ideas and writing.

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