



International ISCAR  
Summer Seminar  
for PhD Students



**CULTURAL-HISTORICAL  
PSYCHOLOGY:  
INTERDISCIPLINARY RESEARCH  
PERSPECTIVES & SOCIAL PRACTICES**

**COLLECTION OF ABSTRACTS**



**July 6–8, 2020**

**Moscow State University  
of Psychology & Education  
Moscow, Russia**



MOSCOW STATE  
UNIVERSITY  
OF PSYCHOLOGY  
& EDUCATION

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**ББК 88.8**  
**М74**

**Cultural-historical psychology: interdisciplinary research perspectives & social practices. Collection of Abstracts.** – M., MSUPE, 2020. – 139 p.

*This publication introduces materials of the International ISCAR Summer Seminar for PhD students. Scientists and young scholars from around the world conducting studies within the framework of cultural-historical psychology presented their research here.*

**ISBN 978-5-94051-217-2**

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## **Science education during preschool years. A cultural-historical approach**

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The main purpose of this lecture is to address to the complexity of Science Education in the early years and to focus on the cultural-historical frame of learning in which education in general terms has immediate connection with science and culture, both seen as processes of continuous evolution and interaction (Plakitsi, 2013).

According to the cross-disciplinary approach in the early years curricula (2011), Science Education is considered a unity including Physics, Biology, Chemistry, Environmental Education and Education for Sustainable Development. Concepts are approached within the five learning frames, that is, games, routines, everyday life situations, explorations and organized learning activities, all of which provide pupils a holistic view of the world around them. At this level, all units are dealt through a horizontal linking and not as independent fields of study and furthermore, they are connected with society and culture.

Within this frame, concepts are considered as a cultural-historical product of the wider community, transmitted to the subject by instruction. The pupil's actions can be understood in terms of a concept acquired by the subject which makes sense of a whole system of their actions (Blunden 2013). Vygotsky (1987) considered concepts as units of a culture and claimed that the level of development of scientific concepts forms a zone of proximal possibilities for the development of everyday concepts. In his chapter 'Thinking and Speech' on the development of scientific concepts, Vygotsky (1987, chap.6,) he intrigued a discussion of an issue on education, that is of extreme importance, concerning the development of scientific concepts during school instruction as well as their connection with the child's consciousness.

There is a complexity within the social (societal-political) practice which can appear at science education in the early years which has been proved to be a contradictory issue. Furthermore, development is a very complex and contradictory process and it involves qualitative change (Fleer & Veresov, 2018). The development of concepts and categories is dialectically connected with moments of change as an inner element.

Dealing with scientific concepts in a science curriculum in early childhood education gives pupils the opportunity to understand their surroundings, which in fact are their lifeworlds. In this sense, they can talk about their experience, provide explanations, and finally perceive and comprehend the concept. As a next step, emerging topics have to be studied in depth, which



means that children will be involved in structured activities mediated by artifacts. Artifacts provide resources to structure activities, mediate conversations, prepare and set up scenarios in which actions and conversations about scientific concepts may unfold (Roth et al, 2013).

Cultural Historical Activity Theory (CHAT) focuses on the connection of school instruction with everyday life and provides artifacts and approaches for analyzing collective activity, interactions within a community of practice and structural change and development (Plakitsi et al 2018). The unit of analysis is the activity which includes the person or group who is acting towards an object, following certain rules and the dynamic relationships that develop within the activity system. Contradictions that occur include the possibility of changing the learners' opinions and consist of important issues in the process of the collective learning (Engeström, 2016).

Towards this direction, the Activity Theory in Formal and Informal Science Education (@fise) research group in the University of Ioannina, Greece conducted research for a decade and developed a new methodological tool for designing and analyzing Science Education activities, SCOPES. SCOPES includes the key research terms that have been used by the @fise research group, that is, Systems of activity, Contradictions, Outcomes, Praxis, Expansive learning, Science education. Within this frame, scientific learning in the early years is developed in expansive learning cycles, involves object-oriented activities that seek for an outcome, combines theory and praxis and finally focuses on the analysis of contradictions in the activity systems.

Scientific knowledge is considered a result of human actions connected with real life situations and affecting the contemporary world in which learners live. Design and analysis of science education activities within the methodological framework of SCOPES can make science teaching challenging for the classroom community and support and expand the context of science education beyond school instruction. Thus, Science Education can offer the potential of reaching an advanced level of scientific knowledge with connections to the society in its cultural and historical evolution. SCOPES supports learning in multidimensional contexts and addresses to new researchers, curriculum developers and practitioners in science education.

As a next step, we propose an in-depth discussion on the following issues concerning early years Science Education within a cultural-historical frame:

- What is required for the teacher and the students to expand the activity of learning in Science Education?
- How does a teacher consciously and unconsciously conduct her/himself in and toward this trajectory?
- What are the conditions that permit the emergence of a curriculum based on scientific concepts?
- If we consider concept formation as crucially dependent on cultural mediation what is the role of cultural artifacts, including signs?

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## **Development and learning in the context of social interactions: L. Vygotsky vs J. Piaget**

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### **1. Intellectual development in the context of social interactions in the theory of Piaget**

According to J. Piaget:

1. The fundamental of human intellectual development (the development of thinking) is a qualitative change in the forms of experience, based on the performance of one’s own actions.
2. The means of performing individual actions under conditions of S O interactions are the emerging structures (“knowledge” about the object and the structures of action subordinate to them).
3. The invariants of action (reflected experience) take shape of action schemes (an action scheme is a structure at a certain level of mental development, a mental system or integrity, which principles of activity are different from those of the parts).
4. Cooperation (collaboration) allows to fulfill the correct transfer of a concept, starting from the stage of concrete operations. The condition for such a transfer is a sociocognitive conflict – a new type of relationships between agents that replace the relationships of prestige and authority characterizing the preoperational stage of cognitive development.
5. The individual intelligence socialization (the transition from individually subjective to social) is the main direction of cognitive development. Socialization is impossible without cooperation and collaboration, without including individuals into the actions of various communities.

### **2. The law of mental development in the theory of J. Piaget**

The main achievement of J. Piaget is the discovery of the egocentrism of children thinking. *Egocentrism* is the main feature of thinking, a hidden mental position that reflects the peculiarity of children’s logic, children’s speech, children’s ideas about the world.

The basic law of mental development in J. Piaget’s theory is the law of *decentration*, the law of transition from general egocentricity to intellectual decentration, which is expressed in the child’s transition from egocentrism to an objective position in learning things, other people and him-/herself. The ground of the transition from an egocentric to an objective position is the process of socialization, that is, the transition from the individually subjective to the social.

According to J. Piaget, 7–8 year old children experience a *sociocognitive conflict* when interacting with adults and peers. This conflict arises when the point

of view of others becomes significant and has to be taken into account when performing one's own actions. *Piaget considered the sociocognitive conflict to be the main mechanism for the development of intelligence in cooperation.*

### **3. The role of social interactions in the development of children's thinking in the scientific school of L. S. Vygotsky. The law of development of higher mental functions**

L.S. Vygotsky considered social interactions and social relations as the initial basis (source) of development. "Behind all higher mental functions and their relationships stand genetically social relationships, real relationships, homo duplex (a dual person – Latin). From here comes the principle and method of personification in the study of cultural development, that is, division of function between people, personification of functions. For example, voluntary attention – one possesses, the other one acquires. Dividing again in two what had been fused into one, experimental unfolding of a higher mental process (voluntary attention) into a small drama"<sup>1</sup>.

The idea of mastering the function, as the one originally divided between an adult and a child, was realized on the ground of the double stimulation technique developed by L. S. Vygotsky and L. S. Sakharov, This technique is a prototype of the genetic-modeling method for studying the development of higher mental functions created by L. S. Vygotsky. Using the double stimulation technique as an example, L. S. Vygotsky managed to prove that the formation of a concept (acquisition of meaning by a meaningless word) is the result of a complex active joint activity of an adult and a child (a co-action based on making operations with a word or a sign), where all the main intellectual functions take part in a peculiar combination. The tenet, that individual consciousness is a product of the internalization of this activity, is also fundamental to L.S. Vygotsky. "... *Not the gradual socialization introduced into the child from the outside, but the gradual individualization that arises on the basis of the child's internal sociality is the main path of child development.*"

### **4. Socio-genetic method of research of development in learning**

Further development of the provisions of cultural-historical psychology in D.B. Elkonin – V.V. Davydov scientific school made it possible to take a fresh look at the study of the mechanisms of the development of thinking, allowed to connect these mechanisms *with qualitative changes in the social situation*, associated with the development of forms of collective-joint activity. When designing this type of situation, we assumed that:

1. The study of social interactions and the process of concepts mastering cannot be limited to studying them just as parallel processes.
2. The method of experimental research of the concepts formation process should be *socio-genetic* (compare with the "genetic modeling method" of L. S. Vygotsky). The ground of this method is the principle of *inter-media-*

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<sup>1</sup> Translated by authors / L.S. Vygotsky, 2003, p. 1023, highlighted by me. – V.R.

tion of subject structures and joint activity structures: the subject content of the object, which determines the content of the concepts mastered, is mediated by means of interaction of those participating in the social situation.

3. Since the interactions and relationships of the participants themselves determine their understanding of the relationship among various actions with the object, the properties of object structure and relevant concepts, the organization of adult-children interactions and the interactions of children themselves is a prerequisite for the implementation of joint actions.
4. The method of joint actions, which correspond to the system of mastered concepts, characterizes the basic didactic unit that defines the requirements for organizing the social situation.
5. It is necessary to specifically explore and design the social situations based on mediation of the subject content of the object via the ways of interaction of its participants; to analyze the child-adult communities and joint forms of activity emerging in this context, and consider them as the initial forms of origin and development for emotional-semantic and symbolic-semantic structures that determine the processes of concept system mastering.

The socio-genetic method developed by us meets the requirement, where the relationships and interactions of participants in the social situation determine the conditions for the development of child-adult communities based on co-action and appropriate forms of joint activity. Numerous studies carried out in accordance with this method are presented in a system of methods, the use of which allowed to obtain new data on the role of social interactions of an adult and children, on children themselves in the development of children's thinking, and allowed to prove the influence of emerging child-adult communities on the success of learning.<sup>1</sup>

The results of recent studies, obtained in the context of application of the developed method, confirm the fact, that the interrelations of *communication*, *shared understanding* and *ways of interaction* can be considered an integral factor indicating the inclusion of children into a joint way of problem-solving and, accordingly, considered to be a meaningful characteristic of the emerging community relying on co-action and determining the zone of proximal development (ZPD) of higher mental functions in children in a learning environment<sup>2</sup>

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<sup>1</sup> Rubtsov V.V. Learning in children: organization and development of cooperative actions, NY: Nova Science Publishers Ins,1991 r.

<sup>2</sup> Rubtsov V. V., Konokotin A. V. Formation of Higher Mental Functions in Children with Special Educational Needs via Social Interaction in Evaluation and Treatment of Neuropsychologically Compromised Children. – Elsevier Inc, 2020.-358 p.[179–195].

## **The expansive resolution of conflicts of motives: a fruitful avenue to understand the transformation of teachers' practices**

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The purpose of the presentation, inspired by Vygotsky's principle of double stimulation and drawing from the results of two research projects in the field, is to discuss the relevance of science teachers' emotional experience in the decision-forming process that brings them to question, reflect and engage in professional development. The originality of Barma's work emphasizes the relevance of documenting the expansive resolution of conflicts of motives as a key element to better understand why teachers engage in profound transformation when it comes to their teaching practice.

The first part of the lecture will focus on how dialectical discursive analysis of sessions with science teachers is useful for the purpose of identifying a first stimulus (in the form of conflicting motives) and better understanding how the resolution of these clashing motives produces momentum for engagement in the decision process to build a second stimulus in the form of new pedagogical teaching strategies. Secondly, from the standpoint of science education researchers and practitioners working with cultural activity theory, we present why and how the new teaching strategies put forward by the motivated teachers (mostly open-ended contextualised problem-solving tasks) foster theoretical generalization among students instead of restraining them into empirical categorization.

Vygotsky's principle of double stimulation is fruitful in the understanding of the building of higher mental functions through two series of stimuli. It also explains individuals may deal with conflict of motives: "Double stimulation comprises conflictual aspects, in particular conflicts of motives. Together with the two stimuli, conflicts of motives constitute the core of a strategic setup that human beings establish to intentionally affect their behaviour and the world around them" (Sannino, 2015, p. 1). Sannino also suggests that they are key components of the method of double stimulation, which is also a principle of agency. This makes it possible to trace the agency involved in breaking away from a situation of conflict of motives. The conflictual situation constitutes the first stimulus and is a necessary element to trigger transformative agency (Engeström & Sannino, 2013). For example, a teacher can employ, as an external artefact, a pedagogical strategy as a second stimulus, investing it with meaning in order to make and act on a conscious decision. Nevertheless, there could be more than making a conscious decision and, as Vygotsky points out: "duality is at the very foundation of the volitional act, and this duality be-

comes especially prominent and vivid whenever several motives, several opposing strivings, clash in our consciousness” (Vygotsky, 1997, p. 167–168). Leont’ev (2005) also reflects on conflicts of motives and argues/

that engaging into volitional actions is more than just about choice and decision making (Barma, Lacasse & Massé-Morneau, 2014).

These premises constitute solid ground for investigating how agency emerges when science teachers feel trapped in their practice as they address many issues at work and demonstrate a will to gain control over them. One of the fundamental points of activity theory is that development is seen, not as a series of gains, but as a series of transformations that are rather revolutions in the dialectical sense than a smooth evolution process (Davidov, 2008, Ilenkov, 1982, Vygotsky, 1997, Zaretskii, 2017). In that light, we ask ourselves some questions while examining science teachers’ practice : Amidst contradictory motives and choices to make, how does their will form? How do they gain self-control over a difficult situation in the science class? Barma’s work documents that science teachers often feel at the mercy of curricular prescriptions and top down demands from the school organisations. One of the most frequent problems they encountered is that they have to focus on ensuring that students perform at mandatory exams assessing content only. They feel their students lose motivation and that their teaching strategies are decontextualised. Eventually, they engage in controlling their practice by resolving the conflicting motives for their own purposes, not yet knowing how they would act yet, although ready to make a decision. It is at this point that the stimulus is converted into an auxiliary motive and it makes the implementation of the decision possible to begin.

Between 2010 and 2017, Barma’s research teams followed the implementation of a new curriculum in two different schools settings. In the first school setting, 5 participant science teachers acted as co-creators of teacher training workshops for more than 170 peers coming from 15 school districts (2010–2017). The participants expanded their professional practice while dealing with conflictual situations along the way. Giving voice to the emotional experiences of the participants and documenting the expansive resolution of conflicts of motives led us to understand how agency emerges and why it is key to the transformation of professional development of teachers. Some answers could help us to better understand relations between emotions, agentic transformative actions and the *perezhivanie* as an act of experiencing in praxis. In the second school setting (2009–2012), the controversial question of climate change destabilised two 10<sup>th</sup> grade science teachers and it triggered the development of a new teaching practice. We will discuss the relevance of viewing science education as a means for the development of a person’s capacity, in a sociotechnical society, to build for him/herself a field of autonomy, communication and negotiation with his/her environment and go beyond the teaching to the test perspective.

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We will present: 1) how we identified conflicts of motives related to their teaching strategies and their own representation of climate change; and

2) how, in resolving these conflicts of motives, they gave new meaning to their teaching activity and model a new teaching approach (Leont'ev, 2005, Barma, Lacasse et Morneau, 2015).

To document the formation of agency in terms of resolution of conflicts of motives, 1003 speaking turns of four audio-recorded sessions with teachers were transcribed and analyzed over the two years. The criteria to select the units of meaning were the presence of opposing forces potentially revealing conflicts of motives in the speaking turn: struggles, obstacles, tensions and clashes. Some questions emerged as we supported the science teacher's individual and joint agency and documented that, even if the teachers had resolved the conflicts in their science classes, it had now moved to the school level.

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## **Distance learning for a transformative dimension of learning and an inclusive school**

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Universities and schools, due to the COVID19 health emergency, found themselves working differently in this 2020, and will probably have to foresee further changes to their training system, to adapt to changing and sometimes unpredictable needs and circumstances. The scenario of distance learning, and the ways of learning that educational institutions have had to face in these months of pandemic emergency, pose a series of questions on their social responsibilities, but also on the nature of learning in emergency contexts. The pedagogical reflections today, even more, urgent than before, concern precisely how to mediate and face needs, emergencies with some unavoidable foundations of the educational process. In recent years, formal education, the task of school and university institutions, has always focused on laboratory, active, constructive, authentic, collaborative educational approaches to promote harmonious development, not only cognitive but of values for socialization and for significant learning. These adjectives, which recall all the characteristics of an active pedagogy, from Dewian activism to Vygotskian-inspired theories of action, seem to be difficult to reach through distance learning. But this apparent contradiction, forced by the emergency, can serve to reflect, even more, today, on the meaning of education and teaching.

Here then we can analyze and discuss the new educational dimensions opened by distance teaching, using some reflections, taking up the historical-cultural approach and some theoretical reflections offered to us by Vygotskij.

The basic axiom is: “The educational process, the activities promoted by teaching are never a static and constant act”. Here then, activating students differently, activating teachers differently in an environment that has forced us to change relationships, communications and daily life brings us back to the dialectical and variable dimension of the teaching / learning process. And above all to ask ourselves about the resources and skills necessary to manage the unpredictable situations and dynamics of teaching and learning.

Distance teaching, improvised or planned in recent months, teaching until March 4 in Italy (which we now call with some nostalgia “in the presence”), or a mixed (blended) approach that we may aim for in the near future, coming out of this pandemic period, they are all forms that the educational process can take consequently to organizational or emergency choices. The fact is that all must guarantee those educational characteristics

of a responsible, laboratory, authentic, collaborative process that promotes harmonious development, not only cognitive, but of values for socialization and significant learning.

The emergency pedagogy (emergency in education) lends us some tools for reflection (see Isidori, Vaccarelli, 2013).

Pedagogy, with these characteristics, must reflect on how to re-establish safety conditions, and a renewed balance and encourage educational and development processes in discontinuity.

“Emergency pedagogy can be proposed as a pedagogy: **reflective**, if it goes into greater depth in categories such as risk, uncertainty, a sense of precariousness of existence, trauma, stress, resilience and resistance, etc.; **exploratory**, since it addresses, also through empirical research, the knowledge of the emergency phenomena considered in their impact on individuals, educational institutions and communities; **critical and transformative**, since it works to raise awareness and involve social actors in the management (democratic, participatory, from below) of decision-making processes that concern interests and common goods, in the redesign of territories and in the reconstruction of social and community tissues; **operational and methodological**, since it studies and applies models useful for primary and secondary prevention, it identifies actions and best educational practices to deal with crisis situations; **oriented towards disciplinary openness**, since it establishes interdisciplinary relationships (especially with emergency psychology and social sciences) and intradisciplinary relationships (social pedagogy, intercultural pedagogy, adult education, pedagogy of deviance, teaching, etc.) in order to better define research and intervention concepts, methods and tools “(Vaccarelli, 2017, p.348)

It is too easy to recall here the centrality of the theory of the potential area of development (Vygotskij, 1934), to give substance to the pedagogical plan which underlines how learning is not only an individual process, but that takes place with the help of others, that every educational intervention must be aimed at supporting the effort of those involved in the process of psychological and cognitive development, but also, by contrasting the psychometric drifts, that the assessment must take into account the collaborative and potential dimension in the progress of learning. And again, remember the dual function, defined as “scaffolding”, of problematization and support of the inter-action and learning processes, well discussed and argued by Bruner (1976). Describing the methods of interaction between a tutor and a child in building a three-dimensional pyramid in wooden blocks highlights how much the help of an expert figure can lead to go beyond the “effective area of development”. The skills actually acquired by a subject at a certain moment of cognitive development can grow differently if supported, supported by a

tutor (adult, expert, teacher, but also equal). This support, when effective, leads to the redefinition of the role of the teacher, who becomes a mentor, tutor, but also a critical friend in supporting and enhancing development and success, at school and socializing in learning.

The constraints to which the pandemic has exposed us, the need to activate more articulated teaching and substantially that guaranteed social “distance”, have put in crisis the entire training system, made of relationships in presence, social interactions and closeness to we were used to and the school organization fed on. But precisely the need to maintain those social relationships, that interaction and relationship between individuals, has forced in these months of isolation and distancing, which Covid-19 has imposed, to enhance the technological and symbolic tools that have arisen over the past decades widespread in our societies and cultures. We are faced with a change in educational and pedagogical steps, forced by the emergency, but which reveals the centrality of learning models in changing cultures and through new symbolic and communication systems.

In many passages and reflections Vygotsky invites us to think how much the activation of “signs” systems, socially and individually used to communicate, becomes “ground” for the development of our cognitive functions. And today digital, distance learning has led us to think, also because forced by the emergency, to a transformation of our teaching strategies. Interaction with others and the crucial role played by linguistic exchanges, between adult and child, between teacher and student, communicative approaches that use different tools and signs lead precisely to the processes of internalization and the development of higher psychic functions. By changing the means, the communication channels, we modify both the signals themselves, and the functions and messages of this communication, to take up a lexicon dear to the communicative functions theorized by Jakobson (1966).

But the problem that arises, of course, is how much alongside the operational and instrumental use of technologies are associated those educational models and “democratic” contributions that a schooling must pursue. Without neglecting the issue of the emergency in which COVID-19 has thrown us, we must ask ourselves, especially in view of what will be a reopening of schools and universities “in the presence”, what we managed to guarantee, before the pandemic, during the emergency, and when we come out of it, those dimensions that Vygotsky’s psycho-pedagogical approach has clearly shown in his writing addressed to the “masters”, Pedagogical Psychology (1926). Some steps to articulate the speech:

“From a psychological point of view, the teacher is the organizer of the educating social environment, as well as the regulator and controller of his education with the student. And if the teacher is powerless in direct interaction with the pupil, he is instead omnipotent for

the direct influence on him through the social environment. The latter is the real lever of the educational process and the whole role of the educator is reduced to the management of this lever “(trad. It. Ed. 2006, p.95).

The dimension to be defended today in the name of a democratic school is that of inclusiveness. Term to be understood in the broadest sense of school for all and for all (see UNESCO, 2009), which recalls the various Vygotskian and Dewian categories of the active and dialectical school.

“Inclusive school is a process of strengthening the education system’s ability to reach all students. ... An ‘included’ school system can only be created if ordinary schools become more inclusive. In other words, if they become better in the education of all the children in their community “(UNESCO, 2009, p. 8).

Promoting inclusion means stimulating debate, encouraging positive attitudes and adopting school and social structures that can address the new demands that are now being presented to school structures and to the government. This means improving contributions, processes and environments to grow the student’s culture in his environment and, systemically, to support the entire learning experience “(UNESCO, 2009 p. 7-9).

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## Imaginative mutual concept creation in digitalized daycare centers

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How can digital tools in daycare settings help with developing the imagination and knowledge of young children? Where are the limitations of using these technologies in such institutionalized pedagogical settings? And what understandings of development, of imagination, of knowledge creation, and of (digital) technology could we draw on in order to truly take a point of departure in the social situation of the child, in the child's societally mediated and yet unique motives?

Empirically, I take up these problems from within the context of Danish Early Childhood Education and Care (ECEC) institutions. As I recently underlined in a [blog post](#), Denmark has been known for its high acceptance of technology-welcoming discourses. In 2014, a report commissioned by the Danish Agency for Digitisation under the Ministry of Finance asserted that “digital media came to stay” in Danish ECEC institutions. By 2017, up to 65 % of all Danish day care centers used digital tools in their pedagogical work with children at least once a week. The latest digital communication tool, *Aula*, commissioned by the municipalities association Local Government Denmark, will be adopted by almost every Danish municipality in 2020 and collect teacher-parental communication all the way from the crèche to 9th grade. In sum, digital tools are widespread in Danish daycare centers, though first and foremost used for administrative purposes and institution-parent communication, and apparently slightly less for pedagogical (or rather didactic) purposes. Meanwhile, what ECEC digitalization's more overarching societal and democratic purpose is, beyond mere economic interests, as well as what its actual relevance is for supporting children's development and learning, remains largely undiscussed (see also Balslev, 2020).

Inspired by Vygotsky's 1929 article “The fundamental problems of defectology” (Vygotsky, 2004a), I suggest that children's knowledges remain surrounded by an aura of defectiveness when contrasted with adult knowledges, most often negatively defined as what they have not yet become (see Chimirri, 2019). This creates a problem, namely that we (adults) do not conceptually feel afforded to finding out what there is to learn from children about the digitalized world. But we are in dire need of children's knowledges, for instance in order to be able to co-imagine what a pedagogically and societally meaningful use and development of digital tools could look like: we need to be able to relate to the child's social situation of development, to the child's needs and motives, from within our fellow activity with the child, irrespective of the child's age, from within our joint everyday life.

I will make this argument by drawing on Vygotsky's "Imagination and creativity in childhood (Vygotsky, 2004b), on Wartofsky's (1979) artefact theory, on Hedegaard's chapter about pre-school children's development of concept relations (Hedegaard, 2007), as well as on her insight that children not only meet demands, but also put demands on others, including adults and societal institutions (Hedegaard, 2012). In my reading, then, children constantly seek to co-determine their own social situation of development by inviting into transgenerational mutual concept creation, by formulating their demands – but do we understand these demands? And do we take them serious enough to have our social situations of development be co-determined by children? Or do our ontological presumptions about children, about pedagogy, about development and learning, limit the creation of sustainable conceptual knowledge about the purposefulness of digital tools in ECEC?

Discussing these questions, the presentation calls for a more democratic self-understanding of the researcher, or actually: of every adult; a self-understanding that implies humility, mutuality, and the willingness to actively and imaginatively co-transform one's conceptual relations to the world – inspired by Stetsenko's (2008) transformative activist stance and in line with German-Scandinavian critical psychology from the standpoint of the subject and its democratic practice research ethics (see Chimirri & Pedersen, 2019).

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## **Developing cultural-historical theory in times of crises**

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The dramatic social changes and crises motivate scientists across a wide range of disciplines, including psychology address crucial theoretical and practical issues and look for new ways of acting in the social world. Business, as usual, is no longer acceptable in the midst of an acute crisis.

The disappearance of the social and the rift between individual and social are among the most important dimensions of the crisis in psychology. Due to the dominance of individualism, mainstream North Atlantic psychology has failed to adequately address social problems and respond to the dramatic social changes.

Cultural-historical theory of development with its focus on crises, qualitative reorganizations, transitions, dynamic of mediating activity, etc. cannot remain static, especially when substantial social changes take place.

Vygotsky has employed the concept of the crisis in the context of a critique of psychology as a “problematic” discipline as well as for the articulation of the specific mechanisms related to psychological development.

The concept of crisis should be considered in its interrelationship with other concepts of the cultural-historical theory. The concept of the crisis is a moment of a dialectical account of human development in terms of drama. In other words, human development is examined in terms of dramatic collisions, conflicts, crises that create a dynamic space of possibilities for unforeseen changes.

Cultural-historical understanding of the crisis differs from the positivist account of continuous, quantitative, accumulative growth and the post-modern celebration of discontinuities and differences. Cultural-historical understanding of the crisis is based on the dialectical relation between continuity and discontinuity, qualitative and quantitative transformations. This dialectic relation changes in different stages of the developmental process.

The cultural-historical theory with its focus on a dialectic of change, becoming, and proximal development is a future-oriented theory. The projection of what could or should be in the future and the implementation of future-oriented, collective actions is especially important in times of crises.

There is an urgent need to rethink and develop further cultural-historical theory in times of dramatic social changes and crises. Taking into account collaborative nature of Vygotsky’s project, it is argued that this ‘supertask’ (in Stanislavski’s terms) cannot be solved without the creative cooperation and collaboration amongst scholars from different generations and continents as well as across various disciplines. A critical reflection on cultural-historical theory and its further development involves active, collaborative, transformative engagement with the social world.



## **The development of activity theory as it is applied to the study of social practices**

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This paper is concerned with the influences that are brought to bear on the design of school buildings and the effects that the design of these buildings have on those who teach and learn in them. It also focuses on the ways in which design is altered in and through the practices of these occupants.

We deploy the theory of socio-genesis developed by LS Vygotsky and the sociology of pedagogy developed by Basil Bernstein in order to study the consequences of different trajectories of transfer between different designs and cultures of primary and secondary schools in England. Our intention is to contribute to current debates about the effects of new school designs and the enduring concerns raised by difficulties that some students encounter in transitions between schools.

This paper draws on sociologies of cultural transmission and activity theory as it considers the relationship between design and practice and the impacts on individuals in the context of the design, construction and occupation of schools. The specific focus is on the transition between primary and secondary schooling in years 6 and 7 of the English system of schooling. This paper builds on previous studies published in this journal. In Daniels (1989) a study of wall displays as tacit relays of the structure of pedagogic practice suggested that the grammar of pedagogic practice of a school is both revealed and relayed indirectly by visual representations of significant texts. In Daniels (1995) it was argued that the suggestion that different types of schooling give rise to different types of effect carries with it questions of structural fitness for purpose and that differences in the structure of pedagogic practices constitute differences in contexts which are of semiotic significance. More recently, in Daniels (2010) an analysis of communicative action provided an approach to the consideration of the sequential and contingent development of concepts over time in specific institutions.

In the study reported here we were concerned with school designs as explicit and tacit relays of the structure of pedagogic practice as students moved between different structures of pedagogic practice over time. We followed students from the end of year 6 in their primary schools through their transition into year 7 of their secondary schools. We were examining the implications of moving from one pedagogic environment to another and one physical / design environment to another. Our concern was the effects of continuities and discontinuities in these trajectories. Thus our focus was on the effects of change in physical and pedagogic factors at the institutional level as experienced at the personal level by students.

### ***Vygotsky, Bernstein and Design.***

From Vygotsky (1987) we argue that engaging in the pedagogic discourses (thought of as tools) and practices of each school transforms the activity of schooling and gives rise to specific orientations to meaning. These are the tools which mediate thinking and feeling and are in turn shaped and transformed through their use in the activity of schooling. In this way processes of co-creation of individual / psychological and cultural / historical factors become interwoven. From Bernstein (2000) we develop an account of the regulation of these discourses and practices as institutional modalities (or most typical forms).

Where the theory of instruction gives rise to a strong classification and strong framing of the pedagogic practice the spaces used for instruction would be expected to be strongly demarcated. Single cell classrooms designed for single classes of students would be expected. The relatively strong control on the pupils' learning, itself, acts as a means of maintaining order in the context in which the learning takes place. The form of the instructional discourse contains regulative functions. With strong classification and framing the social relations between teachers and pupils will be more asymmetrical, that is, more clearly hierarchical. As in Hoadley's (2006) study there would be an expectation that the teacher would occupy space at the front of such classrooms. In this instance the regulative discourse and its practice is more explicit and distinguishable from the instructional discourse. Where the theory of instruction gives rise to a weak classification and weak framing of the practice then children will be encouraged to be active in the classroom, to undertake enquiries and perhaps to work in groups at their own pace. In this version of a personalised approach curriculum subjects may be abandoned in favour of themes to be explored through project based enquiry. A mixed economy of spaces with large open areas and smaller breakout spaces for small group or individual study would facilitate this form of pedagogic practice. Here the relations between teacher and pupils will have the appearance of being more symmetrical. Teachers would be unlikely to retain 'ownership' of particular spaces. In these circumstances it is difficult to separate instructional discourse from regulative discourse as these are mutually embedded.

#### Discussion

Hundeide (1985) has shown, in a study of the tacit background of children's judgements, how participants in an activity, in part, create the setting. These 'taken for granted background expectancies' reflect in part the socio-cultural experience that the individual brings to the situation.

'One needs a framework that takes into account the historical and cultural basis of individual minds: the collective institutionalized knowledge and routines, categorization of reality with its typifications, world view, normative expectations as to how people, situations, and the world are and should be, and so forth. All this is tacit knowledge that has its origin beyond

the individual, and it is this sociocultural basis that forms the interpretive background of our individual minds.’

Hundeide (1985) p.311

Bernstein’s (1981) paper outlined a model for understanding the construction of pedagogic discourse. In this context pedagogic discourse is a source of psychological tools or cultural artefacts.

‘Once attention is given to the regulation of the structure of pedagogic discourse, the social relations of its production and the various modes of its recontextualising as a practice, then perhaps we may be a little nearer to understanding the Vygotskian tool as a social and historical construction’. Bernstein (1993)

He also argues that much of the work that has followed in the wake of Vygotsky ‘does not include in its description how the discourse itself is constituted and recontextualised’

‘The socio-historical level of the theory is, in fact, the history of the biases of the culture with respect to its production, reproduction, modes of acquisition and their social relations.’ Bernstein (1993) p. xviii

Vygotsky did not consider the ways in which concrete social systems bear on psychological functions. He discussed the general importance of language and schooling for psychological functioning, however he failed to examine the real social systems in which these activities occur and reflect. Vygotsky never indicated the social basis for this new use of words. The social analysis is thus reduced to a semiotic analysis which overlooks the real world of social praxis. Vygotsky’s understanding of mediation by psychological tools is, as it were, situated by the Bernsteinian understanding of the regulation, structuring and recontextualisation of the tool. In this way a psychological understanding of the social formation of mind is extended through a sociological understanding of the origins of mediational means.

In a recent paper, Singh (2017) compares Foucault and Bernstein’s ideas on governance. She suggests that new policies on school design are in effect new modes of pedagogic governance, and these modes of pedagogic governance are recontextualised in specific practices. Our work has shown how new policies of school design have been recontextualised (Daniels et al. 2017b) as understood by Bernstein (see Singh et al 2013). Attempts to effect the transformation of education as outlined in BSF depend on the willingness of schools to align with an imagined pedagogic future. It also depends on the availability of the psychological tools (Vygotsky, 1987) which enable the capacity to bring transformation into effect.

The allure of continuous makeover by pedagogic means is supposedly available to all actors. But this is the fantasy of pedagogic makeovers. Implicit within the new pedagogic translations is a model of the ideal learner that has the capacity (not ability) to ‘meaningfully rather than relevantly or instru-

mentally project' themselves into a pedagogised future (Bernstein 2001, 366; original emphasis). Singh (2017) p. 159

This project advances the development of the post occupancy evaluation of schools through the incorporation of perspectives drawn from Vygotsky's theory of sociogenesis and Bernstein's later work on cultural transmission. The paper has also shown how Bernstein's approach to the codification of modalities of pedagogic practice can be extended to incorporate a broader notion of the configuration of space in the design of a building and allows for the examination of the consequences of change over time.

We suggest that innovations in school design must be understood as relays of underlying arguments that may come into conflict with other pedagogic perspectives in the social world of schooling. The interplay between design and practice can ease or exacerbate the challenges of moving between schools.

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## Cultural-historical psychology today: research challenges & practical perspectives

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This conference will discuss how Vygotsky's works, mainly dedicated to the development of children, have been fruitfully used to research the learning and development of adults. Following Anna Stetsenko's demonstration that all theoretical frameworks carry *with and within them* particular ethical orientations and practical projects for the society (Stetsenko, 2018), we believe that Vygotsky's theory offers a key alternative to the dominant, mainstream way of doing psychology in today's academia.

We will present how this alternative has been developed in France by the Activity Clinic perspective (Clot, 1985, 1999) in the context of the reception of Vygotsky in the field of work psychology, in interaction with former intervention and research practices with a developmental and social justice agenda especially inspired by the French-speaking ergonomic tradition of activity analysis.

Crossing Bakhtin's works on dialogism (Bakhtin, 1970, 1984), and Vygotsky's conceptual understanding of human development in a sociocultural context, as well as use of indirect methodologies to study development by provoking it (Vygotsky, 1994 ; Vygotski, 1994, 1997, 1999), we will focus on the construction of *dialogical spaces* of thinking, reflection, and development. We will show how scientific research can engage research participants in the transformation of their work environment, and how it can inform the creation of *dialogical artifacts*, which might support analysis, dialogue, reflection and finally development through construction of situations of micro-dramas.

Examples will be taken from our teaching and research practice in the field of higher education at the University of Neuchâtel, as well as from two recent research projects in the health domain, one with a nursing team in a home for older dependant patients in France, and one with an interprofessional team in the field of robotic visceral surgery in a Swiss public hospital.

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**Critically Collaborating to create  
the “viable unheard of” – connecting Vygotsky and  
Freire to deal with a devastating reality**

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Brazil has been enduring a deepening crisis since 2014. Aligned with a neoliberal capitalist mentality, governments have been addressing this problem by passing laws to cut labor and civil rights, increasing the oppression over the workforce that sustains it. This has led even more people to experience increasingly depriving living conditions. According to the Brazilian Institute of Geography and Statistics (IBGE), 13.5 million Brazilians were living in extreme poverty in 2018. With the outbreak of the Covid-19 pandemic, and the measures taken to restrain the spreading of the disease, such as shutting down schools and businesses, unemployment increased, reaching historical marks. Self-employed, informal professionals, a large part of the population, were unable to meet their most basic needs.

At the same time, political crisis aggravated as federal representatives, especially the President, tried to undermine the pandemic and to blame scientists, governors and mayors for disseminating despair and increasing economic chaos.

Rolnik (2018) explains that the type of context we have been living creates not only the exploitation of the workforce, but also of the individual and collective potential for existing. In order to combat the injustice of such circumstances, the concept of the viable unheard of, proposed by Freire (1970; 2005), suggests concrete possibilities to strengthen a move towards another future. In other words, it means to live a project that goes beyond the limiting situations posed by immediate reality, whose strength is in doable solutions, but not yet known or conceived. This condition requires the critical immersion of individuals in their known realities and broad immersion in multiple contexts of understanding, which expand their horizons of perception. As stated by Lib-

erali, Fuga and Barbosa (forthcoming), “what should nourish our existence is an ongoing desire to strive to overcome oppressive contexts and find possible means to contribute responsibly to history while living it in the collectivity”

In line with this idea, LACE Research Group conducts research, taking the dialectical understanding as a driving force in and for both the production of knowledge and the revolutionary transformation of realities. This context is what makes us strive for an expansive resistance.

Taking up an activist stance (Stetsenko, 2017), members of LACE Research Group have always refused to face reality with impotence and despair. Together with practitioners in organized extramural projects, researchers have tried to critically think of collaborative actions in order to share and offer support to different actors in different contexts.

The emphasis on a critical-collaborative perspective has long influenced LACE Research Group. The idea that researchers should, together with the practitioners, take charge of and transform realities has been the main concern of the group ever since Magalhães concluded her doctoral dissertation in 1990.

Based on Vygotsky’s methodological discussions (1920, 1930, 1932, 1933 and 1934), which are founded on Marx’s historical dialectical materialism, critical collaboration presupposes two philosophical categories – collaboration and contradiction. These discussions focus on a new social and political stance that might allow research organization choices to endorse all participants as actual agents of meaning production processes. Such choices highlight the inseparability of epistemological and methodological issues in order to analyze, understand and propose ways to transform reality.

Critical collaboration is key to understand and organize shared human relations and language, focusing on tensions, conflicts, intervention, mediation, negotiation, and resistance. These processes allow participants to experience the drama of perceiving their limits as individuals and the expansion of their power when working in a collectivity. By sharing responsibilities and searching for new collective ways of participation, they question and transform their political, cultural, social, professional, educational and living contexts.

The contact with different theories and researchers from all over the world, as well as participation of different practitioners, has created a context which affirms all participants’ voice as essential in all the different levels of the extramural and research projects carried out by LACE Research Group, such as the Digitmed Program and the newly created Brincadas’ Project.

In our educational practices, which take on a social-historical-cultural stance, we search for ways in which we can act and construe something that goes beyond what we know in our immediate realities. Towards that purpose, LACE Research Group has created a project to collaboratively produce learning engagements and challenge the constraints imposed by the traditional curriculum. This project aspires to create possibilities of development for the school and its community, bringing together what Freire called



“the viable unheard of” (1970). It recaptures the activity systems as school curriculum organizers (Engeström, 1987; Liberali, 2009; Liberali and Santiago, 2016) and play/performance (Newman and Holzman, 1993/2002; Lobman and Lundquist, 2007; Holzman 2009) as pedagogical tools for collectively producing meaning. Participants are invited to (re)experience and critically reflect upon real life situations, often organized as play. An activist stance is also promoted in these practices. Immersed in play, participants acknowledge and reward the construct of spaces of resistance as well as caring. Together they create a safe haven, enhancing their hopes and means to resist and expand beyond the project.

The Digitmed Program was initiated as an international research project, funded by the Interchange Project Marie Curie International Research Teams – European Union FP7 (IRSES) (2012–2014). Engaged with concepts such as superdiversity and multiculturalism and having developed tasks and school project based on Vygotskian ideas linked to perspectives of New Literacies (Freire, 1970) and the Pedagogy of Multiliteracies (NLG, 1996), the Brazilian LACE Research Group expanded the objective of the Digitmed Program to a critical-collaborative intervention research (Magalhães, 2011) with private and public schools from São Paulo, focusing on a university-school-community partnership for the joint construction of de-encapsulated curricular proposals (Liberali, 2019).

In monthly meetings at the university and in periodical meetings at their own schools, this extramural and research project puts together deaf and hearing students, aged 9 onwards, researchers, sign language interpreters, principals, coordinators, teachers and any other participants in the school community, to study problems of their realities, having the 2030 Agenda for Sustainable Development as the basis for understanding, criticizing, and planning forms of intervening in their school contexts. In order to plan, researchers and educators (and, many times, students as well) study the Common Core Curriculum to find in the different subject areas which aspects/objectives could be tackled as part of the tasks to be planned for the school curriculum.

With the advent of the Covid-19 pandemic, however, the group was unable to conduct the meetings and actions that commonly allowed its members and extended community to discuss and collectively think of solutions for issues brought by the group. Furthermore, the pandemic brought about issues never dealt with before, which demanded immediate action.

Confined in their homes, people experienced all sorts of anguishes and difficulties. Loneliness, fear, lack of hope, overload of work and stress were some of the complaints our working and academic peers posed. These feelings were accentuated by the awareness that many people were being unable to meet their most basic needs.

To face this new reality, LACE Research Group created the viable unheard of through the sharing of the lived experiences of each of the participants who,

together in critical collaboration, built forms of de-encapsulated agencies to move forward. The “Brincadas Project” gathered participants to create groups to support frontline workers, people in vulnerable circumstances, teachers, students, school managers and parents through spaces called “Brincadas”.

The “Brincadas” originated from the Global Play Brigade, a group led by Cathy Salit, supported by the Eastside Institute of New York, composed by artists, improvisers, play professionals, educators and coaches who use the concept of play and performance to connect and support people around the world in a transformative perspective. LACE Research Group, in a creative way, put together the idea of brigade (whose name is associated with the word briga/fight in Portuguese) with the idea of play (“brincar”) and built, as suggested by Fabio Marinho Calderano, the neologism “Brincada”. The research group has created five different “Brincadas” as follows:

1. “Brincada de Apoio” seeks for financial and material resources for hospitals and communities.
2. “Brincada da Educação” brings together 25 teachers and researchers in the organization, dissemination, distribution and exchange of experiences with parents and educators through a Facebook page.
3. “Brincada do Brincar” organizes virtual activities with adults, young people and children aiming to interact through performance and play.
4. “Brincada do Ouvir”, held in partnership with Deep School of Psychoanalysis, offers free listening moments for people who are experiencing emotional states full of anguish.
5. “Brincada dos Gestores Educacionais” brings together school managers from public and private institutions in a WhatsApp group and through meetings in which these professionals share their difficulties, potentials, actions and afflictions.

As Vygotsky (1994/2010) points out, the dramatic events experienced in our history mark each one in an absolutely unique way. However, they can certainly be the basis for expanding our ways of acting in the world collectively. By facing and critically repudiating the challenges and contradictions of our times that oppress and strip us of our humanity, researchers from LACE take an activist stance aiming to create a more humane society, a grounded utopia, the viable unheard of.

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**Climbing on Piaget's shoulders to look beyond  
with a cultural-historical perspective: Argumentation  
as a situated activity in young children. Insights  
from the empirical study of their inferences**

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Can 2–6 year old children contribute to argumentative discussions? And when they do, how do they reason? This is the central question that our interdisciplinary research team has investigated in the ArgImp project. We will present some of our observations of children's thinking, in designed and naturally occurring activity settings. We will consider not only their language but also their thinking as it appears in verbal and non-verbal, explicit and implicit, elements of conversation in context. In doing so, we will rely on some major resources of Piaget and Vygotsky's foundational works in psychology, and on recent analytical models offered by theories of argumentation. Our data reveals how deeply children's reasoning is rooted in a cultural, material and social context and develops during the conversations; and how their argumentative minds seek "reasonableness" (more than deduction) to reach their goals and give meaning to the interactions in which adults embed them.

Starting from classical concepts borrowed from Piaget, which allow for fine-grained analysis of children's cognitive moves (e.g. child's own activity, sensori-motor action, concrete or formal operation, physical vs logico-mathematical experience, cooperation in symmetrical relations, genesis, feeling of equilibrium), we have further elaborated his approach in two directions: 1) with post-Piagetian concepts (e.g. Grize's schematizations addressed to an audience; socio-cognitive conflicts; co-construction of intersubjectivity) that allow to consider children cognitively at work within specific social interactions that put demands on them; 2) with Vygotsky's legacy that has called for a deeper understanding of interiorization processes that follow social interaction and the collective resolution of problems; for specific attention paid to the role of semiotic resources; and to go beyond the existing concepts of interest and motivation, to consider the goal and scopes of the activity, as well as the global (active, cognitive *and* emotional) personal experience in the face of events. When Piaget was limiting himself to a consideration of "horizontal" peer interactions as a source of reciprocity and reflective logical reasoning, V.V. Rubstov invites to a refined understanding of joint action, if well designed, as a rich opportunity to experience different social positions

and meta-reflect on the learning experience that enacting these different social roles has provided: from decentration to an understanding of the organization of the activity in its complexity. With these perspectives in mind, our ArgImp research team has endeavored to study children's argumentation. We intend to use these concepts not only to approach the child's argumentation but also the adult's thinking when acting as a researcher, a teacher or a parent.

Most often, in child and educational psychology, following the pioneering work of Kuhn and of educationalists interested in debates as pedagogical resources, argumentation is considered as an individual skill that requires proper education to develop both on the linguistic level (e.g. complex linguistic skills can allow for rich interconnections of multiple arguments) and on the social level (e.g. learning to listen to and take into account the partners' statements and connect to them). But inspired by both Piaget's and Vygotsky's legacy, we have preferred to consider argumentation as a contribution to a critical discussion (in the pragma-dialectical perspective of van Eemeren et al.) that happens at a given historical moment, in a specific activity setting with its goals and rules, and with partners that are (rightly or wrongly) supposed to share some common grounds in spite of their different social positions. In this dialogical perspective, we have chosen to focus on knowledge-oriented argumentation within activities in which solutions are found to social or technical problems. The expected cognitive moves in these argumentations are not only reasonings of the type described by Piaget but also (perhaps mostly) inferential reasonings.

To analyze the recorded argumentations collected in our observations and appreciate in a detailed way children's argumentative contributions, we have used two analytical tools (or frameworks): van Eemeren's reconstruction of argument schemes and structure; and Rigotti & Greco's Argumentum Model of Topics (AMT). The first framework allows to describe the richness and complexity of the argumentation as a dialogical and social activity (and not as a "static" product). The second permits to distinguish between the procedural (formal) nature of the inference that happens within this dialogical context and its concrete (extra-logical) backing anchored in the material, contextual and cultural background of the persons involved.

This leads us to novel descriptions of some aspects of children's reasoning. They don't make everything explicit and sometimes use action as a "proto"-argument. If this is taken into account, if adults don't interfere by stopping them, then children appear to be more competent than expected. They offer multiple arguments, often interconnected. They use other cognitive moves than those described by Piaget in terms of "operations". They raise issues and sub-issues (thus opening up new discussions) and advance standpoints but these are likely to change in the course of the conversation as their intention is usually not to defend a standpoint but to reach their goals.

They call on past experience in different ways. They engage with their partners in different manners. They try to manage joint action and conflicts.

Investigating children's implicit premises reveals something of their understanding of reality, for instance what they take for granted and what they believe their interlocutors take for granted; how they relate to authority, how they understand rules, and what inference schemes and endoxa they have interiorized. This is also useful because it opens questions about how adults position themselves in discussion with children, and what they (adults) take for granted or expect children to take for granted.

It also invites researchers to reconsider what argumentation is within a time perspective, for instance: how do issues arise, what it requires to put forward a standpoint. In other words, researchers are invited to consider how discussions evolve over time and not only single episodes or single argumentative productions.

## A glimpse of Brazilian inclusive education through the lens of cultural-historical theory

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The paper presented on the *Special on-line ISCAR Summer seminar for PhD students “Cultural-historical psychology today: research challenges & practical perspectives”* was written as part of investigations carried out by two research groups registered in the Brazilian National Council for Scientific and Technological Development (CNPq): ILCAE – Linguistic Inclusion in Scenarios of Educational Activities – and ISEF – Social-Educational Inclusion and Teacher Education. Each is also accredited by the universities where they were created: The Pontifical Catholic University of São Paulo (PUC-SP), in the case of ILCAE<sup>1</sup>, and the Federal University of São Paulo (UNIFESP) – in the case of ISEF<sup>2</sup>. Together with my Doctorate, Master’s and Scientific Initiation (Undergraduate and some High School) students, I have been carrying out investigations on the subjects of the social-educational exclusion/inclusion dichotomy, teacher education and materials design – or flexibilization of course book materials for children and adolescents with specific educational needs. We use the term specific educational needs because not all students that are going through school with learning difficulties are disabled. Some are gifted, some had dyslexia or other learning difficulties, or even syndromes that might result in learning difficulties – neither of which are considered, by Brazilian legal system, a disability *per se*.

The education of teachers so as to identify and work with such children and teens has been the focus of my activities since late 2002, based on Vygotsky’s Cultural-Historical Theory – especially *Fundamentals of Defectology* [9] and on Critical Collaborative Research Methodology [5]. Over this period of time, I have worked with a number of educational professionals both as a researcher, and a teacher educator, in investigations with(out) (under)graduate students and in extramural programs and projects. One of the most active is the Extramural Program at UNIFESP, called *Continuous Linguistic-Didactic Teacher Education*, that I have coordinated since 2012, and in which I organize, with students: Courses, talks, and projects to be developed with and for educational professionals, mostly in State and Local Public Schools aiming at critically analyzing the reality in which they work (and often live) and resignifying [1] or transforming [5] such social places by (A) understanding the discourses produced there, by these very professionals and their colleagues,

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<sup>1</sup> This group is coordinated by Full Professor Angela B. C. T. Lessa (PUC-SP) and myself.

<sup>2</sup> This group is coordinated by Associate Professor Maria de Fátima Carvalho (UNIFESP) and myself.

(B) understanding to what extent these discourses may be considered inclusive or may lead to the maintenance of the *status quo* of exclusion – fostered in Brazilian educational system since when the first public schools were founded, in the 19<sup>th</sup> Century, during the period known as the First Empire [2]; (C) identifying children and adolescents with specific educational needs; (D) closely observing these students so as to establish how they learn, rather than what disabilities they may have (i.e., medical versus social perspective), and (E) re-designing course materials so that these students can work with their peers, which means that they can collaboratively take part in the lesson rather than be left aside – as is often the case in many classrooms, and as we have reported in many papers, theses and dissertation theses [e.g.: 2; 3; 6; 7].

Teacher education is not a focus that the Brazilian governments (at Local, State and Federal levels) promote. On the contrary, considering that there are close to 1,5 million teachers in Brazilian Elementary, Mid and High Schools, it would probably be fair to say that it is in the interest of these governments that these professionals remain uncritical and poorly educated. How else would they get votes from the members of these communities? Only if poorly educated (and yet accepting that this is the best possible scenario for them) would these teachers accept the low pay that they receive (in some cities less than the minimum salary, which has just been approved by the President to reach R\$1045 (close to US\$260) per month. With this amount of money – that, incidentally, does not pay the rent for a house or apartment in a neighborhood that might be considered reasonably safe, let alone pay for food and clothing – who will have the time and energy to seek further education? And who could financially support further education anyway? Most teachers are juggling three or more jobs, 900 or more students at any given time in their careers of about 25 years of work (or more) in the classroom, and all the contextual situation that comes with this package and drains them almost motionless. Therefore, the courses they take have to be offered free of charge, in their schools, and after negotiation with local educational authorities and principals so the teachers can be allowed to leave their classes for a couple of hours per week – and these officials hire a substitute teacher for these moments.

To make matters worse, if we look at teacher education at undergraduate levels, most programs seem to offer the least necessary in each epistemological area, i.e., the Mathematics Teaching Degree will teach Maths; the Language and Literature Teaching Degree will teach Language and Literature, and so on. Therefore, the teacher will graduate with all this content knowledge, i.e., knowing a lot about their areas of expertise, but little or nothing about teaching *per se*, (in action, on action reflecting about their teaching [4], assessing students, observing students to find out what they need in order to develop, let alone understanding disabilities or specific needs.

This inevitably leads to further excluding the child/adolescent and to a feeling of unfitness, a sense that their job is not quite handled properly. It may

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even (and often does) lead to burnout. Many teachers have breakdowns and are medically advised to work outside the classroom (in the school library, front desk) so as to complete the time they need prior to retiring – which has just gone up after the recent voting of the new Social Security contribution bill of law was approved. In other words, the educational system and the policies that come with it will many times result in exclusion for the teachers themselves – who were supposed to be promoting inclusive education.

However, by focusing on such concepts as mediation, language as an organizer of thought and further higher psychological functions, more experienced peer, social compensation, among others discussed by Vygotsky [8; 9], we have been able to allow teachers some linguistically-organized space so as to review their choices and restructure their practices, bearing in mind that “through others, we become ourselves, and this rule refers not only to the individual as a whole, but also to the history of each separate function” [8].

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## Comparative assessment of the developing effects in the learning activity school

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In the practice of Russian modern primary schools now coexist 2 fundamentally different paradigms: traditional teaching-learning paradigm and the learning activity paradigm. Traditional teaching-learning paradigm is based mostly on a subject-object type of interaction that means that a teacher transmits knowledge and pupils reproduce it. Educational technologies based on principles of transmission provoke mostly reproduction abilities of pupils. In this paradigm creative and productive abilities of pupils, their personal features develop spontaneously.

The learning activity school is based on construction of special educational programs and organization of “learning to learn” situations (engineering of learning activity). This engineering is based on the theory of learning activity (D.Elkonin, V.Davydov) in the aspect of determination and organization of the learning content. Knowledge and skills in the content of this approach are not any more the goal of education. They are just the means of development. Social positions of teacher and pupils also undergo changes: a pupil becomes a teacher’s partner in educational interaction. A teacher now orientates not only on the problems of acquisition of knowledge, he becomes an organizer of learning situations based on interaction and cooperation with pupils. Instead of a traditional subject-object type of interaction this system acquires a subject-subject type of interaction so that each of the participants becomes a condition and a means of development of the others. It helps to form a reflective position of both a teacher and pupils towards themselves.

Relying on numerous studies conducted within the framework of learning activity theory, V.V. Davydov articulated a number of provisions that allow us to consider the system of learning activity as a universal way of organizing the learning work of the adult and the children, the way that differs from traditional teaching methods in its goals, means and results.

- Unlike schools that work according to traditional curricula, in this school:
- certain requirements to the educational content are presented: the content should reproduce the logic of scientific knowledge, i.e. should ensure the derivation of concepts and their interrelations in the course of school problems solving by schoolchildren, should provide students with the opportunity to experiment with model and subject material;
  - the teacher’s most important task is to create a problem situation at the lesson that encourages children to search for and explore, put forward hypotheses, test them and evaluate their sufficiency in terms of problem solving;

- the lesson is organized in the form of joint activity through meaningful interactions between the teacher and the children, as well as interactions among the children themselves. Hypothesizing and hypotheses testing, assessment of their sufficiency build the basis of a group discussion;
- the formation of meaningful criteria for self-evaluation and evaluation of one's actions in children is a logical result of the organization of the learning process in the form of joint solution of learning problems. They learn to control and evaluate their learning activity and the actions of others as a contribution to solving a learning problem.

It is obvious that since two fundamentally different approaches to understanding the essence of learning and development processes coexist, the question of their comparative effectiveness arises. Tests in the main school subjects show that according to pedagogical criteria (knowledge and skills), the results of learning activity schools are usually higher to the results of traditional schools. But we are certainly more interested in meta-subject results as indicators of different aspects of children development. We regularly evaluate a long list of various meta-subject competencies that characterize children's cognitive and social development. Here I will briefly focus on the most important results.

1. Learning to learn. In elementary school the learning to learn is a characteristic of the agent of learning to be able to independently transcend the limits of his own competency for searching ways of acting in new situations [Galina Zukerman]. It consists of two basic prerequisites: the ability to separate the known from the unknown and ask questions about the unknown, and also the skill of using a hint. The ability to separate the known from the unknown allows us to distinguish the solvable tasks from the underdetermined ones and ask a question about the missing conditions for action. This skill is diagnosed with help of the "Underdetermined Tasks" test. The test is based on the material of simple textual mathematical problems, methods to solve them were carefully worked out during mathematics classes in elementary school. The student must first determine whether it is "solvable" or "with missing data", and, in the second case, must independently supplement the condition, so that the problem can be solved. The number of tasks correctly assigned to "solvable" or "underdetermined" (indicator "distinction") and the number of correctly made supplements to the conditions of underdetermined tasks (indicator "correctness of supplement") permit to assess the learning to learn ability. The diagnostic results showed a significant (statistically significant at  $p < 0.01$ ) superiority of the learning activity school in both indicators of learning to learn.
2. Cognitive competences. When analyzing cognitive competencies, we relied on the provision about two types of cognitive activity, which were most consistently elaborated within dialectical logic and actualized in the works of V. V. Davydov and in the studies of his followers. They affirm

that a person, who cognizes the surrounding reality can be both aimed at reflecting the internal connections and relations of objects and phenomena, thereby actualizing theoretical, substantial knowledge, and at reflecting their external connections and relations, and therefore actualizing empirical, formal knowledge. In the first case, the result of the activity is associated with the identification of the reasons underlying the changes in the knowable object. In the second case, the result of the activity is the description and classification of the externally presented characteristics of changes in objects of cognition. A special analysis made it possible to identify a number of special actions that characterize a generalized approach to task solving. They are:

- cognitive action associated with the study of the task conditions aimed at determining the essential relationships among them (meaningful analysis itself);
- regulatory action related to the child awareness of the task solving method of action and its generalization on the ground of prior identifies essential relationships (meaningful cognitive reflection);
- regulatory action associated with mental experimenting in order to develop an integral program for performing the necessary practical actions (meaningful planning).

Based on this distinction “Transposition” technique was developed to conduct qualitative and quantitative assessment of these actions. It’s results show that it is legitimate to say that traditional school is less effective in terms of cognitive development of younger students than the school of learning activity.

We also compared diagnostic data in school of learning activity during the last 3 years. Results show that from year to year students demonstrated similar (and relatively high) results for all indicators of cognitive development. These data made it possible to assert that the educational program employed and corresponding learning style based on mastering learning activity methods make a decisive influence on the development of cognitive meta-subject educational results.

3. Social competences. A special procedure called “Conflict” permitted us to compare the ratio of success indicators for individual and group solutions. It allows us to diagnose capability of children to jointly solve a visual-logical task, when it is necessary to overcome the substantive conflict that arose in the context of interaction when searching for the way to solve learning problems.

According to the results, the students of the traditional school were worse at solving the visual-logical tasks given to them in the mode of individual action than the students of the learning activity school, yet these differences are not statistically significant. It is important that during the transition to group work, these students showed a slight increase in terms of the solution effectiveness, that is, the association of students in a group did not significantly

affect the quality of the solution. Students of a learning activity school, working in an individual mode, showed results close to those of students from a traditional school. However, in the transition to a group solution, the effectiveness of their joint action doubled. Therefore, grouping for children of learning activity school is an important factor determining the effectiveness of solving a learning problem. These data proves that learning activity school creates favorable conditions for the development of an ability to overcome cognitive conflict in the process of joint learning problem solving, to interact with each other, to participate in a joint search for a solution, to analyze and coordinate individual actions in cooperative.

## **Present - day education at times of crisis. Aims and projects**

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1. *Education and instruction in Italy. Some data from the last OCSE report.*
  2. *Education as a transformative activity at times of crisis.*
  3. *The Historical-cultural perspective in education.*
  4. *Our project.*
  5. *References.*
1. *Education and instruction in Italy. Some data from the last OCSE report.* As the OCSE 2018 report stresses, digitalization is the main factor providing seminal innovation processes. As a consequence in many fields at a time of our life new needs and demands are emerging, which researchers in education are especially called to identify, or at least to try to do that. At the same time, the present-day pandemia has developed all over the world major attention toward the collective welfare, as it is generally commented upon in the press and the media, devising an intrinsic revolution among the learners of the school for future as well as in the general attitude toward our society. This gives the opportunity for observing that a psychological transformation of humans required by educational needs, imposed by a sovranational demand will be a new aim for today's psychologists and pedagogists willing to change things. The overall dissemination of the Cultural- historical- and of the Activity- theory- approaches demonstrates their relevance for education and instruction. Both conceptions focus on education, in the frame of social and collective experience, as generative of higher, human, levels of psychic functioning (Vygotskij L.S. 1931/60).
  2. *Education as a transformative activity at times of crisis.* The specific nature of educational work, implying in itself a revolutionary transformation of the existing living beings, focuses the attention of researchers in the field of change and transformation.

Unfortunately the recent coronavirus pandemia gave clear evidence of the negative consequences that systematic subtracting financial support from the research in the majority of the countries, commonly referred to as civilized, has brought about. This statement is primarily referred to our country, Italy. Therefore seems the development of collectively shared education a prior way, improving social consciousness (Vygotskij L.S. 1925) of the younger generations, supposed to facilitate them to cope with the contemporary crisis.

Some positions, referring to the aforementioned approaches to education, have to be analysed also in relation to the present-day dramatic migration's

movements. Evaluating the actual state of Cultural-Historical theory and Activity Theory approach it seems important to start with the consideration that *education* is expected to have prioritarian meaning and should be *consistently identified and taken into account*. Nonetheless the same approach was formulated as a methodological background, with possible applications in various fields, such as: clinical psychology, special education, psychology, arts. Leont'ev and his formalization of the concept of human activity as a *generator of conscience* underlies the latter as typical acquisition of the human psyche (Leont'ev A.N.1975). Arguing upon the concept of teaching/ learning, as connected in its genesis with the cultural-historical traditions and at the same time with the social collective practice, our team intend to elaborate with students the opportunity to identify the springs for the successful further development of the person. The latter can in no case be thought as being cut off from social experience, and from the need to carefully consider and assess the features of the particular concrete relationships of human behavior with the surrounding social practice.

The understanding of human learning as causally related with human productive activities, as is explained by the analyzed conceptions, provide a strong potential for a successful transforming the meaning of the traditional instruction in the societal context.

3. *The Historical-cultural perspective in education*. All European countries, Italy as well, are facing a similar new trend - to understand the processes of change in human social history. The process of transforming specific conditions of life is not just an individual purpose, but becomes a general requirement aimed at bringing about changes in a more general space.

In fact, it underlines the specific nature of educational work and focuses the attention of researchers in the field of education and re-education of the youngsters from now on.

Something similar to the general frame of the position of *intelligenzija* in the Soviet Union after revolution of 1917, with, probably, less expectations toward the political perspectives of a new society.

The same changes in the attending school and in the organizing didactic at distance required at present by the pandemia involve the adoption of a typology for schooling bringing about different forms of interactions between learners and teachers and among learners. The overall widespread attempts of inclusion implemented by educational institutions, in the collective experience of the class as a group, a community that has to cope with new, or different, or «others», nowadays always present due to the migrations characterising this era, will probably result less effective. To Davydov, as already to Vygotskij, human thought develops, starting from collective forms of interaction, interindividually, and only on the basis of these is directed towards intrasubjective ones.

From that moment on, the higher level of consciousness increases to the top of personality, becoming self-awareness with the addition of a personal meaning, or sense, corresponding to whatever social meanings. [see Leont'ev, 16]

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The cognitive process identified by Davydov as “theoretical/scientific thinking”, derived from a criticism of Vygotsky’s conception, concerning the acquisition of generalization on the basis of training. It stems also from a close cooperation with the outstanding Russian epistemologist Il’enkov. [10].

The upper exposed conception by Davydov can be considered a concrete advancement in the explaining of the learning as a productive activity of man. This brought him to the most extended definition of learning in terms of “a general form of human life”. [5-p.74 sgg.]

Substantially, if the conception of learning proposed by historical-cultural psychology of the Activity has identified the dynamic nodes of the internalization of social forms, of their passage from outside to inside, which come to constitute consciousness [see Leont’ev, 16], this conception paradoxically explains precisely the occurrence of every type of learning, of its spontaneous processes actually taking place in the social, “on the street”, without no acquisition in formal institutions but anyway antecedent and sometimes very difficult to cope with.

From that time on, Davydov started engaging in the experimenting new forms of school learning and instruction, coming to the cooperation in the frame of the so called Davydov-Dneprov school reform

Multiple trends in research were devised by him in a cooperation with a group of younger psychologists, mathematicians, physicists.

Concerning the concrete state of school-instruction he used to expose a personal observation, according to which in the school abitually the most disseminated form of activity is not learning, but general socialization, not intentionally activated in a formal situation.

Education for the future necessarily has to transform instruction identifying and taking into account organization of new available forms of learning, [5] able of involving general growth of personality in a collective dimension. As far as school education is concerned, among the more extended research, a couple of trends seem at the moment providing meaningful suggestions for the future organizing of compulsory instruction.

The perspective of the systematic experimental work on the collective actions in groups by Rubzov and the longitudinal experience monitored by Zuckerman and Venger. Both of them result from multiannual analysis of school didactical observations and empirical experimentations.

As promising scholar of the famous MIFI, Rubtsov <sup>1</sup> started analysing the effects of the joint action in childhood in the frame of the principle of “additionality”. The seminal contribution of the latter, as he states, was the focus upon the unavoidable transformation added in whatever situation by the incoming of a new observer.

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<sup>1</sup> In an issue of this Journal Kudrjavzev, [13-p.106-121] carried out an interview “Sociogenesis of Joint Action Mutual Understanding between Individuals as a Precondition for Understanding Things”to Rubtsov. He explained how he was brought to the

He found evidence of the dynamics in joint learning groups, generating an effective collective typology of the learning context. In the latter, specific actions take place for solving problems, based on meaningful generalization. A precise list of traits define the psychological processes activated by the learners, which become indicators of the effective strategy, or also “model” of the solving activity. These are Concreteness, systematicity, generalization. [20;21]

In sum a generalized meaning has to be prioritarian in the different models. And the entire procedure is based on the construction by every of the participant of this generalizing model, by means of discussing the model proposed by the other. This type of teaching/learning activity requires a specific care for organizing the learners in the group, providing different roles to be performed in turnover by each of the participant. Among the learners a debate is generated about the content, which abitually moves from a contradiction of the given data in comparison with the possessed knowledge. As methods for generating discussions among the learners conflicts are created.

A consideration of the advancement of the present - day research acquisitions in the frame of the historical cultural psychology at the MSUPE (Moscow State University for Psychology and Education) has to mention a research, on a design by Davydov. A longitudinal research going on for a decennial is in itself a selten event in psychology. It went on during the entire process of the primary and junior middle instruction in two classes in a school of Moscow. It gave evidence of the improving of the reflexion in the learners of the experimental classes, regularly engaged from the beginning of the instruction in activity research. The experimenting, aimed at the formation of the individual authonomy in learning was realized by the same teachers in the experimental school<sup>2</sup>, monitored by G. Zuckermann as psychologist.[40]

Research activity, the lacking of which in life was, to Davydov, source and symptoms of disease, is the true inclusive form of instruction, since it bypasses formal distinctions among teaching and learning persons. A research process has to be based on the discovery of new, when the available knowledge is not inough for coping with new problems.

May be the major dissemination of the collective forms of education and instruction predisposed by the evidence obtained in the frame of the Historical cultural psychology will stimulate more human resources and financial granting for expanding these activities in the school over the world.

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Institute of Psychology of the Russian Academy of Sciences, where he succeeded to Davydov as Director coming from the outstanding Moscow Institute of Physics (MIFI), place of his first formation. Davydov was looking for a scholar able of conceiving a programme of physics for primary school. This interview was edited also in Italian. [2-pp.13-44]

<sup>2</sup> The research was supported by more than a grant from countries of the former Soviet Union and by International Research grants the RGNF010600133,030600446,070 7284,2A601 “Open Society”, 161 /1998 Res. Support Scheme of the Open Society Prague, 1995-1996 Social Science Curriculum Development Scholarship Int. Res. And Exchange Board 2001-2002, and 2001-2002 Fullbright Scholarship.

In fact, it underlines the specific nature of educational work, in itself a revolutionary transformation of the existing living beings and focuses the attention of researchers in the field of education and re-education in the light of a general process of social transformation.

4. *Our project.* As far as our concrete activity with the students and the magister students of the programmes in Pedagogy and education of the Sapienza is concerned, at the moment our major concern is inclusion and internationalization. International agreements were stipulated to favor and increase research collaboration, pedagogical studies and joint congressual activities and led to the organizing of joint Master's Degree course, to offer young students from different academies further knowledge on common themes and research options in an international perspective and with a comparative approach. Since the master's degrees were established, in 2010-2011 with MSUPE and 2014-2015 with NCFU, many students of these universities have completed courses and achieved a double degree in Sapienza, as some Italian students did at the prestigious University of Moscow MSUPE. On this topic we published a special anthology which appeared at the beginning this year, meant to review the positions and studies that individual teachers from the different universities involved, presented in recent years, during online courses, in the lecturing, in the meetings and to discuss their possible opportunities. The volume puts forward this programme, to spread its structure, the theoretical assumptions and the various positions. The contributions are meant to testify a keen interest in internationalization that Sapienza is carrying out. The contributions collected give the reader a chance to share a common interest in the promising approach implied by the Historical-cultural trend in Psychology and Pedagogy of the Vygotskij's thought, which seems a must in psycho-pedagogical reflections, and in organizing and evaluating school activities.

This will be the topic of the speech of my colleague of Pedagogical research Guido Benvenuto. Who will follow now.

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## **The development of students' understanding of science**

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In this presentation I will outline a theoretical approach to the development of students' understanding of science, which is very much influenced by the work of Vygotsky (as this work has been presented in publications in English). I will argue that children start the knowledge acquisition process by constructing intuitive understandings of the physical world based on their everyday experiences. These intuitive understandings are organized in skeletal conceptual structures referred to as *framework theories*. Framework theories are different from currently accepted science and impose constraints on how students understand the scientific explanations of phenomena causing the creation of fragmented or synthetic conceptions. In order to understand science, students need to make important changes in the way they represent and explain the physical world as well as in their ways of reasoning. They must create new concepts and new belief systems which do not necessarily supplant their framework theories but co-exist with them. These developments are gradual and slow and follow a learning progression. Effective science education needs to make students aware of their intuitive understandings, provide scientific information gradually and in agreement with students' learning progressions and develop students' reasoning abilities and executive function skills.

## **Between Theory, Speech, and Curricular Praxis: A Contribution from Activity Theory to Curriculum Theory**

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### Introduction

Consider the following situations: a family enrolling their children in a school due to its *curriculum*; someone being hired by a company due to his/her impressive *curriculum*; politicians deciding which parameters should be foremost in government guidelines to public schools construct their *curriculum*.

From these quick examples, we can identify one common element: the concept of the *curriculum*; and, at the same time, its polysemy, where the word curriculum assumes different meanings in different contexts. The introduction of these examples aims to point out that curriculum, like any concept, to investigate its meaning production and development, depends on the concrete situations that are always complex and with different hierarchical levels. The *curriculum* is a complex object and requires a complex model and theory that could express its complexity through a unit of analysis.

The academic literature presents different theoretical biases that hold the polysemy of the curriculum concept (e.g. APPLE, 2004; COSTA, 2005; VIÑAO, 2010; ARROYO, 2011; MOREIRA & CANDAU, 2014; MACEDO, 2017). There is an extensive discussion around the world about the concept of the curriculum (APPLE, 2004; SCOTT, 2016; MACEDO, 2017; AKTAN, 2018). Particularly in Brazil, we are facing significant changes in government educational curricular construction guidelines that demand new ways to consider the Brazilian school curricula. In this project, we investigate what contradictions schools are facing due to the new governmental curricular demands.

We will be based on the Cultural Historical Activity Theory (CHAT), taking human activity as the subject-object-community unit. This unity allows us to understand the coordination of human actions towards the coordination of specific ends in an object. Vygotsky could be understood as the beginner of socio-cultural-historical psychology that, posteriorly, was developed as CHAT by different researchers such as Leontiev, Engeström. Much of Vygotsky's work shows a concern with the creation of psychology that was relevant to different fields of human activities. However, the contributions he made to the field of education are clear (MOLL, 2014).

From this theoretical perspective, we will investigate how the curricular negotiations take place among the subjects of a particular educational activi-

ty. Considering, that the curriculum regulates the functionality of the school, its division of time, and the teaching and learning methods, the curriculum can be considered an instrument to structure schooling (SACRISTÁN, 2013). The idea is to investigate the curricular educational project that emerges from the government curricular guideline impositions with the multiple objectives pursued by the different subjects at the various hierarchical levels of the educational community – the school (students, teachers, classrooms, educational institutions, government institutions, society).

To understand the dynamics of the school curricular production activity, we will look for the contradictions that emerged along with the meaning negotiations among the different agents of the investigated system. Thus, from these first thoughts, we can formulate our initial research questions:

- What are the institutional contradictions that demand and culminate in the need for curricular changes in an educational institution?
- What new contradictions emerge from the production and implementation of a new curricular proposal in an educational institution?

To answer these general questions, we will use a case study. From this particular case, we will investigate the subjects and the mediations among their actions that compose the coordinated multilevel structure of the unit of analysis. As the unity of analysis is not closed in itself, we will consider the mediation of the school activity with other activities school is mediated. For instance, we investigate the mediations of the private institution with government institutions, identifying possible fields of influence in the hierarchical levels of teaching-learning in the classroom.

#### The Case Study

Bandeirantes is a private school ranging from elementary, middle, and high educational levels, and is located in the city of São Paulo (Brazil). Bandeirantes school has undergone a curricular restructuring of the Natural Sciences area (Physics, Chemistry, and Biology). The case study consists of investigating the particular context of the curricular changes in Natural Science disciplines making explicit the contradictions that emerge from the resistance agents have to change their current science education activities facing the need for curricular restructuring.

Different methods and instruments of data collection will be used in order to triangulate data and to deal with the complexity of the activity. The scope of the investigation is determined by the constituents of the activity – the unit of analysis: the Natural Sciences curriculum reform at the Bandeirantes high school. The objectives of the activity, its multivocality, its contradictions, its historicity, and how the activity expands are elements that will be investigated (ENGESTRÖM, 2001). Thus, the data will comprise materiality that involves several documents, didactic texts, video classes, experiments, teacher meetings, coordinators meetings, in order to support the study and understanding of the activities engendered by the diverse subjects involved in this curricular

change, in the different hierarchical levels. In other words, we will be involved in the activities of the maintainers and coordinators through the activities of teachers, teaching assistants, interns, and even the activities of students.

At last, from the contradictions identified, we have the intention to contribute to Curricular Theory, pointing out elements from CHAT that should be considered when producing new, global, or local, curricular reforms. This objective will be determined from an in-depth study on international literature on curriculum, preferably those based on historical dialectical materialism approach.

I am at the beginning of the project, in the phase of identifying the hierarchical structures of the school activity to initiate data collection.

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## **“Our voice matters!” promoting agency in public high school students**

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Based on the theoretical-methodological assumptions of Cultural-Historical Psychology, especially on the concepts of Lev Vygotsky, the present dissertation aims to investigate the psychological actions and experiences in the school context that transform students' perceptions and relations with themselves, with the institution, with peers, and with the empirical and imagined reality of which they take part, in order to promote a Transformative Active Stance (Stetsenko, 2017). In this sense, the proposed thesis is that the actions of the school psychologist with adolescents, when orientated to the construction of a collective-collaborative setting, mediated by art, promote on students a transformative activist stance, increasing their capacity to act and, thus, amplify new possibilities for current and future life. The data so far gathered derives from weekly activities carried out over 3 years, 2016–2018, with high school students from a public institution located in the state of São Paulo, Brazil. The meetings, supported on the concepts of the Psychology of Art (Vygotsky, 1925/1999), were mediated by the appreciation and production of different artworks, such as: movies, photographs, music, poems, literature, and paintings; with the purpose of building dialogical spaces for sharing experiences and promoting reflections on the current and future living conditions in which students were inserted. The dissertation is still in progress and, so far, the first movement of data organization and presentation includes a selection of field journals produced by the psychologist-researcher throughout the entire course of the interventions, composed by observations and transcripts of the participants' statements during the activities, and the artistic productions made by the adolescents, such as essays, poems, and drawings. In data analysis and discussion, it is intended to adopt the concept of signification nuclei (Aguar, Soares, & Machado, 2015), a dialectical analysis in which it is understood that the configuration of meanings and senses present in participants' expressions are constituted in their interaction – individually and collectively- with the social-cultural-historical context. Hence, initially, it will be selected in the data all meaningful expressions related to the objectives of this study.

Then, the organized expressions will give rise to meaning indicators and, finally, to the construction of categories (Gonzalez Rey, 2002). It is expected, as a result, to highlight practices of the school psychologist that contribute

to the creation of a collective-collaborative context in public high schools in Brazil that increase the agency of adolescents and create the conditions for a future with more social justice and less inequality.

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## Using Activity Theory as a Lens for Understanding Elementary School Teachers' Learning and Teaching of Coding and Robotics

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Recognizing the growing significance of computing education in schools, some governments, such as England and Slovakia, have already included programming as a compulsory subject in their curricula starting from elementary grades (Angeli et al., 2016; Balanskat & Engelhardt, 2015). National policies and large-scale initiatives in other countries are currently under consideration (e.g., US Official News, 2014). It is anticipated that more elementary school teachers will be asked to teach coding quite soon. However, surveys undertaken in different countries have shown that elementary school teachers do not feel ready to teach coding to children (e.g., Ohashi et al., 2018). Furthermore, researchers currently do not have well-grounded answers regarding how to adequately prepare elementary teachers in teaching coding.

Therefore, I have proposed this dissertation study in order to understand how teachers learn *coding and robotics* and *how to teach coding and robotics* by examining a professional learning course developed and delivered through a collaboration between a research university faculty's collaboration and a school district in the southeast United States.

In this study, I use Cultural Historical Activity Theory (CHAT) as my theoretical and analytical framework, situating teacher actions and practices in their social environment and activity systems. As claimed by Engeström (1999), the concept of human activity cannot be reduced to studies taking "concrete activities" as subjects and treating them as "rather self-explanatory" (p.28). Instead, concrete activities should be viewed in their wider activity systems and approached as dynamic. Teaching coding or learning coding are not concrete activities. Once a change is aimed in an institution such as a school, that change starts with mingling, contradicting, and meeting already established structures in that institution. Therefore, to understand how this change is occurring, we need to approach the studied change in a holistic manner. In my research, I examine the changes teachers and classrooms undergo through contextually and historically situated activity systems. The following points of activity theory as discussed in the literature (e.g., Clot, 2009; Cole & Schribner, 1978; Dafermos, 2018; Engeström, 1987, 1999), guide the design and analysis of the data in my dissertation research: (a) subjects change and are changed by the social for their own activity, (b) activi-

ties are viewed in their wider activity systems and contexts (c) historical and contextual accounts are defined, and activities are situated in these contexts, (d) mediating artifacts are socially constructed and show different views, perspectives, and voices which meet, collide, and merge, (e) contradictions in and between activity systems are approached as the sources of change.

Therefore, in order to reflect the social dynamism of learning and teaching in my dissertation study, I trace how teachers change individually and collectively as they move in their social and institutional practices when a new artifact-coding and robotics-was introduced into their systems. In doing so, I inquire into mediations and contradictions (among the elements of the activity systems such as tools, division of labor, and community) that arise in the process of teachers' learning and teaching of coding and robotics. I also include administrators' perspectives of their schoolteachers' learning and teaching of coding/robotics in order to describe the cultural-historical account of the school district and better understand and situate the processes through which teachers learn and teach coding/robotics.

In particular, I propose the following research questions to be addressed in my dissertation research:

1. How do elementary school teachers with various levels of coding knowledge and skills learn *how to code* in a professional learning course developed and delivered through the collaboration of university faculty with a school district? What mediations, contradictions, and effective practices arise in the process of these teachers' learning *how to code*?
2. How do elementary school teachers with various levels of coding knowledge learn *how to teach coding* in a professional learning course developed and delivered through the collaboration of university faculty with a school district? What mediations, contradictions, and effective practices arise in the process of these teachers' learning *how to teach coding*?
3. How do elementary school teachers *teach coding* in their classrooms? What mediations, contradictions, and effective practices arise in the process of these teachers' *teaching coding*?
4. How do administrators see their decision-making processes as mediating teachers' practices of learning and teaching coding? What contradictions and effective practices do they report occurring during those processes?
5. How do teachers see administrative decision-making processes as mediating their practices of learning and teaching coding? What contradictions and effective practices do they report occurring during those processes?

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## **Cultural-historical approach to concept and language development in english-mediated tertiary STEM Courses**

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### ***Background***

The internationalization of higher education gave rise to a new phenomenon – English Medium Instruction (EMI) – which has firmly established itself in various national tertiary contexts. Despite a significant surge in the number of English-mediated courses and degrees worldwide, there is still lack of consensus among researchers on methodology issues and conceptual framework, and myriad of implementation challenges at the classroom level, with ‘the pedagogical goal of integrating language and content’ being ‘one of the most common refrain’ (Donato, 2016). The proposed research seeks to confront this challenge from the cultural-historical theory (CHT) perspective and to propose a theoretical model and a system of pedagogical sequences to guide learners’ concept and language development. According to Dr. Veresov, the rationale for employing CHT approach to English-mediated courses is that students undertaking EMI courses at a tertiary level are akin to small children in that they have no prior knowledge of the subject matter and are not familiar with the pertinent disciplinary language. Hence, it is primordial to commence disciplinary learning with the formation of the system of concepts in a foreign language.

To this end, it is envisioned to draw on the following CHT tenets:

### ***Lev Vygotsky’s notions of everyday and academic concepts and ZBR***

According to Veresov (2010), ‘The CHT is a “non-classical” psychological theory that aims toward theoretical explanation and experimental investigation of the very processes of mental development of the human being’ (p. 89) and whose main focus is ‘the origin and development of higher mental functions’ (p. 83). It is ‘non-classical’ because 1) it defines development as ‘a qualitative reorganization of the system’ (p. 84) and 2) it ‘defines social environment not just as a factor, but as the source of development’ (p. 84). ‘The interaction between real and ideal forms explains the moving force of development’ (p. 85). The interaction itself is mediated by signs which are inwardly directed and exist as external tools. The developmental process takes place according to “the general genetic law of cultural development of higher mental functions”, which states that

...any function in the child’s cultural development appears on stage twice, that is, on two planes. It firstly appears on the social plane and then on a psychological plane. Firstly, it appears among people as an inter-psy-

chological category, and then within the child as an intra-psychological category (Vygotsky as cited in Veresov 2010, p. 87).

It is noteworthy that only ‘emotionally and mentally experienced as social drama’ (p. 88) relations become an intra-psychological category later on.

Vygotsky distinguishes between everyday and scientific (academic) concepts. The former are spontaneous, they are bound to the object, based on the experience with the reality, non-conscious and are moving upwards in their development, while the latter are usually appropriated through an institutionalized learning in the process of cooperation between a teacher and a child, move downwards in their development (from more generalized to more specific and nuanced understanding), and are non-spontaneous. For Vygotsky the development of non-spontaneous (scientific concepts) resembles learning of a foreign language. The inherent scientific nature of an academic concept presupposes its place in the system of concepts and in relation to other concepts. (p. 222, 262). The two opposite trajectories of these concepts are linked by the zone of proximal development (p. 264).

To identify the actual level of development a child is given the tasks which they can tackle independently. The tasks which a child can solve in cooperation with another individual (be it a teacher or a peer) point to the level of their possible development. This difference between the actual level of development and the possible level of development is referred to as the zone of proximal development (p. 245). For the educational process to be efficacious we always need to identify the lower boundary of development (as indicated by independently solved tasks) and the upper boundary of development (defined as the tasks solved in collaboration with a more knowledgeable other).

### ***Piotr Galperin’s theory of stage-by-stage formation of mental actions and concepts***

Galperin’s theory is relevant to the proposed research because it ‘operationalises and extends Vygotsky’s ideas to show what actually occurs in the zone of proximal development and in the teacher’s role of instigating and supporting student learning and development’ (Engeness & Lund, 2020b). Complete, but constructed by learners orientation ‘reveals the essence of learning and promotes theoretical abstract thinking’ (Engeness & Lund, 2020a). It should be followed by communicated thinking to ‘complete the activity by talking’ (Engeness & Lund, 2020a) and finally by dialogical thinking – the outcome of the transformation of the learning activity and ‘a pure mental act’ (Engeness & Lund, 2020a). Podolskij (2020) points to the need to take into account learners’ age specific and psychological features and stresses that the successful application of Galperin’s theory ‘does not imply a literal reproduction of an abstract or overly general procedure but rather it refers to the creative design of a system of necessary and sufficient psychological conditions for instruction’ (p. 3).

***Vasily Davydov's key disciplinary concepts and the system of learning tasks***

Davydov's guiding principle was 'theoretical thinking: a process of taking the learner from the abstract to the concrete' (Engeness & Lund, 2020a). To that end, he advocated teaching concepts and developing 'generalised understanding of the materials being studied' as the first step of subject matter learning process. To overcome rote learning students need to be exposed to various learning tasks as part of their learning activities, which reproduce 'the micro-cycle of ascending from abstract to concrete' (Davydov, 1992, p. 5).

***The role of the language***

Concurrently, as the concepts are being explained, their meaning and the language itself are negotiated over the course of teacher-student and student-student interactions and in the process of classroom discourse, which is defined as 'one specific kind of languaged social activity' (Dalton-Puffer, 2007, p. 15). Teachers supply students with targeted, tailored and disciplinary language and terminology focusing on language production, idea exchange and contributing to knowledge internalization.

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## **Psychological issues of job searching for refugees in Switzerland. Work in progress**

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The migratory crisis of the 2010s decade produced a large increase of asylum requests in Switzerland. This heterogeneous refugee population faces different kinds of challenges in regard to their social integration, namely when entering the job market. This results in high levels of unemployment and dependence on social welfare. Many studies show that work has essential integration benefits: it enables social integration, as well as allowing self-reconstruction through activity (Clot, 2008; Wehrle, Klehe, Kira, & Zikic, 2017). Integration measures in this field are yet poorly developed, as Swiss government is unfavorable to opening the job market to refugees, in order to prevent amplified attraction of the country, which could result in a bigger increase of asylum requests (Kuster & Cavelti, 2003).

Immigration policies in Switzerland hence reflect the government's reluctance: the Foreigner is perceived as a threat for the country's social and economic stability (Sarrasin, Green, Bolzman, Visintin & Politi, 2018). Nonetheless the State Secretariat for Migration (SEM) is currently developing actions for refugees' integration, and encourages social institutions to contribute to a faster professional integration of people in the asylum procedure, as these persons' stays are rarely temporary.

From the refugees' point of view, job-seeking procedures imply processes of deprofessionalization, reprofessionalization and social disqualification (Yakushko, Backhaus, Watson, Ngaruiya & Gonzalez, 2008). They face profound identity changes and ruptures of their professional careers: barriers to access work and society come to threaten previous identities as well as impose new undesirable identities ("foreigner", "lazy", etc.) (Wehrle, Klehe, Kira & Zikic, 2017). On one hand, work can facilitate social integration, but at the same time create frustrations and disappointments, when refugees find themselves in precarious situations. This shows that professional status is linked to identity (Clot, 2008; Kumsa, 2006; Wehrle, Klehe, Kira & Zikic, 2017). The identity reconfigurations occurring during job searching derives from biographical and migratory aspects,

as well as social and institutional dimensions (Dubar, 1998; Greco Morasso & Zittoun, 2014; Rémy & Bénard, 2014).

The current research project aims to investigate identity dynamics at stake during the period of job searching and entering the job marketplace – period considered as a psychosocial transition (Zittoun, 2012) – for refugees with temporary admission in Switzerland. Therefore, the research will be conducted in (1) a sociocultural and dialogical approach, in order to analyze the individual, social and institutional dimensions (Grossen & Salazar Orvig, 2011; Hermans, 2001; Moro & Muller Mirza, 2014); (2) a comprehensive approach, which aims to highlight personal meaning construction and lived experience (Greco Morasso & Zittoun, 2014); (3) a methodological background that defines identity in a narrative form and uses narratives as a psychological tool enabling experience reorganization (Bruner, 2004; Muller Mirza & Dos Santos Mamed, 2019).

More particularly, this project will focus on discourses of and about refugees in Switzerland on three different levels. On the individual level, a collective narrative workshop will be set up, during which refugees will express themselves about difficulties and resources faced when searching for jobs. On the institutional level, semi-structured interviews will be conducted with social workers helping refugees in their job-seeking activities. Finally, the social level will be acquainted by official documents from the Swiss parliament, namely legal documents and integration projects scripts. All data will be examined with adapted discourse analysis tools.

The contributions of this research are both theoretical and practical: on the theoretical level, the aim is to link different psychology research fields (identity dynamics, migration and asylum, professional integration and transition); on the practical level, the aim is to contribute to the professional's reflection on refugees social and professional integration devices.

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## The development of a methodological stratometric conception for the Social in Soviet Psychology

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The purpose of this research is to understand the Soviet Psychology development of a stratometric methodological conception for activity of groups and collectives; which consists of a specialized psychological theory about the mediation of interpersonal relations by socially significant group activity. That beginning are consolidated between the 1960s and the 1980's: Arthur Vladimirovich Petrovsky (1924–2006) and collaborators had involved with this formulation and organized a synthesis about that in “Psychological Theory of the Collective” (published in 1979 and translated to Cuban edition in 1986). [1]

That way, this research starts from some basically and necessary questions: what is the stratometric conception about groups and collectives? Why its starts from a specific line of Social Psychology? And advanced with more complexified questions that emerged in the process of this studies to development coherent scientific answers: where are the real and concrete differences between the Psychological Theory of the Collective and the Historical and Cultural Theory? What are the similar concepts between them?

To answer that basic questions we following procedures were observed: direct abstraction of the some books and articles [1] [2] [3] [4] [5] about this stratometric conception that we could found translated to Spanish and English; approach of the main structuring concepts of this theory in its development process; and the redaction of synthesis about the partial results that we published in an article to an scientific event in Brazil in 2019. [6] The partial results include considerations about this topics: the historical development of Soviet Social Psychology; the differentiation between groups and collectives; the sociopsychological phenomena of group cohesion, value unit and orientation (VUO), collectivist self-determination (CSD), effective and emotional group identification (EEGI) and reference.

And to answer the complexified emerged question we start a investigation about the hypothesis that the concepts of self-domain of conduct in Lev Semyonovich Vygostky (1896–1936) and collectivist self-determination of personality in Arthur Vladimirovich Petrovsky (1924–2006) mean the study of an identical phenomenon from different historical periods of production of Soviet psychology: the USSR between the decades of 1920–1930 and the USSR between the decades of 1970–1980.

For that investigation we following this procedures: a selection was made among the works of Vygotsky translated into Portuguese and among the works of Petrovsky translated into Spanish. From the selected works, the syncretic representation of the highlighted concepts was abstracted and,

by analysis, we complexified them. The complex representation of the concepts established relationships with some historical-cultural determinations abstracted from each historical period to synthesize an approximation of each of the concepts in their historical-explained concreteness. And we returned to the core of the initial hypothesis about the similar epistemological significance for the concepts forged in different circles of scientific production of a General Marxist Psychology and of a Marxist-Leninist Social Psychology that emerged as conditions of the moment development of the USSR itself.

We hypothesizes that they are functionally the same, in other words, that they perform the same important function for the against homogenized way of producing science in their respective historical periods. And we are publishing partial results in the chapter of a book that is already accepted for publication.[7] However, to a consistent development for this hypothesis we consider three next necessary stages. One that consists in identifies the historical regulations to the science production in the soviet psychology periods. A second that represents the continuous investigation about the concepts from Historical-Cultural Theory and the Psychological Theory of the Collective, improving their systematization. And a third theoretical relation with an interesting contribution from Dalla Vecchia (2010)'s doctoral thesis [8] that propose the analyses of work in groups starting from the dialectical unity 'cooperation-collective work'. To this next research's stage we draw the hypothesis that the dialectical unity of cooperation-collective work is very potential when connected with this framework for the stratometric conception. However, we preview a limit on that third procedure: we agree with Dalla Vecchia (2010) when he says that the collectives as understood by Petrovsky and his collaborators are very rare framework in the capitalist ways of social life. The collectives are encountered in the groups that organizes his activity for a social significance aim, which are conscious about the contradictions in society.

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## **Teaching-learning of some aspects of the Portuguese language for deaf people with academic experience: A study based on the Cultural-historical perspective and the Critical Collaborative Research**

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This research aims to investigate the possibilities of teaching and learning grammatical aspects of the Portuguese Language (LP) for deaf people who already have experience with this language and are carrying out academic studies. I was interested in this area when teaching deaf children. I could see that, although they spent many years in school, they completed schooling with significant gaps in reading and writing, even in spelling.

With regard to the Portuguese language teaching process, specifically for deaf students, Pereira (2005) analyzed the reading and writing processes of some students, stating that many of the unsatisfactory results obtained are due to the lack of an established language, which could be used to produce writing. Also Lodi, Bortolotti and Cavalmoreti (2014) consider that literacy for deaf people is built with the use of social practices that involve two languages and present an educational literacy proposal that results from experiences with the Brazilian Sign Language ( hereinafter LIBRAS) and Portuguese; Dias Jr. (2010), in his master's research on Portuguese as a second language, exposes the need to adapt methodologies and strategies in so-called bilingual classrooms. Góes (1996) points out some works that refer to difficulties in understanding text, reading and writing faced by deaf students, due to the quality of the school experience offered to these students. The author was able to verify that learning is poor and that students use little writing. Besides, she states that reading and writing activities are limited to simple, short texts.

In order to better study the above mentioned issues, some of Vygotsky's (1924–1934) concepts are fundamental, enabling the understanding of the complex relationship between human development, teaching and learning, mediation, development of higher psychological functions, the relations between language and thought, the zone of proximal development, the learning of relationship development, and social compensation.

The choice of methodology for this work is anchored in the critical research paradigm, since it has an interventionist nature. I consider this paradigm, since this research encompasses a critical review of teaching-learning

situations in distance education. The field research was carried out in a collaborative manner, since participants, researchers and deaf students, will be active in the search for answers to the concerns that led to the present study.

Thus, a course was developed, based on material available to listeners, with some content referring to the New Orthographic Agreement of Portuguese. This course was designed specifically for deaf students by distance learning (DL). Four deaf students participated in the pilot project. The project was divided into two stages named here as stage I and stage II, so that the methodological aspects, didactic resources and accessibility of the referred course were evaluated. The participants in step I revealed that: (1) the use of Brazilian sign language alphabet without the meaning expressed in Brazilian Sign Language (Libras) or an image can make it difficult for deaf people who have little Portuguese lexical knowledge; (2) Signing exact Portuguese is not Libras, so it does not facilitate learning; and (3) the lack of context for using the studied grammatical rules makes it difficult to understand the content. Thus, for stage II, one of the course modules was reformulated, covering these suggestions, and taking into account the concept of language as interactional and dialogical. The students redid this module, and noticed a significant change in the visual and contextual aspects of the grammatical teaching developed in Libras, meeting the specificities of deaf students. The teacher-researcher studied new didactic and methodological possibilities for the course and, in this movement, there was a transformation of her pedagogical practices.

The research revealed that collaborative work is a path that leads teachers to reflect on their practices, seeking to reframe it in search of new ways of teaching that consider the specificities and potential of deaf students. Reflective conversations with deaf students and the involvement of other professionals such as the Libras translator and interpreter gave me a new perspective in relation to the teaching and learning the Portuguese language for the deaf, with a more critical and more reflective view providing new practices that can increasingly reach the learning possibilities of these students.



## **Genesis of the affective relationship between educator and child: an ethnographic perspective**

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Early childhood is a crucial period to accompany children in their social and emotional development. By considering the childcare environment as a premise for life in society outside the family nest, it becomes necessary to question the quality of the socio-emotional relationships that are built there. Indeed, adults who interact daily with children in educational childcare center are in a privileged position to establish conditions that foster the construction of a secure socio-affective relationship that will be decisive for the rest of their lives. For many children, this relationship, which can be described as an attachment relationship, can be a decisive factor in their overall development (Brigras and Lemay, 2012). As the educational daycare center has become an extension of the family environment, the social interactions, attachment relationship and cultural contacts that the child builds with his or her educator through the daycare experience constitute a factor of interest, not only socially, but also scientifically, in terms of the “meaning” given to this relationship and, above all, in terms of the conditions put in place in daycare center to foster the child’s socio-emotional development.

An in-depth review of the scientific literature shows that there is perpetual questioning within the social and human sciences about the construction of the socio-emotional relationship between the educator and the child in educational daycare center. This questioning concerns in particular the ideal tool, which does not exist to date, for understanding this singular relationship, which is marked by subtleties that escape measurement and calculation. In fact, in the current state of research, we do not have an instrument to describe, analyze and understand the meaning of the teacher-child attachment relationship and the representation it is given at the heart of educational activities (Tardif, 2012). In order to understand this particular relationship, the main objective of this doctoral project is to trace the genesis of the socio-emotional relationship between educator and child in the context of educational daycare center. More specifically, we want to describe, analyze and understand the attachment relationship that develops between a non-parent adult and an infant entrusted to daycare and describe the factors associated with its origin and its maintenance (or its failure).

### *Theoretical framework and research relevance*

Initially inspired by John Bowlby’s theory of attachment, the theoretical approach of this doctoral project recognizes that human development is insepa-

rable from its social and cultural environment. Indeed, it is within intergenerational transmission that infants assimilate the ability to develop in its affective, emotional and social dimensions (Lyons-Ruth, 2005; Stern, 2005; Tomassello, 1999; Trevarthen and Aitken, 2003). This idea of human nature reduced to its ontogeny is based on the idea that infants have, at the basis of their overall development, an innate ability to communicate and to pick up signals from the environment to which they belong. This basis of attachment is called intersubjectivity and was implicitly recognized in the work of Ainsworth in 1978 and in the work of Bowlby in 1969. However, contemporary studies on educational quality in childcare center seem to have placed a great deal of emphasis on the behaviours of children over 18 months of age, neglecting the so-called pre-language phase and relational skills in nurseries (Lyons-Ruth, 2005). Over time, this developmental skill has been systematically abandoned in favour of concepts that focus more on individuality and exclusively attribute the development of attachment ties to responding to the child's "needs" and managing his or her "discomforts" rather than to the recognition of the fundamental intersubjective aspect that determines significant and reassuring emotional ties at a very young age (Traverthen and Aitken, 2003).

In this sense, the observation, and even analysis, of the socioaffective relationship between the educator and the infant in nursery schools from the perspective of intersubjectivity is scientifically innovative and constitutes a social contribution that is well established in its time. No study has been conducted on this subject, no study that brings together, within the same project, the quality of the socioaffective relationship between the educator and the infant, the factors associated with it and intersubjectivity. In addition, this doctoral research project will make it possible to implement strategies for support, training and intervention in educational childcare services for educational staff and all childcare stakeholders in order to adequately improve the quality of care for toddlers from a historical and socio-cultural perspective.

#### *Methodological approach*

Our doctoral project proposes to use field ethnography as a method of scientific exploration and to adopt an epistemological posture inscribed in the qualitative and interpretative approach of educational research. Through a progressive focus, we will approach the relational and socio-affective dimension that takes place in educational daycare center. Our anthropological viewpoint is very close to the ethology that is used to observe the rituals surrounding the experience of infant care and to give educators a voice, thus making it possible to explore the subtleties, both conscious and unconscious, that manifest themselves in the natural environment. By observing infants within their daily experience of care, ethnography allows us to understand the origin of the baby's reactions and also to understand the contextualization of the processes of adaptation and sociability. This methodological approach will allow us to trace the genesis of this fundamental link to the human being,

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that is, the socio-affective relationship that can develop between an adult and an infant in a non-parental context.

In accordance with the anthropological and ethological objectives of this project, novel observation grids have been specifically designed to identify all the elements associated with the joint creation of intersubjective spaces between an adult and an infant in the pre-language phase. In this way, we will be able to extract from our daily observations spontaneous actions and situations of engagement (or non-engagement) and their origins. We will also be able to observe the strategies used and the efforts made by the infant to relate to his or her socio-emotional and cultural environment. In addition, a protocol of semi-directed interviews conducted with our sample of educators will make it possible to identify and target personal factors, particularly the educator's internal representations, that interfere with, bias or deviate the development of this singular relationship that should normally be built between an educator and a child in a child care setting and that we hope will be meaningful.

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## **The teacher of the teachers: higher education teacher conceptions on mathematics and pedagogical practice**

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This research aims to analyze the teachers' senses and meanings about the teaching and learning processes, from the conceptions about mathematics that permeate the undergraduate mathematics classrooms of the Federal University of Rio Grande do Norte. During years of the mathematics teacher's formation, the same problem permeates the phenomenon of school failure, so it is necessary to investigate which conceptions of mathematics are being taught to future teachers, which make it impossible for them to modifying classroom pedagogical practice even in the face of new and different ways of teaching mathematics at different levels of education. Understanding the senses and meanings of mathematics and which processes of pedagogical mediation are being taught in the context of undergraduate mathematics is essential, so that the real transformation in the teaching and learning processes of mathematics could be possible.

Keywords: school failure; higher education; mathematics.

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## **Social Practices of children and their mothers in the teaching-learning process in primary education: generation of new social practices**

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### *Research problem*

The main problem is the disconnection between the aims of the school and the literacy practices outside schooled (Lerner, 2004), often don't know the uses of literacy in specific cultural contexts (Street, 1984; Kalman, 2004). The children talked about their different experiences with their mothers around the literacy practices in everyday life. Accordingly the *purpose*, understand how to generate new social practices through the literacy practices of children and their mothers in their context, with the articulation of teaching-learning processes in literacy. The principal research question is: how to transform the literacy process of children mediated by the literacy practices of the context towards the generation of new social practices?

### *Research context*

The research context is vulnerable, in the north of San Luis Potosi City. In order to deepen understanding, Ester and Magdalena (women and family's mothers) and their son and daughter respectively, collaborated with the research; in the case of Magdalena because triggered the process of empowerment by herself through the participation with her daughter Luisa, she helped to learn reading and writing conventionally with the knowledge acquired at school. Magdalena is a domestic worker and never went to school.

### *Method*

The research was oriented to transformation, from a qualitative approach with comprehensive epistemological positioning. I used data collection techniques typical of ethnography, with an interpretative analysis; the unit of analysis is the social subject and its practices. Collection techniques were participant observation in the classroom, households and social context of the subject; informal talks; in-depth interviews and collection of written productions. I used field diary, video and audio recorder. I observed while working as a teacher in front of a group for a time. In addition, I developed a pedagogical innovation proposal that I applied and analyzed from an interactionist approach.

### *Social Practice Approach*

I situated the research in the *ideological* model (Street, 1984) when literacy is a social practice and always embedded in socially constructed epistemo-

logical principles. “The ways in which people address reading and writing are themselves rooted in conceptions of knowledge, identity and being” (Street, 2005, p. 14). Also the literacy is permeated by power relations (Freire, 1970; Kalman 2004; Street, 1984, 2005).

From a historical and cultural perspective (Vygotsky, 1979), literacy is a complex construct that occurs in everyday life, in a broad sense is the heterogeneous participation of the written language in various social practices to participate in the social world (Kalman, 2004). Vygotsky noted that the beginning of human development is a collective or social activity carried out through or with the help of collective subject in a cultural environment, where thanks to the means of culture, signs and symbols, the learning process of a person’s individual activity becomes important. Also practice social is the basis in the development of the human being represented by a qualitative change in the situation social, alluding to Leontiev, a change in the person’s activity (Rubtsov, 2016).

#### *In conclusion*

The main contributions were: the admission of the knowledge that mothers possess regarding the literacy practices of the context, influenced by their life stories. The relationships built in social practices through orality, reading and writing; in addition, the reflection of the social and cultural context of their reality that triggered the empowerment process of the women who participated in the research and generated new social practices that emerged from the actors (Mendez, 2018). Therefore I present three emerging categories that I proposed: “Symmetrical love relationships”; “Empowerment of women with school participation” and “The child, two-way mediator of literacy practices” (Mendez, 2019).

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## **Analysis of co-creative processes in interdisciplinary projects in Higher Education**

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This PhD project is concerned with the evaluation of the development of creativity within groups in interdisciplinary projects in Higher Education (HE). The project is developed within a program called INVENT@UCA dedicated to the development and evaluation of 21st century skills with a focus on collaboration and creativity.

This program aims to develop and implement creativity as systems among participants over time rather than as individual performance or ability. Approaching creativity in this way represents a challenge as far as assessment of activity and group development. Sternberg & Lubart (1991) consider creativity as resting on resources such as intellectual processes, knowledge, intellectual style, personality, motivation, and environmental context, a definition that stresses complexity.

The main objective of this study is therefore to provide a viable methodology to implement a longitudinal framework to study the dynamics, development and results of co-creativity processes and strategies in interdisciplinary projects in HE.

The central question is: How are co-creative solutions negotiated, managed and implemented and to what effects among interdisciplinary groups of students in the context of HE?

This question unfolds into the following specific objectives :

- Definition of the co-creativity processes in HE
- Development of a theoretical framework of co-creativity combining a socio-cognitive approach based on CSCL studies and Cultural Historical Activity Theory (CHAT)
- Development of a research methodology for observing co-creativity in project-based activities in HE

Cultural-Historical Activity Theory (CHAT) will be used as the main theoretical framework for the analysis of data to shine light on internal and external dimensions involved. As such, the third generation of CHAT is particularly relevant due to its emphasis on multiple interacting activity systems (Engeström, 1987).

As far as the design of the research and the use of CHAT are concerned, three main topics emerge at this point. First, Nussbaumer (2012) identifies the choice of a unit of analysis as one of the main challenges to a scientist

in education.

One of the main discussions to be had is whether the main unit of analysis should be activity itself and its impact on group metacognition, or the nature and evolution of relations between participants over time as a means to investigate social relations.

Second, as far as mediation instruments, the balance to be stricken between implicit mental objects and explicit physical or digital objects (academic material and lessons, methodological tools, physical and digital learning environment, software etc.) is also paramount to the design of the research. Finally, the ability to analyse the link between internal and external processes represents one of the main challenges that needs solving.

Lastly, change lab sessions based on the change lab methodology will be carried out as a means to supplement and offer strategic guidance to participants as a formative process to foster expansive learning and support the emergence of agency within a group. Change labs complement the data gathering phase of this research by helping to bring about the intended change in practices.

CHAT will be combined to cognitive science approaches to develop a longitudinal methodology to characterize the evolution of co-creative processes over time: CreaCube assessment for creative problem solving (Romero, David, & Lille, 2018; Romero, DeBlois, & Pavel, 2018), Alternative Use Tests (Guilford, 1962), Torrance test of creativity (Torrance, 1972), Big five (Costa & Mac Crae, 1992), Tolerance to ambiguity (Budner, 1962; Tegano, 1990).

To generate and analyse data from the evolving processes of creativity and co-creativity, an interactive app that will be made available to participants that will support students' self-reported inputs (operations within the hierarchical model of human activity, deductive and inductive processes, meta-reasoning processes).

The logs and data reported coupled with input and output tests and analysis of output of different groups will allow for understanding complex multimodal data dedicated to the characterization of regulation during co-creation processes. This process is necessary to gather data over time with regular enough measurements to account for the dynamics of co-creation activity and events. Therefore Computer-supported collaborative learning (CSCL) will also be used as a framework for the analysis of peer activity with the support of information and communication technologies.

The study of co-creativity in HE in a long term project will require to develop a multimodal protocol in order to characterise the processes involved at the individual and collective level. The foundation of such a protocol intends to be laid out by the present project.

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## Student agency in Nordic digitally rich lower-secondary classrooms

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Digital technologies of today are generally considered to foster high-quality teaching and equal learning opportunities for all (Klette et al., 2018; OECD, 2018). Technology is recognized to be vital in the pursuit of achieving inclusive and equitable quality education globally (UN, 2017). By now, digital technologies have become an integrated part of contemporary teaching practices in the Nordics. Schools have rapidly transited to one-to-one (1:1) classrooms, generally encompassing new pedagogical solutions and new learning environment spaces with ‘opportunities for polysynchronous learning where there can be a blend of face-to-face with asynchronous and synchronous online communication’ (Charteris & Smardon, 2018: 52). This has challenged our understandings of the meanings of both traditional and new modern classroom spaces.

From a student perspective viewed, the presence of technology has created new temporally and spatially fluctuating digital spaces and opportunities for learning (Selwyn et al., 2017). Notions of student agency have become increasingly foregrounded in education technology and student participation literature. Student agency as ‘sovereign ownership of learning’, prioritizing individuality and competitiveness, is strongly emphasized.

Nevertheless, much remains unknown about the connections between the use of digital technologies and the outcome of student classroom activities at lower-secondary school level in the Nordic countries. To fill this gap, this article reports findings from a qualitative video-ethnographic study where we examine student agency in digitally rich lower-secondary classrooms in Finland and Sweden. The following research question is posed: *How is student agency enacted in the discursive and interactive practices in digitalized lower-secondary classrooms?*

The present study is part of the *Connected Classrooms Nordic* –study within the research centre *Quality in Nordic Teaching* funded by NordForsk. The research draws on socio-cultural and poststructural theorizing of agency. As we understand the term in a classroom-teaching context, student agency embodies the contextually, materially and discursively embedded way(s) the students act, position themselves, and participate in the teaching. Classrooms constitute complex social spaces, through which student classroom activity composes a relational process. In that way, classrooms can be seen as activity

systems, where students, teachers, curriculum materials, software tools, and the physical environment constantly interact, co-producing relations of agency. The agency of objects, material agency (Barad, 2003; Braidotti, 2013) becomes significant in our analysis.

Methodologically, a video-ethnographic approach is applied. The data consists of video-recorded lessons (n=22) in the school subjects Language Arts (LA), Mathematics and Social Science/History, including 1–2 focus students per lesson, with special focus on the focus students' screen-mediated classroom activities when technology is utilized in the teaching. Video-ethnography gives an opportunity to enter the research context and to 'capture' naturally occurring daily activities. It has shown to be effective for studying the complexity of social practices, by providing real-time, multimodal, durable, malleable, and shareable data records (Clarke & Chan, 2019). It allowed us close investigation of the students' classroom activities in real-time when digital technologies were used in the teaching.

The participating schools, one per country, with 7<sup>th</sup> grade classes, when the students were 12–13 years old, were recruited through a survey request. Informed consent were required from the participants: students, caregivers and teachers. To optimize the interest to participate in this study, teachers and students got information about the project on site at the school before the survey was conducted. The lessons were recorded with three cameras and three microphones. One camera stood in the back of the class following the teacher's actions and the whole class teaching. Another was placed behind or beside the focus student (one camera per focus student) aiming to capture student activities with a special focus on the screen whenever a digital device was used by the student. If there was one focus student, the third camera was placed in front of the class towards the focus student. Both the focus student(s) and the teacher were equipped with own microphones for audio recording. Field notes were collected.

Further, coding is used as categorizing strategy (Saldaña, 2014) for the video data; we generated descriptive codes via two fixed points: 1) identification of tool use, and 2) identification of the social organization in the classroom, which resulted in a coding scheme according to which the data is segmented. Segments related to the focus students' tool use are under scope of deeper analysis, building on conversation analysis (Sidnell, 2016) of selected extracts.

Looking at the students' technology-mediated classroom activities more closely, through the research we aim to gain a deeper and more nuanced understanding of how agency is distributed in digitalized classrooms. In order to profoundly understand and discuss any implications of how, when and, perhaps most importantly why digital technologies are used as they are in lower-secondary classrooms, we need to examine closer the relationality and materiality of contemporary classroom spaces.

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## **The use of the mediated artefact in double stimulation to understand how and what is happening in the fringe zone of the learning process**

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### *Background*

Though the various researches, which capture how learning develops, expand in social science, educational and psychological field, learning remains a complex matter (Quennerstedt et al, 2014). If some scholars try to highlight the means to enhance learning and others the purpose to construct learning, the subject stays vague. According to Physical Education researches, learning theories depend on the fashion and on the teachers' tilt. Some of them prefer to develop content around an ecological approach (Hastie & Siedentop, 2006) interacting on students' behaviour whereas others try to understand what is occurring in the brain during motor skills acquisition (Lee & Salmon, 1992). Both these conceptions ignore the social and cultural environment which raise in situated learning (Kirk & MacDonald, 2008) and the French didactique tradition (Amade-Escot, 2006). It seems that learning is born in a social and cultural environment in interaction in a joint action between teachers and pupils but also inside a community of practice through the legitimate peripheral participation (Lave & Wenger, 1991). Moreover, some scholars tried to capture what Lather (1998) called 'third place'. This 'dark zone' appears to be the spot where 'something occurs' when the activity becomes 'messy'.

### *Purpose*

Even if in Physical Education, no consensus was found yet (Quennerstedt & Maivorsdotter, 2016) on the best learning theory to use, we can develop the Activity Theory framework (Engeström, 1987) to help teachers to understand learning construction during the embodied activity. Indeed, there are no best learning theories but some which suit best for some specific content. Besides, inside a physical activity there are contradictions which have to be overcome and taking into account Leontiev (1978), we can stipulate that during a physical activity some aggregates of operations unfold to achieve an action which is related to the construction of the object through action in order to sustain the goal of the activity. Thus, rich of this diversity, my research focuses on the dialectic inside the activity system which expands from a micro level of analysis of the pupils' activity to a macro level of the various systems which meet at a crossing boundary to develop their own object using a mediated artefact (Vygotsky, 1978). The object is different for each pupil because it



is the intentionality and the signification they assemble while performing the activity, but at a moment in the activity system these objects are redefined, and one object is accepted by the whole system. During the standardization of the object and its reshaping we can point out that ‘something happens’, which makes us understand at the same time how and what pupils are learning.

#### *Pilot study*

Based for the moment on a small pilot implementation done in August 2018 with four children (from 8 to 12 years old) on an indoor climbing wall, children were given climbing cards as mediated artefact in a goal-oriented action which was to create the most efficient climbing code. Tracing the pupil’s activity was done with videos and interviews which we analyzed after the session to understand the way they had created their climbing code.

#### *Methodology*

We will use a qualitative method. Using the methodological tool of the discursive linguistic manifestations (Engeström & Sannino, 2011) and applying the double stimulation (Sannino, 2015), we can retrace the critical didactic incident (Amade-Escot, 2005). Moreover, this filter allows us to understand how the different systems interact to reconfigure the boundary object in an iterative process based on reflexivity and experimentation.

#### *Results*

In the indoor climbing activity, the system operates on a primary contradiction to overcome in order to reach the goal (climb the wall) which is to think before climbing (reading hand and foot holds and directional cards before climbing). Typically, when faced with a climbing task, pupils want to engage in climbing straightaway. They are usually unable to develop their self-control when facing the wall and don’t reflect on the challenge facing them. This is one reason why we have proposed climbing cards as instruments or artefacts to aid pupils’ learning to climb. This contradiction analyzed under the discursive manifestations, shows the dilemma explained by ‘I can’t climb with cards but with my body’. Then, through an iterative process, trying out experimentally the climbing wall and the cards, pupils go from critical conflicts ‘which cards represent which climbing holds?’, to double blind ‘I have tried to identify the form of the holds and make them correspond while trying them physically’. They come to a point where they are confronted with a secondary contradiction which shows the reshaping of the object which is to reorganize the cards. They have moved from how to make use of the cards to how to assemble the cards. The same steps will repeat till the object is transformed again into a more advanced activity such as sharing a valid readable code. Through the tracking of these contradictions we are able to explain how pupils acquire methods for learning while experiencing and sharing their codes. This artefact has to be interpreted, constructed and developed in a collective way and a new activity has to be redefined, in this case, learning to share their codes. The learner has to use this artefact in order

to construct solutions to the challenge of reaching the top of the wall. In this way, knowledge is built or created (Bereiter & Scardamalia, 2014).

#### Discussion

The research wanted to point out what was happening in the dark zone where pupils' activity systems meet at a fringe or a crossing boundary. Through the small pilot done, we can think that during the activity the individual object become a boundary object. However during the quest of the object in order to sustain the goal, while overcoming the mediated artefact, pupils go through different steps which can be the expression of a method for learning. Thus, when pupil's systems meet in the boundary object, we can point out what is going on in the dark zone : they negotiate, share, validate, refute their findings till they meet an acceptance. This tiny moment remains in a kind of chaos and it is fluctuating because nothing is constructed. Pupils grasp the knowledge and construct what learning could be. The life of the boundary object is due to 'die' once it has been accepted and generalized in a method, a rule of action.

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## **Development of image of adulthood of teenagers 14–15 y.o**

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A teenager needs to use his imagination to go beyond (above) the existing examples and create his ideal image of adulthood. The logical development of the teenager's imagination is the ability to look at himself, at culture, at history, on his upbringing and knowledge in order to see what he can bring to what he understands and knows already, and to be useful both to his self-realization and to society.

He is looking for how to self-actualize and be useful to society.

If teenager understand only the ideal image, but he doesn't have an algorithm for going to his plan, we will face protest, negation, and negativism. This will have an effect on the image of yourself – there is dissatisfaction with yourself.

If there is no clear development plan, teenager protests, denies, shows negativism. His self esteem becomes negative too, image of himself becomes negative.

It is important for a teenager to support his ideas, his activity, so that he can share his ideas with adults, even if their ideas are not realistic at that moment. It is necessary to give the opportunity to directional movement and explain to the teenager: It's normal if your idea changes during implementation, it's life. It is important to provide adolescents with such activities in which he will be able to express his subjective position. They need a support looking for ways to move towards the «ideal image of adulthood».

One of the important conditions for a teenager to see himself in the future is an important place for independence in everyday matters. My hypothesis is that the development of self-reliance and confidence skills influence the image of adulthood and my task is to see this in an experiment.

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## **Literacy Coaching and Data Use as Organizational Routines in the Danish Public School**

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### *Theme and Research Question*

With the reform of the Danish public primary and lower secondary school (2014), the expectations to data use has increased in significance. This reflects a belief among government and municipalities that use of assessment data (e.g. standardized test) will qualify decision-making processes in teaching (EVA, 2017). Literacy coaches have a central role coordinating, analyzing and translating test and other learning-related data into concrete didactic measures to increase the quality of teaching and learning (Orland-Barak & Maskit, 2017; Marsh et al. 2015). This research project investigates how literacy coaches qualify teachers' data use by navigating and negotiating organizational routines. Literacy coaches are prioritized in all Danish schools (N=1200) (Pøhler & Kledal, 2011). However, very little is known about how they make sense, translate and disseminate different kinds of assessment data in different organizational routines. Literacy coaches are viewed as central to the school organization, as they are the link between teachers and leaders, and responsible for implementing management visions on increased data use. Literacy coaches navigate and negotiate organizational routines that help and support teachers to focus on data use and students' learning. Literacy coaches' use of assessment data will in this research project be analyzed in different organizational routines in school. The objective is to interpret and understand how literacy coaches enact and negotiate organizational routines that are manifested, sustained and sometimes break down in practice (Spillane et al. 2011; Rice & Cooper, 2010). Organizational routines are defined as repetitive recognizable patterns with common actions involving various actors (Feldman, 2000; Feldman & Pentland, 2003). By data use is meant the collection, analysis, intervention and evaluation of assessment data that can be generated internally within the organization or come from outside (Lai & Schildkamp, 2013). Data use has different purposes e.g. to keep teachers and management accountable for how the school performs. Another purpose of data use is to improve teaching and learning (Schildkamp et al., 2017; Kiær, 2020). These various purposes of data use constitute not only different organizational routines but are also sources of dilemmas. Whereas management

and administration often use data in an accountability perspective, teachers are primarily interested in data use in relation to teaching. In Denmark, this dilemma is especially pertinent with respect to national test data where research shows that teachers do not believe that tests have contributed to a better assessment culture (Bundsgaard, 2018a, 2018b). International research similarly indicates that teachers find it difficult to understand test data and often find them useless in relation to their planning of instruction (Datnow & Hubbard, 2015; Young & Kim, 2010). Data use in practice is difficult and more knowledge on data use in different organizational routines is needed (Kippers et al. 2018). This leads to the following research question:

How do literacy coaches support teachers use of assessment data, by enacting, navigating and negotiating organizational routines in Danish Public Schools?

*State of the art*

Internationally, there is an increasing awareness of data use and how it can promote school development, increase teaching quality and support student learning (Coburn & Turner, 2011; Mandinach and Gummer 2013; Ikemoto & Marsh, 2007).

A literacy coach has multiple roles (Bjerg et al. 2014) and is pictured as a change agent, relationship builder, curriculum expert, instructional specialist, professional developer and data analyst (Sisson & Sisson, 2017). When it comes to the role as data analysts, literacy coaches have gained a greater importance in helping teachers analyze, interpret and respond to data on student learning and make adjustments in relation to teaching (Rodgers & Rodgers, 2007). The role involves both having to function as a coach for colleagues and entering management-related tasks such as reading conferences and implementation of tests (Kuhlmann & Rydén, 2011). Literacy coaches play an essential role when translating policy into practice, and teachers are more likely to make substantial changes in their practice with a coach, as the coach teaches them how to integrate new approaches into their classroom and make choices based on data, so they achieve deeper level changes in pedagogy (Coburn & Woulfin, 2012; Marsh et al. 2015).

In the Nordic countries, there is very limited research that examines the potentials or practices of pedagogical use of assessment data (Bundsgaard, 2018a). Test results require translation, interpretation and contextualization so that teachers know how the results can be integrated into teaching practice (Little, 2012), and data must make sense for teachers and be perceived as useful (Mausethagen et al., 2018). Teachers must acquire competencies in being able to use data – or become “data literate” (Means et al. 2011). Mausethagen et al. (2018) raise the question of how test results turn into professional knowledge and specifically what type of professional knowledge.

*Methodology and research design*

A multiple embedded case study design enables to both examine common and different patterns of data use on different organizational levels (Flyvb-

jerg, 1988). The project will follow a grounded theory (GT) approach, which enables me to explore and theorize how literacy coaches enact and negotiate different kinds of routines: Ostensive (defined externally e.g. by management or administration) and performative routines (emerging bottom-up e.g. in literacy coaches' collaboration with teachers) (Howard-Grenville et al. 2016). GT encourages to study social processes *in situ* with an emphasis on the interactive, practical and situated aspect of routines. The empirical data are coded openly, then focused and finally theoretically conceptualized from a constructionist perspective (Charmaz, 2014). Each case is examined using qualitative observations and interviews in the school's different organizational routines. An abductive strategy is used so that the cases are building theory (Järvinen & Mik-Meyer, 2005). I will use field notes, both descriptive and interpretive, sound recordings and documents, that enable me to investigate how literacy coaches translate data, which translations that make sense to teachers, and how different strategies of data use emerge in different organizational routines.

### *Theory*

The theoretical perspective is developed from GT and is based on a cultural historical activity theoretical tradition (Engeström 2014, 2016). This implies a view of literacy coaches, leaders and teachers as constructors and negotiators in and of different organizational routines in school where artifacts, dialectics and tensions in the activity system is investigated in relation to division of labour, communities and rules.

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## Expanding educational management beyond school walls

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Brazilian educational system comprises 77,84 % of public schools, which receives 85,5 % of students (Educational Census, 2018)<sup>1</sup>. In addition, most of public schools are in outskirts communities, which also means that schools are surrounded by violence and marginalization, as for example in the city of São Paulo, where most of this research took place. According to INPE (National Institute of Space Research) (2010) 2.7 million people live in *favelas* or other type of precarious marginalized housing. As a consequence, it is very common to have students, teachers, and educational managers who have the right to go to school or to have their jobs there, but the criminality and poverty in their living and working contexts have such a bad impact there that they need to develop tools to make education happen inside and outside school in a less marginalized manner.

Among these problems, four issues stand out. First, teachers are underpaid and work long hours (often working two or even three shifts) at several schools. Professionals with a graduate degree who teach fifth to twelfth graders earn a base salary of €693 a month, or €8316 a year for a forty-hour workweek, and those who teach for elementary school (first through fourth grades) earn €7290 a year (Bárbara, 2015). Second, classrooms are overcrowded. The number of students per class should be from 30 to 40, but this number may reach up to 95 students in some schools.

Third, violence is always present in different forms at school. As most public schools are in urban peripheries, students and teachers need to handle several types of violence, including violence that is generated outside of the school and moves into the classroom and violence generated by the educational system itself. As a result, although students have the right to attend to public and free schools, they do not learn half of what is expected of them (Freitas, 2009). In addition, educational professionals do not learn at universities how to handle with drug dealers who want to negotiate school schedule, nor to kids who are seduced to work in the organized crime, neither with kids who have their parents arrested and are going to live in shelters away from their families.

Fourth, schools lack infrastructure including basic materials and facilities such as toilet paper and educational material (Lemos & Cunha, 2018). Finally, there is excessive bureaucracy, which demotivates those who work at

schools, as well as students and communities (Freitas, 2009). Still, even with in this chaotic scenario, during the year of 2019 the government proposed deep cuts in education (O Estado de São Paulo, 2019).

The situation described above is related to the idea of citizenship-as-legal-status and citizenship-as-desirable-activity, in which the first is connected to the idea of full membership in a community with rights and duties, while the latter, considers the extent and quality of one's citizenship functioning according to their participation in the community (Kymlicka & Wayne, 1994).

Regarding the relation between educational management and the possibility of managing education in a big city, it is important to consider education as a permanent process, not only in which pedagogical practices take place but also as a context in which the city is engaged in educational processes (Freire, 1992:13). In describing the relation between city and education, Freire states that: the city becomes educating no matter one's will or desire, city become educating by the necessity of educating, learning, teaching, knowing, creating, dreaming, imagining that we all, men and women, impregnate its fields, its mountains, its valleys, its rivers, we impregnate its streets, its squares, its fountains, their homes, their buildings, leaving in everything a stamp of a certain time, the style, the taste of a certain time. The city is culture, creation, not only for what we do in it and of it, so we create it and with it, but it is also culture by the aesthetic or astonishment sight we give it. The city is us and we are the city. (Freire 1992:13).

Bearing such context in mind, this research is based on the theory of Expansive Learning (Engeström, 2015) to support the analysis of a formative intervention, organized by a chain of activities (Liberali, 2006) in school contexts. Besides it also supports the analysis of an exploratory study on secondary students' social movements, in which students fought to secure at least the basic conditions necessary for learning at schools in the public educational system in Brazil (Lemos & Cunha, 2018), which faces a variety of challenges. Such social movements can be seen as an attempt of students to compensate traditional school management, which was not able to secure such basic learning conditions.

All in all, this research analyses a formative intervention that seeks to organize an educational system that faces the dilemma of accomplishing policies focusing on tests and assessments results, and the social realities of marginalization, not only for students but also for the professionals in charge of education to overcome the encapsulation of educational management.

The need for this study stems from a tension between the dominant business-oriented management model in growing need for dialogue and sensitivity to local needs. According to Liberali (2012) the lack of partnerships amongst managers on different levels was preventing, firstly, the implementation of the educators' development policies and, secondly, recognition of the importance of allowing teacher educators, pedagogical coordinators, principals, and teachers to make decisions about planning and implementing their work.

Therefore, the study starts with a review of the literature on educational management to clarify the pathways of educational management from different perspectives. After this, I give a historical perspective on educational management in the city of São Paulo. Then I introduce the theoretical framework, divided into theory of expansive learning, sense, meaning, and concept formation; the creative chain of activities and collaborative agency. After that, I present the methodology by restating the research questions, describing the research context, discussing the formative interventions methodology and the exploratory study that permeates the whole study; and by overviewing the data and methods of analysis. Finally, I describe the five articles that comprise this study, the ethical issues that concern the work as well as the other articles of the dissertation.

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## **Relations between the Science Teaching Projects Innovation and the Scientific and Educational Policies in 1950s USA**

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We live in a time when the idea of innovation is in vogue to express whether technological or educational transformations. However, regardless of the concrete reasons that led them to be created, several innovations are nothing more than fetishes produced only for consumption. In Education and particularly in Science Teaching, several innovations are advertised as a solution to various problems faced by science education. In this research, we will investigate the socio-cultural-historical conditions that allow the creation and development of innovative science teaching projects. In order to identify these conditions, we will investigate a historical case of great importance for Brazilian Science Teaching: the Physical Science Study Committee (PSSC), the American physics teaching project developed in the 1950s. The influence of the PSSC in the field of physics teacher education is undeniable since it is treated, in the physics teacher training courses of the leading Brazilian universities, as a proposal that changed the direction of scientific education at the time of its production and dissemination. Our research objective is to investigate which socio-cultural-historical conditions allowed the creation and development of the PSSC, determining the intended educational, scientific, and political objectives. Beyond that, we intend to identify the necessary conditions for the implementation of this innovation in the scientific education of that country. The research is based on the Historical-Cultural Activity Theory, which takes the historical development of human activities as a complex system of coordinated activities. The object to be investigated is the mediations educational and scientific policies make between the economic and political field and the production of didactic material for science teaching. The materiality of the object resides in historical documents from primary sources that will be analyzed from the perspective of Document Analysis.

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## **Coach Vygotsky: Developing the Pedagogical Creativity of Coaches: An Action Research Approach**

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The application of pedagogical research to sports coaching is not an uncommon practice and, since Jones' (2006) explicit re-conceptualisation of the role of the sports coach as educator, coaching's pedagogical nature has been increasingly recognised (Jones et al., 2018). In recent years, one theorist who has been given more and more attention in this regard has been Lev Vygotsky. Here, the works of Jones and Ronglan (2018), Jones et al. (2018), Potrac et al. (2016) and Jones et al. (2014) has sought to examine Vygotsky's works in relation to sports coaching. Whilst such writings represent new lines of inquiry within coaching research, Jones et al. (2018) have discussed how the majority of these engagements with Vygotskian ideas have been rather limited; predominantly focussed on the notion of learning within a 'zone of proximal development' or 'ZPD'.

Although widely renowned as Vygotsky's most significant concept, the ZPD is arguably his most misunderstood (Chaiklin, 2003). Indeed, the ZPD is often misinterpreted as a 'vision of educational perfection'; where individual learners can effortlessly master their tasks (Chaiklin, 2003). In light of such misunderstandings, Jones et al. (2018) argued that a number of gaps remain within literature; particularly when it comes to purposively thinking through what Vygotsky's work might mean for athlete learning in a coaching context. Taking account of such considerations, the foundations of this thesis are built upon Vygotsky's (1978) original views on child learning and the potential impact, both theoretically and practically, that the application of such work might have on the field of sports coaching. Drawing upon the theoretical perspective(s) of Lev Vygotsky then, the principal purpose of this study is to develop the pedagogical practice of eight participant coaches from a variety of elite sporting environments, through an action research approach to sports coaching.

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## **The subjective dimension of teacher education in city departments of education: a proposal of Research and Teacher Education toward Social Transformation (RTEST)**

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According to Masukawa master's research, developed in the field of cultural-historical psychology, the contribution of teacher education processes to the professional development of teachers depends on the quality of multiple determinations, because there are (un)favorable movements of transformation related to elements from the subjects, which constitute their subjectivity (such as conceptions, interests, needs, among others), being clear that this dimension of subjectivity is social and historical; and also elements from the social, historical, cultural, political and economic conjuncture (such as salary, structures, levels of decision, levels of participation, career, work climate, labor legislation, among others).

By considering these and other determinations that constitute the activity developed by teacher educators, we question: Which conceptions about teaching, learning, development, and knowledge ground the processes of teacher education promoted by the professionals who work at city education departments? To what extent the conceptions that constitute teacher educators' practices are clear to them? What might be the contributions and the limits of these conceptions toward the necessary social transformation?

In search of answers and interested in contributing to the improvement of teacher education processes, we intend to develop this research by moving towards praxis and aiming at the professional development and learning of teacher educators.

For this, we have as the general objective: to apprehend the subjective dimension of teacher education in city education departments, and constitute a dialectical proposal of Research and Teacher Education toward Social Transformation (RTEST), and as the specific objectives: (a) to apprehend meanings of teacher educators about the teacher education processes they develop; (b) to apprehend meanings of teacher educators about their activity and which conceptions constitute it; and (c) to develop a Transformative Activist Stance (TAS) for both researcher and researched participants.

There are two groups as participants of this research. Each group is composed of three professionals who work as teacher educators at a city educa-

tion department in São Paulo state. The selection criteria are participants who work as teacher educators at city education departments in São Paulo state and interested in participating in face-to-face meetings with the researcher.

The data currently under analysis were produced in five 2-hour meetings each, with each group, to develop discussions on the object of study of this research: the subjective dimension of teacher education in city education departments.

We also produced data by asking the participants to answer a semi-structured questionnaire after the face-to-face meetings with the researcher about their professional profile and an assessment of the research process.

The process of analysis and interpretation of the data has been done via the procedure named *Nuclei of Meaning*, proposed by Aguiar, Soares, and Machado (2015), which converges with our perspective in this research, that is the theoretical and methodological assumptions of socio-historical psychology. We are also based on coherent theories to this perspective that deal with processes of teacher education and professional development; and discussions about critical pedagogy and collaborative research.

Stetsenko (2017) considers that the engagement of individuals for transformation demands to integrate them concerning (a) their condition of knowing and being in the world and (b) their performance and realization of a world of transformative and collaborative practices, with conditions to participate in collective efforts and develop and learn from contradictions and conflicts.

In this way, we present our proposal to develop research and teacher education as dialectical processes, because we believe it is a great possibility for researchers to contribute to teacher educators and inspire them, by acting critically and collaboratively as a good reference to develop comprehension, explanation, and transformation of pedagogical practices through a transformative activist stance, that undoubtedly demands a broad theoretical and practical knowledge, with an intentional effort toward social justice.

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**A study on re-socialization process and  
identity-related dynamics in a transition programme  
for internationally educated nurses**

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This dissertation is part of an interdisciplinary project, financed by the Swiss National Science Foundation, on career transition and trajectories of foreign nurses who apply for recognition of their nursing diploma (Alber et al., 2016). The nursing profession is a regulated profession; as a consequence, nurses with a foreign educational background, in order to work as a registered nurse in Switzerland, need to get their diploma recognized by the Swiss Red Cross (SEFRI, 2018). When a direct recognition of the foreign diploma is not possible, a transition programme, including a six-month internship and a 23-day theoretical training, must be completed. This transition programme should prepare the internationally educated nurses (IENs) to enter the profession and ensure a safe nursing practice in Switzerland.

Previous studies have reported the challenges faced by IENs which refer, on the one hand, to the experience of migration and, on the other hand, to the challenges of integrating or passing through transition programs in order to gain registration of their diploma. The literature shows that the recognition process is often complex, costly and long – due to institutional, personal or family problems – and that the IENs face de-skilling, discrimination and marginalization (e.g., Newton et al., 2012; Primeau et al., 2014). Most studies in the field have only focused on the IENs' perspective. Our focus will be more specifically on the psychosocial processes and identity dynamics at work during the transition programme and the role of different actors involved in this transition programme.

To investigate the re-socialization process and identity dynamics that the IENs experience, we consider the transition programme as a psychosocial transition. During this psychosocial transition individuals can experience identity-related changes, the acquisition of new knowledge, skills as well as new social practices and the construction of meaning (Zittoun, 2008; Zittoun & Perret-Clermont, 2002). The professional socialization as mobilized in the interactionist perspective is a. This socialization describes the process that transforms not yet initiated individuals into holders of a part of the profes-

sional culture and is a process by which individuals acquire knowledge, skills and can construct careers (Hughes, 1956). Even though the IENs are trained nurses, they are not familiar with the Swiss professional world and the expectations and practices. Therefore, the socialization they experience could be qualified as re-socialization. Dubar (2010) considers secondary socialization as a process of construction, deconstruction and reconstruction of the “specialized” identity linked to different spheres (professional, political, marital, etc.). The professional activity should therefore be studied as a biographical and an identity process as well as an institutional one (Dubar, 2010).

A qualitative, multifocal and longitudinal study, situated in a sociopsychological and sociocultural approach (Alber et al., 2016; Grossen, 2009; Muller Mirza, 2005; Muller Mirza & Perret-Clermont, 2016), allows us to analyse the process of re-socialization and identity-related changes that they may experience during the process of gaining recognition for their foreign diploma. We interview the IENs at different times during and after the transition programme. The interviews are in semi-structured form to allow the participants to tell their story, their practice and their experience (Bruner, 2002). A second type of interviews is inspired by the activity clinic approach (Clot & Faïta, 2000) and allows us to gather detailed information about situations that involve significant incidents (Muller Mirza & Perret-Clermont, 2016; Schaad et al., 2019) that occurred during their internship. We also include the perspectives of other actors involved in the transition programme, such as the teachers of the theoretical training as well as internship supervisors, collected through semi-structured interviews. The transcripts will be analysed with specific content and discourse analysis methods to identify acquisition of knowledge and meaning construction (Greco Morasso & Zittoun, 2014).

The results of this study may provide new knowledge on the strategies mobilized by IENs in the context of psychosocial transition and professional re-socialization in a migratory context and provide field actors with elements to better support IENs in their professional integration.

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## **The client's internal dialogue with the therapist as a stage of interiorization of the therapist's image**

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Starting the study of internal dialogue, it is necessary to rely on the works of the Soviet psychologist L. S. Vygotsky, who developed the concept of internal speech and the transition of the external speech into the internal speech, i.e. interiorization. This is one of the central concepts of the theory developed by Vygotsky, which has been confirmed in many studies conducted by himself and his followers. The works of L. S. Vygotsky show that the internal and external sides of speech form a unity, but each has its own characteristics. Vygotsky's ideas remain relevant to this day and give support to new research in psychology. Developing Vygotsky's ideas, we can assume that the process of interiorization extends to many mental processes, in particular, to embedding the image of the psychotherapist in the client's mental reality.

In our study, we attempt to describe the general characteristics of the process of internal dialogue between the client and their therapist and analyze the client's internal dialogue as a process of interiorization of the therapist's image.

Our hypotheses.

1. In the process of long-term therapy or after its completion, the client may experience an internal dialogue with their therapist.
2. The internal dialogue of the client with the therapist has certain characteristics.
3. Internal dialogue can be part of the process of internalizing\ interiorization the therapist's image.

We have compiled two questionnaires with open and closed questions, and 61 people were invited to participate in the study. The first questionnaire includes 25 questions and is aimed at describing the relationship between the characteristics of long-term therapy and the characteristics of the client's internal dialogue. The second questionnaire includes 10 questions and is intended to describe the characteristics of therapy for those clients who do not have an internal dialogue with the therapist.

Analysis of the client's internal dialogue process as a process of internalizing the therapist's imaginary image has shown the following:

- the quality and features of imaginary contact are directly related to the duration of therapy: when the duration of therapy is more than 5 years, more than 39 % of respondents have an internal dialogue; when 3–5 years of therapy, more than 27 % of respondents indicate the presence of this phenomenon;

- according to our data, more than 80 % of respondents have an internal dialogue during therapy. After the end of therapy, it gradually stops: in 15 % of respondents, it lasts for about 3 years after the end of therapy; but in some cases (about 2–3 % of respondents) it continues for quite a long time (more than 3 years after the end of therapy);
- respondents describe the quality of their therapeutic alliance with the therapist as excellent (54 %) and good (41 %): the presence of internal dialogue is associated with the client’s personal perception of the quality of contact with their therapist;
- more than 60 % of respondents do not discuss their internal dialogue during real sessions. At the same time, about 40 % of survey participants do so;
- analysis of detailed responses from respondents about the reasons for voicing or omitting the fact of internal dialogue, as well as clarification of clients about the topics of dialogues, their experiences and considerations about the imaginary dialogue, shows that clients go through a long process of building internal contact with the therapist and internalizing their image;
- when the period of collaboration is short (about 1 year), 21 % of respondents say that they omit the fact of internal dialogue;
- insufficient contact with the therapist or lack of trust in them for 47 % of respondents becomes an obstacle to voicing the fact of internal dialogue; these respondents, probably, are only at the beginning of the process of interiorization the image of the therapist in their internal life; these respondents indicate the “lack of any strong feelings” towards the therapist and to the fact of their imaginary dialogue with them;
- 40 % of the respondents, as we pointed out above, state the fact of their dialogue during sessions, and this also occurs for a variety of reasons: long period of work or high quality of contact and confidence in the therapist are critical factors for making internal dialogue the focus of the live sessions; these respondents speak of “continuity of work”, “the transition of the real sessions into the internal work”, “the importance of dialogue”, “the importance of the therapist”, interest, shame, joy, anger and other feelings in the process of therapeutic work. It is interesting to note that this percentage of respondents does not correlate with the duration of therapy. These respondents are probably in the process of internalizing the image of their therapist based on good real contact with them. This process is not linear, but takes place in stages and “spirals”: respondents say at the same time that they can discuss the internal dialogue, and are afraid of it, and are ashamed, and are happy to have a good contact;
- about 19 % of respondents also indicate that they do not mention the fact of internal dialogues, but they seem to do it for other reasons: all these respondents have been in therapy for more than 5 years; in addition, their responses indicate the presence of a “pocket therapist”, “internal” therapist and awareness of working with a real person in sessions. It is possible that

- the process of interiorization in these respondents is at a deeper level, when the image of the therapist is embedded in their internal life and communication with the internal therapist goes in parallel with the actual work in the sessions, but this observation requires clarification in further research;
- internal dialogue with the therapist is not a full-fledged dialogue, there is a redistribution of dialogue activity: during the dialogue, the client mostly “speaks” themselves, almost without entering into internal interaction with the interlocutor (72 % of respondents). Out of this number, 43 % of respondents say that their internal dialogue is similar to the real one at the sessions, and 37 % specify that they would like to continue this dialogue at the session. Probably, these respondents have a process of internalizing the image of the therapist and the image of the “session”, for them the process is continuous and passes from the imaginary plane to the real one and back.
- Thus, the description of the features of internal dialogue can be useful for a more complete and deep understanding of the process of psychotherapy and the process of internalizing the image of the therapist by the client and building their internal contact with him. For practicing psychologists, understanding the process of embedding their image in the client’s internal life can help when working with the dynamics of psychotherapy, and using a questionnaire will give an idea of the structure of the client’s internal dialogue.

## **The language of the school: the place of Libras in the public educational context in the imperative of inclusion**

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The struggles of the deaf community aiming the access to education, especially in the last two decades, fostered in Brazil the emergence of legal devices, recognizing the Brazilian sign language (henceforth Libras) and delimiting diverse strategies that conducted the deaf to the imperative of inclusion. Their presence in these spaces, however, has been marked by obstacles that arise from different perspectives upon deafness and consequently, affect the way sign language is seen as well as its role within the school context.

Considering this context, the discussions here intended arose after reading the chapter “The language of the school: alienating or emancipating” by Masschelein and Simons (2017) published in the book “The praise of the school”, organized by Jorge Larrosa. In this book the authors tension what they call *the language of the school*, that is, the “language that is part of the pedagogical practices” (p.29). For them, the language spoken at school is artificial, because it differs from the language spoken at home for example, and carries in itself a formalized symbolic weight that is only built in the school context and marks the way of being and speaking of the subjects involved in these spaces.

They further state that “making the language of the school an official language (the language of the State or of any authority) always implies transforming the school into a mode of socialization (and therefore of reproduction)” and, at the same time, point out that “the counter-reforms to this domestication by language policies may not be very effective if they (only) impose a minority language as a new language of the school.” (p.39).

Based on these assertions, it is possible to draw a parallel on the process of inclusion of the deaf in regular schools and the language issues problematized by the authors, not in order to reaffirm the value of Libras and its legal status, but to advance in the reflections in order to understand the sociolinguistic aspects that can (re)frame the presence of a sign language in the educational context.

As for the educational context, we must consider that the schools are imbued of disciplinary mechanisms that shapes the behaviors and learning practices. Those control mechanisms reorganize themselves in the inclusive process causing the emergence of different perspectives upon deafness, some of them focused on the body, anchored on biology and not by language and culture. As one the results, the language of the school is still the formal oral

Portuguese even though, due to its oral/sound aspect, it is not natural for all present in those spaces whether in the sense of acquisition or social use.

Further on, thinking about the fundamental character assumed by language in a given historical context leads to reflections on this process of human consciousness in which these discourses are drawn and, simultaneously, to the production of knowledge that occurs in the relationship between the peers of teachers, translators and interpreters as well as the deaf throughout their formal training.

Therefore, what unfolds ahead as a research proposal, aims to investigate the different conceptions about Libras evidenced by teachers and sign language translators and interpreters' arguments concerning their practices inside inclusive public schools in a region called Vale do Ribeira, located in the south end of the state of São Paulo.

As theoretical-methodological perspective, the research is grounded on a sociohistorical-cultural paradigm through which the concepts of *sense*, *meaning* and *mediation* in Vygotsky (1932) are used as tool-concepts to analyze those professional *praxis* within the schools.

To assume this production of knowledge as something collective, which is passed from previous generations, brings us closer to a Vygotsky perspective, which enables the election of the *Critical Collaboration Research* as a powerful way to carry out the intended analyses and discussions, given their commitment "to specific individuals and specific contexts of action" (ARA-NHA, 2009, p.155).

By considering that we intend to practice a method instead of applying it (MAGALHÃES and FIDALGO, 2010, p. 776), taking in account the presence and performance of the researchers, teachers and translators and interpreters in a collaborative activity that allows their voices to be heard, question and transform themselves along this process.

For these voices to be heard, it is proposed the use of *reflective sessions*. According to Ninin (2009, p.12), through this type of interaction the observed action "becomes a cultural artifact for the activity of the observer and this, in turn, becomes a cultural artifact for the activity performed after observation". The whole process is carried out cautiously with the attention of the observer to the utterances produced so that one can conduct the discussions in a reflective way, that is, mediating the conflicts and producing senses collectively.

Throughout the reflective sessions, theoretical materials previously selected to discuss the historical aspects of deaf education and language conceptions will be incorporated into the discussions, aiming to observe how the subjects react to the assertions and how they apply them in their praxis or/and reproduce them in daily life.

By doing this we do not intend to persuade or convince them about certain positions, but to conduct the reflections in order to establish scenarios in which practices can "be evaluated and reorganized, allowing the participants to review

the socio-cultural and political forces (VYGOTSKY, 1934, *apud* MAGALHÃES and FIDALGO, 2010, p.774) that underpin the choices and sometimes prevent the perception of predetermined situations imposed on them”.

Thinking about the shifts between inclusive policies and bilingual policies in the educational context today, proves to be pertinent in the sense of enabling new perspectives of education professionals that could lead to changes and resignification about the potency of Libras as a natural language and how it has been conceived in these school spaces.

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## Teaching English for children through literature: a study on affectivity

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This research project is related to the author's previous academic experiences. Since the undergraduate course, the PhD candidate has conducted researches on the subject of affectivity and education with a Cultural-Historical Theory framework. During the master, she studied the relationship between pedagogical practices and affectivity in the English language teaching context.

Results from this research point out ways in which we can contribute to the establishment of good relationships between students and the English language, considering both the affective and cognitive dimensions. One of these paths would be to consider the discursive issues that involve the language teaching-learning process. This means paying attention to the particularities that involve language learning in relation to other subjects, considering that the language, in addition to being an object of knowledge, is also constitutive of human subjectivity (QUAST and BANKS-LEITE, 2011).

Based on Vygotsky's theories (2000, 2004, 2009), we assume that the subject's constitution occurs in and through culture, through social relations. It is also understood that the student's knowledge appropriating process student is a mediated process and that the quality of mediation determines, to a large extent, the relationship that is established between subject and object of knowledge. It is also understood that this relationship is not only cognitive, but also affective; and the Affect Group's researches have been showing that.

Given the above, this project foresees the intervention, together with an English teacher, in order to create a didactic proposal that includes children's literature in English (as a second language) classes, in Elementary School. The objective of this intervention will be to contribute to teacher training and will be based on studies on affectivity in pedagogical practices (LEITE, 2018) and in the theories of multiple literacies (STREET, 2003) and critical literacy (MILLS, 2016). We intend to investigate how this teaching project can contribute to more engagement and joy in the learning of English.

### *Objectives*

1. Analyze the effects of an English language teaching program based on children's literature in the relationship of students with this object of knowledge, with emphasis on the affective dimension of this relationship;
2. Analyze the factors that enable the teacher to design and develop a teaching program with autonomy.

### *Methodological procedures*

The research will be conducted in Campinas, a metropolitan city located in São Paulo State in Brazil. The researcher will offer a teacher training course to the English teachers of public primary schools from Campinas municipal educational system. The enrollment on the course is free and non-mandatory, which means only the teachers who are willing to study the course subject will participate.

The course will consist of continuous meetings in which the following contents will be discussed: conception of teaching and learning; affectivity and pedagogical practices; English language teaching for children; literature in language teaching. The study of these themes will emphasize the relationship between theory and practice, as its aim is to lead the teachers to reconstructing their teaching plans, taking such contents into account.

Among the course participants, the researcher will select a teacher who is interested in studying the topics further, and in participating in the second stage of the research. This second stage will consist of monitoring the implementation of the teaching project built in the initial course. The researcher will follow the teacher's classes, making video records and notes on a journal. Researcher and teacher will hold weekly meetings in order to monitor and discuss the pedagogical work developed by the teacher. All of these meetings will also be recorded on video and in the researcher's journal notes.

Before the teaching project takes place, the researcher will observe the classes of the participating group in order to get to know the students as well as to give them the possibility to know her. This should facilitate future observations and interviews. At this time, it is also expected to conduct initial interviews with students, which may take place in small groups, in order to know the students' history, especially their previous relationships with the English language.

The videos of the classes will be used for the autoscopia procedure, which consists of showing the research participants excerpts in which they were videotaped so that they can comment on the situations, at the request of the researcher and according to the research objectives (LEITE and COLOMBO, 2006). According to Leite and Colombo (2006), autoscopia procedure guarantees an active role to the participants during the data collection process. These authors remark that the final categories are the result of an inferential and non-random process, but which remains consistent due to the coherence between the analyzed data and the theoretical framework assumed by the researcher. In the case of this research project, the data will be analyzed and discussed based mainly on Cultural Historical Theory.

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## **Narrative Context and Language Development: an approach to the writing from childhood to early adolescence**

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Over a functional approach of language development (Bruner, 1990; Tomasello, 2005), this proposal raise a question about changes of linguistic forms and discursive functions on narrative production and their relationship with the communicative contexts.

From cultural perspective of development, Bruner (1991) claims a relationship between language development and context. According to Bruner, the recognition of context elements allows children to become able to acquire not only lexical aspects but appropriate grammar aspects of language (Bruner, 1990). Contexts are spaces and situations where the human experience is, where actions, meanings, and thoughts have place and are produced. Hence, language is a tool through which human beings organize their experience on the world (Boroditsky, 2011; Gentner & Christie, 2010; Vygotsky, 1962). The typical modality to frame and organizes these experiences is through narrative: “a conventional form, transmitted culturally and constrained by each individual’s level of mastery and by his conglomerate of prosthetic devices, colleagues, and mentors” (Bruner, 1991, p.4).

Narratives seem a tool from social and cultural context; they allow children to develop knowledge of formal aspects of language and organize the experience in their minds (Bruner, 1990). If we want to know how a child builds his knowledge about formal aspects of language and how he gets to use it effectively, we must delve into the process of narrative production. This project explores changes in narrative development, not only looking for formal aspects but semiotic and context elements as well.

Specifically, I want to lead this proposal to the study of written narratives. If we take the initial language development assumptions from Bruner, we see that the narrative impulse holds further development of formal and semiotic aspects of language. In the same way, taking into account contemporary perspectives (Tomasello, 2007) leads us to consider that grammatical development takes place when the child is exposed to discourses from others.

Typically, studies of written narratives have been focused on grammatical or semiotic aspects. Some studies use quantitative methods to explore grammatical and lexical characteristics (Aravena, 2011; Johansson, 2009; Tomasello, 2005) or qualitative methods to describe semiotic and pragmatic aspects (Suriani, 2006; Otero & Correa, 2013). Even in the diversity of ex-

isting literature, it is not easy to find studies that explore formal (grammar and lexical elements) and semiotic aspects (context and meanings) together, using both quantitative and qualitative methods (Aristizabal & Reali, 2019).

Narrative mode is a tool to organize the experience through our life (Bruner, 1991) and it changes through lifespan (Aravena, 2011; Berman & Katzenberger, 2004), then, how are unfolded changes in textual production of narratives? I propose a research aimed to explore the changes in written narrative production since childhood until adolescence, not only by formal measures but semiotic aspects including an analysis of narrative context in which children have arisen (Miller, 1982) and their positioning (Rosa, González & Barbato, 2009).

Thus, I will try carry out a cross-sectional study with mixed measures and text analysis. The participants will be children and adolescents from 9 to 16-year-old. They will be asked to write a narrative text, by using classical instructions in language studies (Aristizabal & Reali, 2019; Johansson, 2009). On one side, syntactic elements will be evaluated, as a measure of complexity in text production, through lexical- grammatical characteristics.

On the other side, this study intends to develop an approach with mixed methods in order to get a holistic comprehension of language late development. Thus, the narrative context analysis becomes the most important element in this approach, as long as it allows to be closer to the heart of the language development process in order to know the personal experiences from the participants (Miller, 1982; Rosa, González & Barbato, 2009). So, it is proposed collect and record in video the discourse from participants and their interlocutors in a daily context, which implies to participate in their contexts and to collaborate with them- whose uniquely qualified to give background to their speech by virtue of their position as insiders (Miller, 1982)- in the construction process of data.

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## **Relationship between the development of concept formation and the school education: analysis in the light of Cultural-historical Psychology**

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This paper discusses ongoing research that has as object of study the concept formation process and the relationships between content and form of teaching that promote the development of this process in the light of Cultural-historical psychology.

Vygotski (2001) studied the concept formation process intending to understand it from its genesis, structure, and development. As a result of these investigations, the author stated that the fundamental and indispensable element of this whole process is “the functional use of words or other signs as a means to actively direct attention, analyze and highlight attributes, abstract and synthesize them” (ditto, p. 131).

This author stated the importance of understanding the concept formation process for school education and the need for studies that aim to understand the relationship between teaching and the concept’s internal development process in the child’s consciousness. This statement brings us to the need for studies that understand this process in unity with school education since early childhood education.

Due to what was mentioned above, this doctoral research aims to analyze the regularities of the concept formation process in unity to the periodization of psychic development, to identify the relationships between content and form of teaching that promote the formation of concepts in children and teenagers. Concerning investigative procedures, this is theoretical-conceptual research. For that, the first action consisted in the selection of the relevant literature to be analyzed, in accordance to the following criteria: scientific productions that deal with the concept formation process, the periodization of psychic development and the interconnections of these processes with school education, based on the theoretical framework of Cultural-historical psychology.

In order to objectively understand this process in its entirety, it was necessary to initially study what the concepts are and how they are formed. According to historical-cultural psychology, studying the formation of concepts demands the logical analysis of the development of thought in the collective history of human beings, which has brought us to the studies of dialectical and historical materialistic philosophy about knowledge. Thus, for the theoretical framework described above, concepts are forms of movement of thought that

capture the object in the system of relationships, which explains what the object is and its transformation trends. The capture of the essence of the object by thought requires the movement of ascending from the abstract to the concrete, because in this process of knowledge production it is possible to overcome the sensory-perceptual and empirical data, through an analytical process.

Continuing the analysis of the logical-historical aspects of the formation of conceptual systems, we were able to understand the relationship between concept formation and activity. Activity is a condition for the formation of conceptual systems, that is, they are formed in and by carrying out an activity. The individual-object relationship demands the realization of an activity that apprehends the essence of the object, which is shown as a condition for the concept formation both in the history of humanity and in the history of each individual.

Furthermore, according to Davidov “the content and regularities of the assimilation process depend on those specific types of activity within which it takes place” (DAVIDOV, 1979, p. 171). In other words, the analysis of the concept formation process during the individual’s life must be investigated in unity with the activity that one performs, as it is in and through the activity that the process of appropriation of culture occurs.

Both Vygotski (1996, 2001) and Davidov (1988) affirm that the development of conceptual thinking is subjugated to the internalization of theoretical knowledge and, consequently, to the formation of theoretical generalizations. Therefore, they are dependent on systematized education. However, as postulated by Vygotski (ditto), not all learning promotes development, so that the nature of the activities carried out by individuals in their education path must be the object of investigation.

Vygotski (1996, 2001) affirms that “truly abstract” thinking, that is, the formation of concepts reaches their most developed forms only in adolescence. Once conceptual systems are formed, they consolidate and express themselves in the way the adolescent will take a stand before reality, that is, in his conception of the world. However, we understand that this is the product of a long way of thought and language developing, which should not be understood apart from the activities that the individual has carried out (dominant activities) and the appropriate knowledge within them.

With these results, we can outline the next steps of this research. Since the formation of concepts is a process that goes from the external relationship between the sign and its meanings, in the first years of life, to the internal relationship, we will try to identify the relationships between the process of concept formation and the stages of psychological development, having as a thread dominant activities. It can be said that we intend to identify the relationship between gestures, action with objects, drawing, role-playing, the development of oral language, and the appropriation of written language with the process of formation and development of generalization structures. For this, we will attempt to identify the links between the assumptions of Vygot-

sky, Elkonin, and Davidov regarding thought and language, more specifically the development of the capacity to represent the reality by signs, in view of the role of school education in the development of these processes.

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## **Learning and Teaching Practices in the ICTPED MOOCs: Implications for Design and Further Improvements**

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### *Brief introduction*

Digital technology has changed the landscape of teaching and learning, and it has become an integral part of contemporary educational practices. Massive open online courses (MOOCs) have turned out to be the new trends in higher education, and their integration into learning processes requires innovative pedagogical practices and new competencies. Therefore, there is a need for teachers to develop their professional digital competence (PDC) and, in a broader sense, digital agency. Agency as the capacity to influence the circumstances is a prerequisite for conscious transformation (Aagaard & Lund, 2019).

Østfold University College offers the ICTPED MOOC that provides an opportunity for pre-and in-service teachers to develop their PDC. However, teaching and learning in MOOCs are among the underdeveloped areas of research within the field. This project will adopt a mixed-methods approach to learning and teaching practices in the ICTPED MOOC with a specific focus on the implications for the development of teachers' PDC and their digital agency.

### *Objectives*

This project aims to make explicit how pre- and in-service teachers learn when engaging in the ICTPED MOOC and how teachers/mentors facilitate students' learning. It will provide new knowledge about the development of teachers' PDC needed for the context of modern classrooms in Norway, within which the use of technology is a reality. Besides, the project will outline implications for the development of teachers' digital agency, design, and further improvements of the ICTPED MOOC to address these needs better. Overall, the project will i) examine how pre- and in-service teachers learn and develop their PDC and digital agency when engaging in the ICTPED MOOC, and how teachers/mentors facilitate students' learning ii) develop new knowledge about the context of learning with new technology (MOOCs) to an area that has tended to adopt more traditional understandings of classroom instruction, and iii) outline the implications of learning and teaching practices in ICTPED MOOC for the design and further developments of this course.



### *Theoretical framework*

Teaching and learning activities are conceptualized as mutually transformative learning processes, which occur individually and collectively and are mediated by technology. The Russian ‘obuchenie’ refers to both the activities of both students and students implicating that teaching-learning as a two-way process or mutual transformation process (Daniels, 2016). The mediated instruction that Vygotsky envisioned for developing scientific concepts in children. All higher mental functions develop out of collaboration and instruction (Vygotsky, 2012). Explicit instructions support developing scientific concepts, and spontaneous concepts develop outside schools. Thus instruction has a paramount role for students’ learning and development. Instruction needs to create the possibilities and opportunities for development through active collaboration in context. According to Vygotsky (2012), it is the responsibility of the teacher to establish an interactive instructional situation in the classroom, where the child is an active learner, and the teacher uses their knowledge to guide learning (Daniels, 2016). Furthermore, CHAT theory emphasizes coteaching or cogenerative dialoguing (Roth & Lee, 2007).

### *Methodology*

It is a mixed-methods research study (Creswell & Creswell, 2017; Johnson & Onwuegbuzie, 2004). Recordings of online video talks between students and students and teachers, pre-course and post-course survey data, and social network analysis will be used.

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## **Reducing the negative effects of grading on pupils' motivation and achievement by establishing a positive error climate in the classroom**

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The grading evaluation system is an assessment tool based on a value-laden number or letter indicating the quality of students' performance. The normative use of grading (Brookhart, 2004) has detrimental effects on students' motivation and learning (e.g. Hayek et al. 2014; 2015; Klapp, 2015; Poorthuis et al., 2015). Indeed, this evaluation system emphasizes the competition between students (Butera, Darnon, Buches, & Muller, 2006), which implies a threatening social comparison for the self-evaluation (Muller & Butera, 2007). This idea has been corroborated by the PISA survey students' well-being results (OECD, 2017). According to those results, 66 % of OECD countries students reported that they are worried about receiving a poor grade. Nevertheless, the presence of grades is required by law in several countries. For this reason, grades are widely used despite their negative effects and it is not possible to completely change this characteristic of school systems.

If the grading system is a deeply rooted feature of school contexts it is necessary to study other class characteristics that could mitigate its effects. For instance, how teachers behave, communicate and frame assessment correlates with students' feelings about assessment (OECD, 2017). Accordingly, this research project focuses on understanding the best teaching strategies to create a positive climate in the classroom, even in those situations in which teachers have to use grades. Thus, we will focus on a specific aspect of classroom climate: the error climate. Indeed, in the learning context, errors could be viewed as negative cues that would determine a negative grade and thus, they would become a sign of scholastic failure. Therefore, grades and errors are related in a two-way process: poor grades highlight a great number of errors and errors pave the way to poor grades.

Making mistakes is an unavoidable part of the learning process and should be considered as the starting point of this process (Tulis, Steuer, & Dresel, 2015). The ground-breaking theory of Lev Vygotskij is the basis of this idea. According to Vygotskij (1978) the learning process is possible when the learner has to move forward his/her knowledge, being scaffolded by a more expert person. Into this space of challenge, called the Zone of Prox-

imal Development (ZPD), the learner's mistakes gain positive meaning and the learner should not be scared by making errors.

In this vein, how students' errors are framed, used and evaluated into the class context can determine the fruitful and positive use of them. Changing how teachers deal with the students' errors and how students perceive them, lead to a change of the errors' meaning (Steuer, Rosentritt-Brunn, & Dresel, 2013; Tulis, 2013). We assume that this change might affect also the detrimental effects of grading, due to its relationship with errors, by implementing a positive error-related classroom learning environment. More precisely, we hypothesize that presenting error as a tool for learning without emphasizing the student's failure during a lesson, could lead to a reduction of negative effects of grading. The research is carried out in primary schools and we manipulate both the way teachers handle errors in the classroom and the presence/absence of grading, by creating an artificial lesson in the primary school context. The manipulation is carried out by the researcher who is trained to create a context in which errors are alternatively framed either in a positive way (called positive-errors condition) or in a neutral way, in which errors are not considered (called negative-errors condition). Differences between the manipulated settings are made salient through the researcher's error handling strategies, attitudes and statements.

We expect an interaction between error handling and grading on pupils' perceived error climate, motivation and learning outcomes. The data collection of the project is still going on.

The applied implications of the research results could be very interesting. Indeed, if the research will yield the expected results, training courses for teachers and educators could be designed and implemented, to increase their knowledge about the importance of errors in the learning process.

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## **Environmental education as a tool for science teachers' professional development: their perceptions, intentions and practices in the light of Cultural Historical Activity Theory**

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The dissertation investigates the dynamics of the Environmental Education and its shift towards Education for Sustainability, as a tool for the professional development of the science teachers. In order for Science education to make sense and be interesting to pupils, Environmental Education is needed, so as to be redefined and connected with the modern culture and the social life. The research study examines how 40 experienced science teachers implement the Environmental Education programs. The study was qualitative and used Cultural Historical Activity

Theory as an analysis tool, because it highlights the contradictions of the teaching system of science teachers and illuminates the aspects that allow or restrict innovative and student-centered teaching practices.

The research questions deal with

1. the epistemological background and the values, that support secondary teacher practice,
2. the way teachers perceive, understand and implement the Environmental Education, and
3. the way in which Environmental Education influences their teaching practice of secondary science teachers.

The findings highlight that when science teaching activity system and environmental education activity system have a common object, a field of expanding learning is formed, leading to teachers' professional development. When teachers implement environmental education using constructive teaching approaches the way they teach science and how their students learn about it is improved. Environmental Education can lead to their professional development where it is implemented in a manner consistent with its principles and its objectives. Teachers involved in Sustainability Education programs need training and coordination and this responsibility belongs to the State. In many cases, the inability of the government officials to understand the philosophy and the method of the Environmental Education and Education for Sustainability, leaves teachers alone without any help, as well as characterizes any kind of activity as environmental education activity. As a result, the

value of environmental education and Education for sustainability is reduced and a negative impression is created.

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## Learning and design process in creative laboratories for young people

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### *The Objective of The Project*

The targeted environments were non-formal learning and creative spaces (UNESCO, 2012) for young adults such as museums, libraries and community centres. In order to structure our view, we wanted to produce a map of the creative lab ecosystem in Quebec and Guadalajara. This mapping was made through interviews with people in charge of the creative spaces (semi-structured interviews). A website site presents the information about the maker spaces : <http://creativelabs.education/> (Parent, 2019)

### *The Methodological Orientation Chosen*

The focus on creative laboratory initiatives was guided by activity theory. The model adopted is the activity theory model proposed by Engeström (2001) in order to take an organized look at environments. Activity theory examines human activity in terms of social location (Parks 2000, in Barma, 2011). Our initiative aims to collect information to answer the questions raised by Engeström: who are the subjects of learning? (how are they defined and located), why do they learn? (what makes them make the effort?), what do they learn? (what are the learning contents and outcomes?) and how do they learn? (what are the key learning actions or processes?). This research aims to understand how individuals make sense of their experience in different settings. In order to achieve this objective, in the first phase of the project, we used a qualitative methodological specification, as it gives participants (people in charge of creative labs) the opportunity to express their views on the themes of the study. More than ten sites were selected for this research. The sense of action of different participants is inherently a complex phenomenon, which cannot be summed up in one aspect, but in a multitude of interrelated facets.

### *Our Analysis*

This research is inspired by the activity theory that was mainly put forward by Engeström. This theory is also often called Cultural-history activity theory (CHAT) (Sannino and Engestrom, 2018) or the historicultural activity theory (Laferrière et al., 2011).

At the time of writing, the research team led by Séverine Parent is analyzing the six verbatim of semi-directed interviews conducted with the heads of four creative spaces in Quebec. The thematic analyses were made following the successive reading of the material (verbatim) by a researcher. Another

researcher proceeded to the thematic coding of the content using NVivo software. The units of analysis were portions of sentences, phrases or portions of paragraphs. Categories are the components of activity theory. The researchers conducted a content analysis of the coded data to highlight typical behaviours, but also to identify themes and trends in each setting encountered (Fortin and Gagnon, 2015). Once this initial individual coding was completed, the two researchers proceeded to negotiate the meaning of the elements of the activity triangle and their manifestations. A portrait was thus drawn from each of the environments according to the elements of activity theory. Several meaningful negotiations have taken place in the work of researchers. Our reflection continues with a view of the forthcoming publication of the results.

Our research team obtained a second grant to continue the project. We are still interested in creative laboratories and we are convinced that activity theory is an essential tool for understanding activity. Creative spaces are evolving places. We would like to consider incorporating expansive learning into the second phase of the project. Here is a summary of this second project :

The project consists of deepening our understanding of creative spaces and the learning activities that take place in them, both in Quebec and in Jalisco. In order to document the learning and design processes carried out by young adults in Quebec and Jalisco creative laboratories, we propose to attend workshops in each of the creative spaces. In light of the mapping created in the first phase of the project, these workshops will prove to be key moments in the learning and co-creation of the participants. This type of event takes place in the creative spaces with which we have established links, and where we will be able to join their participants. This will allow us to document learning in the creative spaces that are part of 21<sup>st</sup> century skills development. Since learning and design processes occupy an important place in creative spaces, the design process can be seen as a problem-solving process, a process that sometimes needs to be formalized and that we will document in order to better understand, reproduce and even improve it. It is particularly interesting to explore the relationship between design processes and learning.

*The Basic Research Problem That You Are Struggling With*

Engestrom's theory of activity was used in the first phase, and will also be used in this second phase. The team hopes to draw projects from the summer school to, in the first instance, strengthened the foundations of the analysis of the first phase of the project. Indeed, we had chosen to use the second generation of activity theory. However, during the analysis, the potential for using the third generation seemed possible. Also, this will be an opportunity to learn more about elements that generated discussions in the team (e.g., the tensions and intersections, object and result). Among other things, this is a challenge for the team working in French, with theoretical support in English, sometimes translating from other languages.



### *Incorporating Expensive Learning*

Also, since COVID-19 has slowed down international collaborations, it might be an opportunity to consider including a new concept. The concept of “learning by expanding” appears to us as a type of learning by which a subject or a group of subjects succeed in transforming an activity system in order to resolve the contradictions it contained. I appear that studying emancipatory learning and implies that research is collaborative with communities and also is generally carried out over a significant amount of time. At first, the design project of the second phase was not supposed to involve the concept of “learning by expanding,” but this summer school will allow us to get to the bottom of it.

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## Feelings about gifts in older preschool children

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Currently, pre-school education is increasingly focused on a humanistic approach to teaching children. In this regard, the relevance of studying the experiences of preschool children becomes an important direction that allows us to understand the inner world of the child and his needs. The study of experiences helps to look at the child holistically, since the specificity of experiences is that they can act as a unit of consciousness, a fusion of affect and intelligence. Analysis of the literature shows that the experiences of preschool children are considered from different sides: child-parent relations, about punishments, in connection with social failure. However, we have not found any research on the experiences of children arising in connection with giving and accepting gifts. The topic of giving is considered in psychology in a very limited number of sources, although this activity is an important part of public and personal life. Gifts are especially important in children's life. It is generally known that play is the leading activity in preschool age, while often ignoring the fact that the game also occurs with donated toys. This fact speaks about the importance of choosing gifts for children, about understanding the motivation of parents in choosing gifts. Receiving gifts for children is one of the undisclosed areas of psychology that allows us to understand a wide range of practical problems: from the disclosure of children's expectations of certain gifts and emotions, to understanding. There is also the process of giving gifts to children, which also remains little studied, including: the motivation for giving gifts, expectations from giving, features of personal development, in connection with giving, in particular-empathy, caring for others. Thus, despite the vastness of this phenomenon in children's life, in psychology, this area remains virtually unexplored, which gives the right to speak about the special relevance of this topic not only for science, but also for practice.

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