

EDUCATION IN A COMPETITIVE AND GLOBALIZING WORLD

**ACTIVITIES OF THINKING
IN SOCIAL SPACES**

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**ACTIVITIES OF THINKING
IN SOCIAL SPACES**

**TANIA ZITTOUN
AND
ANTONIO IANNACCONE
EDITORS**



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PART I: PREFACE

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FOREWORD

Jerome Bruner

New York University

I'm delighted and honored to be writing a preface for a book celebrating Anne Nelly Perret-Clermont. We have corresponded with each other over many years, and have had the pleasure of each other's company only occasionally. She has always the effect on me of "raising my consciousness," of making me more aware of what I believe to be a distinctive human dilemma. And it is regarding that dilemma that I want to say a few words as a preface to this book.

The dilemma has to do with the duality of our existence: we are (as we like to say!) unique individuals, expressing our individual uniqueness. Yet, at the same time, we are also "expressions" of the culture in which we live. I may be distinctively and individualistically myself but, at the same time, that Self is shaped by my being a New Yorker, an academic, even a lover of the middle and late Beethoven quartets. But somewhat more puzzling, even my love of chamber music, for example, relates to my being a long-time member of New York's Chamber Music Society whose concerts have done so much over the years to shape my musical tastes. And, indeed, even to influence my choice of friends. And indeed as well, my "individuality" must surely have been affected by the decades I spent as a member of the Harvard faculty in Cambridge, Massachusetts. I could hardly deny that I, as an individual, have been independent of the professional deformation imposed by the culture in which I have lived.

And there are other respects in which my life and my work have somehow been shaped by uniquely individual, non-cultural circumstances. Let me offer an example. I was born blind, a victim of cataract formation in the lenses of both my eyes, my sight restored not until my third year. Did these circumstances have anything to do with my much later dedication to research on visual perception, with my becoming the founding father of what came to be called the New Look in perception? Yet, would that research have been possible without the concurrent technological developments that made possible the modern tachistoscope. A tachistoscope is a gadget that presents visual displays for very brief intervals, starting around a thousandth of a second, and it requires a source of illumination that comes on and turns off with virtually no lag. I "invented" this wonderful gadget one day over lunch with my good friend Francis Friedman, a brilliant

physicist at MIT. So in some deep sense, advances in technological culture made possible a much closer examination of the idiosyncrasies of highly subjective, highly individualistic human perception. So, as I look at my own life (or at anybody's life, I suppose) I find this characteristic intertwining of inner-dominated determinants and culturally imposed restraints and opportunities. And there are few among us in the human sciences who saw this more clearly (and more insistently) than Anne- Nelly! And it is altogether fitting that this volume be dedicated to this topic.

Let me make one last point -one that has to do with the future of psychology and the human sciences generally. I think the time has come for us to rethink the shape of our discipline. Psychology can no longer afford to lead an autonomous existence. We need to work more closely with our colleagues in sociology and anthropology while, at the same time, attending closely to the biological processes that constrain and provide opportunities for our growth. I always had the feeling that this was the orientation that Anne Nelly was seeking to cultivate. And I hope that this volume in her honor will further the quest.

Chapter 1

**OVERVIEW:
THE SOCIAL SPACES OF THE ACTIVITY
OF THINKING**

Antonio Iannaccone and Tania Zittoun
Université de Neuchâtel

1. INTRODUCTION

This book explores the notion of the *thinking space*, a notion developed over the last thirty years in a tradition of social and cultural studies of learning and development. Doing so, this book pursues two complementary goals: first, it has the scientific ambition to assess the origin, heuristic strength and future avenues opened by the notion. Second, the volume is also our way to thank and honor the scholar who proposed the notion, Anne-Nelly Perret-Clermont, a teacher and mentor for generations of researchers, and a colleague and friend to the authors and editors of this volume. This chapter presents these two goals and then sketches a brief overview of the volume.

2. MERCI!

“The Activities of Thinking in Social Spaces”, the book now being presented to the reader, originates from a feeling of gratitude that a large group of researchers would like to express towards Anne-Nelly Perret-Clermont, who is in a phase of her life in which she going into one of those existential transitions that are inevitable by their very nature, and in which everyone is called upon to measure and, at times, defend their own individuality.

It is, in this case, the transition from an active working life to the so-called retirement. Even more than in the past, in alleged “advanced” cultures, this transition is, in many cases, an actual “forced assigning of the role”, that sometimes puts a strain on the ability of human beings to cope with the social and cultural rules in order to defend their freedom in activities and of thought.

Obviously, no one would ever dream of thinking that in this significant moment of her life trajectory, Anne-Nelly Perret-Clermont, a tireless researcher at the height of her scientific maturity, has decided to “change professions”. However, it became obvious (and necessary) to all those who wanted to celebrate her in this book (as well as to the many others who also wanted to do so and due to numerous reasons are not included in the limited number of chapters), to attribute to Anne-Nelly Perret-Clermont the merits of her research and teachings, through the discussion of scientific issues and empirical studies that recall in different ways some of her most significant ideas and, in particular, the notion of the social “thinking space”.

3. REGARDING “SPACE” IN PSYCHOLOGY

On many occasions psychology, in its various specialisations and perspectives, has referred to concepts that can be considered the precursors of the idea of the “thinking space”, that is central to the scientific considerations of Anne-Nelly Perret-Clermont. In fact, in psychology the vastness of the research that could be evoked in reference to the numerous theoretical proposals is in itself a good reason not to embark on a futile, as well as limited, attempt at a complete review of them.

For this reason, and starting from the broader idea of “space” that has been used on several occasions to conceptualise the social and cultural dimensions of psychology activity, this introduction will deliberately choose to simply highlight some specific elements of this notion.

In the final chapter of this book (Zittoun & Iannaccone, this volume), we will come back to the notion of “thinking space”, after having read the individual contributions; there, we will emphasize the further possibilities and opportunities opened by such work in socio-cultural psychology.

4. THE SOCIAL SPACE FOR THINKING

The idea of “social thinking space”, taken from a perspective that highlights the dimensions of a *shared* system of activity¹, is one of the central elements (2001, 2004) of the numerous theoretical and methodological proposals that have characterised the scientific path of Anne-Nelly Perret-Clermont.

The attention given to the social aspects of the thinking space undoubtedly offers an important contribution to the wider debate that has taken place for several decades in psychology, on the contextual conditions that seem to protect or to weaken thinking.

At the same time, it is also worth mentioning, so as to be comprehensive, that this epistemological option has in many cases obscured the dimension of the individual, which in contrast seems to be fully safeguarded in the conception of *social thinking space* adopted by

¹The idea of Activity in psychology originates mainly from the convergence of dialectical materialism in German philosophy and of theoretical proposals of Vygotsky, who considered the “practical human labor activity as a general explanatory category of psychology” (Roth & Lee, 2007, p. 189). This fruitful idea was further developed by Luria and Leont’ev, who proposed the object-practical activity as a fundamental unit of analysis of the development and the functioning of the mind. In contemporary psychology, the Activity Theory has been largely used to explain the complex dynamic of work setting, learning setting and so on.

Anne-Nelly Perret-Clermont, and currently the subject of a major scientific debate, whose echo is widely represented in the various chapters of this volume.

Nevertheless, it is only in recent decades that the progressive recognition of the importance of social and cultural conditions in the explanation of the thinking activity has been a real turning point for the conceptualisation of psychological development and the learning process (Valsiner & Van der Veer, 2000; Valsiner, 2013).

5. A POLYSEMIC CONSTRUCT

Obviously, when dealing with the notion of the *social space(s)* of psychological activity, any researcher has to deal with the apparent complexity of the construct. For example, as clearly highlighted by Grossen and Perret-Clermont (1992) in an interesting edited volume on the (psycho) therapeutic situation, one of the central problems of using the notion of *space* in psychology is that it partially overlaps with other widely used notions such as *context*, *framework* and *setting*. This fact creates a complex polysemy whose nuances of meaning are largely determined by the way in which these notions are operationalized (in research, in clinical practice, in education, and so on), and also by their theoretical anchorage.

In Grossen and Perret-Clermont's contribution, it is clear how, in a given community or group of people, every approach to illness and to suffering should articulate several levels of analysis – physical, psychological, relational, social and cultural. In this sense, illness and suffering can only be understood by taking into account the interactions between theoretical and practical knowledge, the implications of social and professional roles involved in the construction of well-being, and finally the cultural representations of being ill and of well-being. The space in which people construct their own perception of well-being and suffering is defined by the point of view of the actors who inhabit it, their specific location and the quality of their dialogic relationship (Ligorio & Cesar, 2013). This obviously means that representations of health, those relating to ways to protect or recover it, and the position of the patient or therapist/doctor, represent some of the central key elements of the complex therapeutic space(also understood as the material, social and cultural organisation of the setting).

In a more general sense, given the complexity of the spaces of human activity, the need to identify an appropriate level of explanation has led, in psychology, to several attempts to “frame” the unfolding of the events, avoiding a reduction of their depth and complexity. Thus, notions such as *context* and *frame*, widely used in current literature, have allowed explanations in psychology that are able to articulate individual dimensions of activity with material, symbolic or socio-interactive characteristics of settings. In many other cases, as the work of Grossen and Perret-Clermont suggests, the effects of context were unfortunately considered as a complex of influences from the outside towards the inside of the psychological event. These positions give nothing more than a partial reading of the events and their meanings.

From the early 1900s, the need to avoid reductionism (then prevailing) and the unidirectional influence of the contexts on cognitive activities (and more widely on psychological events) has fuelled a broader discussion among researchers which has led to, among other things, “classic” constructs such as that of the Lewinian “psychological space”.

In more recent times, in line with the previous anti-reductionist tradition, additional ideas of context in psychology have been proposed. Among these, the notion of *social thinking space* defends to the very end the constant and dynamic interaction between the individual and his/her social and cultural environment.

6. “PSYCHOLOGICAL SPACE”, A CONSTRUCT THAT OPENS THE CONNECTION BETWEEN INDIVIDUAL AND CONTEXTUAL DIMENSIONS IN PSYCHOLOGY

In order to define the idea of *social thinking space* in greater detail and in relation to the many traditions that, in psychology, have referred to the idea of space, it seems inevitable to start from its connection to *topological psychology* (Lewin, 1943, 1946, see also Wolf, 1986). Moving from a clear criticism of the elementalist and behaviourist perspectives to a holistic one, Lewin proposed the notions of “*psychological field*” and “*life space*”. In this way, he proposed an effective explanation of the constant state of interdependence that seems to regulate the relationships between the individual and the environment.

According to Lewin, “*to understand or to predict behaviour, the person and his environment have to be considered as one constellation of interdependent factors*” (1946, p. 338). In the first decades of the 1900s, in full behaviourist hegemony, the Lewinian idea of “interdependence” revolutionised the concept of psychological context (then widely understood as an “external frame” of psychological events and, in some cases, even reducing it to a complex of disturbance variables that scientists try to avoid in their sophisticated experimental manipulations). The idea of interdependence clearly highlighted the dynamic nature of the relationship between the environment and the individual, and the need to overcome the artificial separation between the individual and the frames in which he operates (symbolically or physically). A significant part of psychological research notes that activities (and therefore their historicity) cannot be regarded as the outcome of a “linear” adaptation to the influence of these frames. In fact, human activities are the result of a dynamic process within which such activities, while being carried out, change the meaning of the very context. In turn, these changes will affect the interactions between the individual and the environment.

Among other things, the Lewinian proposal leads to the development of the bio-ecological theory of development, proposed by Bronfenbrenner (1979, 2005). Systemic models, including the most recent version of the Bronfenbrenner theory (Process-Person-Context-Time - PPCT), take into account, at least in part, the multiple forms of regulation that characterise the relationship between individual and environment. At the same time, these contextual explanations of development progressively recognise the temporal dimension that necessarily characterises each of the frames within which psychological development unfolds.

Even with the limits that will be described below, as a whole, the PPCT Theory has significantly contributed to clarifying the interconnections between the various components of the contexts and especially of the meso-systems (see also Gardiner & Kosmitzki, 2008, Iannaccone, 2013, Iannaccone & Marsico, 2013). The idea that the context, in its various forms, is a decisive (and inescapable) element of the conceptualisations of psychological development and socialization, has been highlighted in constructs such as *developmental niche* and *biocultural niche* (Harkness & Super, 1994; Harkness, Super, Sutherland,

Marjolijn, Blom, Moscardino, Mavridis, Axia, 2007; Sinha, 2009). These notions are placed, more or less directly, in line with the Lewinian tradition, but with a more specific attention to the contribution of cultural frames in defining the spaces within which psychological development takes place.

Among these elements, as shown in the contribution of Harkness and colleagues (mentioned above), the characteristics of the *settings of daily life*, the *customs of care* and the type of psychological approach of the *caretakers* become significant topics of psychological research on human development. Thus, one of the most important results of this kind of contextual approach is clearly the identification of the relevant role of the *belief systems of parents* in the psychological development of children (parental ethno-theories). This evolution of ecological models shows how psychology is progressively recognizing the importance of studying everyday life.

The concept of *constraint* (Valsiner, 1998), which partly stems from Topological Psychology, further clarifies the way in which *psychological spaces* are defined in the course of development:

The theoretical model outlined here has extended the conceptualization of constraining as enabling (or empowering) partitioning of the world of actions to that of reflection. [...] Constraining is viewed here as setting limits on the construction of action and semiotic mediating devices within fields of possibilities, which are dynamically, reorganized by the complex of the zone of freedom of movement (ZFM) and the zone of promoted actions (ZPA). These two zone complexes operate in unity and at different parallel, mutually connected levels. The possible future extensions of their work to the future are conceptualized by the use of the concept of zone of proximal development (ZPD). The crucial notion of the social nature of human personality is its *individual uniqueness* and *relative autonomy* of reflection and action in any social context. (Valsiner, 1998, p. 99).

In his theoretical proposal, Valsiner (1987, 1988) clearly identifies not only the potential but also the limits of the concept of *space* in Lewin that, among other things, does not seem to completely lead to an explanation capable of integrating the *ontogenesis into his microgenetic field-theoretic scheme* (Valsiner 1988, p. 72) that will take place in certain subsequent conceptualisations. It should also be said that in Valsiner's view, along with the identification of the chronological dimension of development, there is also another important element which is now at the centre of discussion in psychology: the need to recognize the role that the uniqueness of the individual and its relative autonomy play in social contexts. In a similar way, most of the contributions that Anne-Nelly Perret-Clermont has produced around the idea of the social space of thought highlight the uniqueness of the person, that appears to be a central element of her scientific consideration (cf. Zittoun & Iannaccone, this volume). The recognition of the uniqueness of the person is probably the condition to really overcome an overly (and diffused) mechanistic vision of the socio-genesis of thought.

In particular, in the succession of several generations of research (see, in this volume, the contributions by Carugati & Selleri and Psaltis), it is evident how the primordial idea of linear and unidirectional influence of the contexts on individual psychological activity has been progressively replaced by explanations that emphasise the constant and unavoidable role of

the attribution of meaning as a regulating dimension of social interactions in a largely dialogic (Linell, 2009) and socio-cultural (Bruner, 2013) perspective.

7. THE DIMENSIONS OF SOCIO-AFFECTIVE SPACE

Focussing on meaning-making processes obviously implies also taking into account widely affective and emotional components of human activity.

Rochex (1998), quoting Vygotsky, emphasises that, in psychology, the separation of the cognitive aspects from the affective ones constitutes an option that makes it impossible to complete the understanding of the determinants of thought itself. Compared to the affective dimensions of psychological space, one of the most known and used classic proposals is the idea of “transitional space”. “Transitional space”, a term widely used by Donald Winnicott (2001), defines space as a kind of psychological place where the child, under the right relationship conditions, may exercise his/her creativity and somehow his/her ability to act upon the world. In this type of space, the child can pass, thanks to the function of transitional objects, from a subjective reality (experienced from a perspective that the child feels as being powerful) to a progressively objectified reality that becomes a place shared with other key figures.

In this case, the space becomes a psychic place within an assuring affective framework that can protect psychological development, while at the same time allowing the child to creatively explore the world. In Winnicott's theory, the delicate relationship between imaginary components and constraints that characterise the experience of reality is expressed in this transitional space, with it being a psychic place both subjectively built and objectively perceived.

It is the space that creates the underlying condition – both individual and cultural – of the creative act, bringing out, among other things, those fascinating events of life trajectories that go under the name of “little madnnesses”, studied by the same Winnicott and today the subject of a wide theoretical and empirical reassessment (Kuhn, 2013; Zittoun, 2013). Thus, in the presentation of the book with the same title (“Little madnnesses”, Kuhn, 2013), Kuhn states:

In our socially and culturally sanctioned little madnnesses, we can find relief from the burden of having to maintain a clear boundary between inner and outer worlds, fantasy and reality, because it is in the space between these that we can find the enthusiasms and passions that excite our creative imaginations. (Kuhn, 2013, p. 3)

Another significant contribution to the notion of space that clearly presents a number of points of contact with the conception of *social thinking space* is offered by the notion of *spheres of experience* (Zittoun, 2013; Zittoun & Grossen, 2013). The notion was proposed as a way to overcome the cleavage between phenomenological and more “objectifying” description of the person's lived world – a sphere of experience is a type of socially and culturally given situation sufficiently recurrent in a person's life for her to recognize that it requires “the same” way of being, acting, feeling, presenting herself, relating to other, etc. The notion allows, as Schuetz proposed (1945), to recognize these cultural and fictional experiences related to people's interactions with a whole set of cultural elements (books, songs, films). It also allows showing how people may use, in one sphere, resources from

another one – such as when preferred songs are used as symbolic resources, or as opening new thinking spaces (Zittoun 2006). The notion further highlights the many “worlds” through which people live their lives, and the many transitions that punctuate their trajectories. Hence, against a linear view of development, the idea of spheres of experience contributes to the fundamental theoretical need to explain the historical and cultural variability of life trajectories that, in contemporary societies, do not seem to be adequately understood through the use of linear socio-affective developmental models such as the one proposed by Erikson. In this kind of theoretical model, the ample space given to experience also allows the role of materiality (Zittoun & Grossen, 2013) to integrate the definition of the conditions involved in psychological development, unlike what has happened in a large part of current psychological literature (Iannaccone, 2013).

8. LASTLY

This brief and incomplete overview of that part of current scientific literature that can be seen as a precursor (or counterpoint) to the idea of *thinking space* can explain some of the basic characteristics around which this idea has been consolidated into the scientific path of Anne-Nelly Perret-Clermont². Let us start with the *assumption of the contextualized nature* of psychological activity and, more specifically, the activity of thought. A large number of studies (including those conducted by Anne-Nelly Perret-Clermont as well as those that make up the various chapters of this volume) support the inseparable nature of the activity of thought from its operating conditions.

Thus, psychological activities *are always carried out in a space*, whether it be physical or symbolic, and the characteristics of this space (or rather of these spaces) participate in defining such assets as well as in creating *possibilities for actions that constrain*. Then, in this perspective, these spaces are always the frames of a *socio-genesis of thought* in which human beings are positioned and interact within *dialogic dimensions* and in accordance with their life trajectory.

At the base of the expression of thought, *a constant tension between individual and collective dimensions* can be identified. The positions of the actors and the types of interaction which they create within these spaces are widely characterised by previous *cognitive and affective experiences*. Finally, considering the previous statements, it is methodologically evident that the analysis of the social spaces in which the activities of thought are carried out can only assume a procedural form.

From a broader point of view, taking into account a *social space for the activities of thought*, a new and compelling way of observing human beings struggling with real problems can therefore be considered. It is also, in some way, the rehabilitation of a scientific dimension in which humans live their daily lives by coming to terms with a number of obstacles that go far beyond the de-contextualised and de-historicised vision that characterises a non-negligible part of psychological research.

²The concluding chapter of the book will be dedicated to the discussion on the prospects for future research that the notion of *social thinking space* offers.

9. OVERVIEW OF THE VOLUME

In this volume, we propose to understand the dynamics of the space of thinking from different perspectives, or rather, with different lenses (Doise, 1982; Perret-Clermont, 2004; Zittoun & Perret-Clermont, 2009). The volume is organized in five parts (in addition to this one): part II focuses on interactions, second III on their location in specific spaces and places, part IV on their location in time, and part V combines these two perspectives to describe the political dimensions of interactions. Part VI is an epilogue.

More precisely, part II groups papers that examine the micro-genesis of thinking and knowing, that is, how learning and development unfold, or emerge, within actual social interactions. This level of analysis corresponds to the first move away from an individual psychology focused on an isolated learner. The authors grouped here explore this level analysis in two complementary ways, showing the evolution of the studies of interaction in development, and the diversity of settings in which such analysis of interactions can be observed. Charis Psaltis (this volume) opens the volume with a historical account of four generations of research on social interactions, before presenting his intriguing research showing the importance of social representation of gender in children's performances in collaborative cognitive tasks. Other social discourses can enter in apparently "neutral" situations, and Michele Grossen (this volume) explores the many meanings of the situation in which an adult uses a psychological test to assess a child's capacities. Felice Carugati and Patrizia Selleri (this volume) adopt a meta-theoretical stance to reread this stream of research in the light of Piagetian and Vygotskian traditions of research. Finally, Gerard Vergnaud concludes with a less formal reflexion on the relationship between gender and reasoning – an ever intriguing question in the study of socio-cognitive interactions.

Part III considers the frames and settings in which interactions takes place, as well as people's movement from one frame to another, and focuses on their role in allowing or preventing thinking. A focus on frames allows moving beyond formal situations (the class, the text) to examine every day frames and their potential role in fostering learning and development. Nathalie Muller Mirza (this volume) thus examines adults engaging in informal exchange networks, and shows how they are actively engaged in framing dynamics, which, depending on their perspective and experience of previous frames, might lead to creative discrepancies. Clotilde Pontecorvo and Francesco Arcidiacono (this volume) explore the frames in which children move in daily life, family and school, and adopting a discursive perspective, show the importance of disagreement and conflict in the emergence of critical thinking. Niklas Pramling and Roger Säljö examine a different setting, that of teachers' training, and show how discussing with and about metaphors fostered by the frame might lead the learners to open new interpretations. Finally, John Rijsman (this volume) proposes an essay in which, using the metaphor of a helicopter, he questions and critically examines the nature of inter-subjectivity in diverse social frames.

The chapters grouped in Part IV give a special attention to time and the historicity of learning and development. A first historical stance engages in dialogue between past and present, and can show how a specific type of skills or knowledge might be related to a long historical and cultural tradition. Baruch Schwarz (this volume) proposes a careful analysis of the modalities of teaching and learning interaction in the frame of the Yeshiva, applying a centuries-old traditional Jewish education, and what skills this tradition promotes; he thus

highlights some of the possible benefits for contemporary liberal education. Eddo Rigotti (this volume) reopens Dante's *Divine Comedy* to examine the argumentative dynamics at heart of the teaching-learning situations presented by the poet. He finally also highlights the potential of such historical perspective to examine argumentation in contemporary situations where thinking spaces might take place. A second historical stance rather examines the historicity of a specific skill or problematic: it is often when observing changes not only at the scale of interactions, but at the longer scale of a twenty-years research project and endeavour, that the specificities of new thinking spaces occur. Margarida César (this volume) retraces more than twenty years of the *Interaction and Knowledge* project in Portugal, a research action in mathematical class, which supports through collaboration identity and socio-emotional aspects of thinking and learning; examples of the progresses made by children with vulnerability illustrate this important long-term program. Finally, Lauren Resnick and Faith Schantz (this volume) propose an imaginary dialogue to critically retrace thirty years of innovative and challenging educational experiences supporting the transfer of knowledge, and to raise questions that encourage generalization.

The two chapters of Part V share their focus on the political and institutional contexts that shape, constrain and guide frames for thinking, as well as actual interactions, and with them, the fate of many learners. Maria-Luisa Schubauer-Leoni (this volume) examines the conditions in which teaching learning situations can actually support a policy of equal opportunities for all. Her analysis shows how the situations in which interactions take place, with their implicit rules (the "didactic contract") depend on wider political and institutional constraints, where efficiency is a promoted ideal – often contradictory with equity. Heinz Gilomen (this volume) adopts a sociological stance to examine the (re)production of social inequalities through the Swiss educational selection process. Unconventionally, he shows how selection seems to vary with the orientation of the political majorities in various Swiss regions. Both chapters thus highlight how the "frame of the frame" – or the social and political fabric in which learning takes place – actually orients and guide in a very implicit and pervasive way, all educational endeavour.

Finally, part VI has a more conclusive role. The voice of Anne-Nelly Perret-Clermont, to whom the book is dedicated, appears in the chapter edited by Tania Zittoun. The chapter retraces a conversation that took place in 2003, in which the late Gerard Duveen also took part. It was the occasion for Anne-Nelly Perret-Clermont to retrace her own trajectory as a learner and as a scholar – from her studies with Piaget, to the definition of a wider project and the values that still underpin her work. In the final chapter, we, two editors, present more analytically the notion of "thinking space", and try to highlight how the many chapters of the volume contribute to its understanding and expansion, and how these also open new routes for research.

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**PART II: THE MICROGENESIS OF KNOWLEDGE
AND THINKING**

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Chapter 2

**SOCIAL INTERACTION AND COGNITIVE
DEVELOPMENT: THREE GENERATIONS
OF POST-PIAGETIAN RESEARCH**

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ABSTRACT

In this chapter I revisit post-Piagetian research on social interaction and cognitive development. The research presented takes as its point of departure Piagetian theorizing and the socio-political context that made the emergence of a first line of research possible back in the 1970s, largely drawing on oral historical accounts of the protagonists of this first line of research, Willem Doise, Anne-Nelly Perret-Clermont and Gabrielle Mugny, and focusing on the development of the influential work of Anne-Nelly Perret-Clermont. In the end of the chapter I discuss how this work influenced a particular strand of a third generation of research initiated in Cambridge and currently continued in the University of Cyprus. This last strand of research integrates social identity dynamics and social representations into the study of social interaction and cognitive development and it can be seen as building on the common vision of a *genetic social psychology* of major figures of European social psychology.

INTRODUCTION

The study of the role of social interaction in learning and cognitive development from a Piagetian perspective has been marked by the inspiring work of a group of social developmental psychologists whose social developmental psychological imagination marked this field of studies from the beginning. In this chapter I shortly revisit the emergence of a first line of research by Willem Doise, Anne-Nelly Perret-Clermont and Gabrielle Mugny, and focus on the development of the influential work of Anne-Nelly Perret-Clermont. In the end of the chapter I discuss how this work influenced a particular strand of a third generation of research initiated in Cambridge and currently continued in the University of Cyprus. This

last strand of research integrates social identity dynamics and social representations into the study of social interaction and cognitive development and it can be seen as building on the common vision of a *genetic social psychology* of major figures of European social psychology.

PIAGET AND SOCIAL PSYCHOLOGY IN TIMES OF SOCIAL UNREST

An original social psychological account of cognitive development was formulated by Willem Doise, Anne-Nelly Perret-Clermont and Gabriel Mugny in Geneva in the early 1970s. The assembling of the troika of these social developmental psychologists that led to the emergence of a first generation of research on social interaction and cognitive development building on Piagetian theorising is related to the social unrest of the events of 1968 in Paris and Geneva. The period before 1968 in Geneva was described by Perret-Clermont (2012) as a “frozen” period, characterised by absence of self-reflection and self critique in a society of strong hierarchies. In the minds of many students back then, there was the realisation and a common understanding of the need to discuss post-war taboos, question authority and scientific orthodoxies, and open up a discussion about collective traumas of the war. In the context of the cold war the “Social” was a scary word which at the level of ideas was translated into “a certain hemiplegia in the way communism scared the west that it was emotionally very difficult to engage with anything Soviet” (Perret-Clermont, 2012).

One of psychology students’ claims at the University of Geneva was to add social psychology in their curriculum, and so Piaget reluctantly invited, first on a visiting professorship, basis Serge Moscovici, Marisa Zavalloni, Claude Flament from French universities and Henri Tajfel from the UK, and then Willem Doise who was appointed, then in his mid-thirties, as professor of experimental social psychology in 1972. Anne-Nelly Perret-Clermont and Gabriel Mugny started their PhD’s under the supervision of Willem Doise soon after Doise’s arrival in Geneva.

The work of the troika was often received by students of Piaget with suspicion, and from some, even with hostility, as it was seen as challenging the by then well-established Piagetian orthodoxy. Piaget himself was not hostile to this work but he was clearly not interested or invested in any way in it (Doise, 2012; Mugny, 2012; Perret-Clermont, 2012). In a commentary on their work, he is assimilating the work of Doise, Perret-Clermont and Mugny in his own work rather than accommodating his theory in light of their findings.

But it is important here to distinguish between two problems: (1) that of the source or formative mechanism of operations and their structure; and (2) that of the facility or rapidity of this formation. On this second point the results obtained are eloquent, and, if you will allow me, I would like to add a personal observation, which even if it is introspective is so simple that it appears incontestable: when an idea comes to my mind which is new for me but which is neither very clear nor well structured, I always draw a great benefit from trying to explain it to a colleague, my own thinking becoming clearer to the extent that I try to do this, even if the idea is not shared but simply understood (and this very clearly before knowing the reaction of my interlocutor). It seems to be established, then, that the factor of exchange (or here that of communication) is dynamogenetic for cognitive work. On the other hand, whether it is a case of causality or

formation (point 1), it remains clear that the co-ordinations of actions and operations are identical, whether these are intra- or inter-individual, and all the more so since the individual himself is socialised and reciprocally cognitive work would never be able to function if each member of a group were not in possession of a nervous system and the psychobiological regulations it consists of. In other words, the operatory “structure” in question has a generative –or “common”- nature, hence biopsychosociological, and that it is for this reason that it is logical in its foundation.

(Piaget 1976b, p. 226, translated from French by Gerard Duveen).

This kind of comment is in line with Piaget’s conviction regarding the chicken and egg problem between the social and the individual. This is the idea that social interaction as co-operation and the individual coordination of operations share the same grouping structure and thus it makes no sense to ask which comes first as they support each other. It also seems to reflect his usual skepticism against learning and culture versus development (see also Duveen & Psaltis, 2008; Kitchener, 2004; Psaltis, 2005; Psaltis, Duveen & Perret-Clermont, 2009) although Doise and his team were not making any simplistic claims of causality but rather proposing a spiral form of development (Doise & Mugny, 1984; Perret-Clermont, 2012). Doise’s (1978) for example states:

Social interaction therefore, has here the status of an independent variable, and we examined its effect on the cognitive structuring of individuals. However, the idea that social interaction plays a causal part in cognitive development is not the same as admitting that the intelligence of the individual is passively shaped by regulations which are outside of it. Our conception is similar to Piaget’s, interactionistic and constructionistic: the individual by acting on the external world, elaborates the systems of organisation of his own activity; nevertheless he does not act on reality in isolation. It is precisely by coordinating his own actions with those of others that he can then elaborate the systems of co-ordination of his own actions-systems which are then reproduced in an autonomous way. Thus interaction leads the individual to master certain coordinations which will allow him to take part in more elaborated social interactions, which in turn, become sources of new developments. (Doise, 1978, p. 80)

The spiral metaphor is important as it breaks the complete Piagetian parallelism between the individual and the social and allows an analytic distinction and articulation between cooperation and logical structures of the individual. The statement above starts to articulate different levels of analysis that Doise was then formulating (Doise, 1986). According to him the aim of social and developmental psychology should be the articulation of four levels of explanation:

1. The intra-personal level (cognitive processes)
2. The inter-personal and situational level (relations established at a given moment by given individuals in a given situation)
3. The positional level (differences in social position and power that exist prior to the interactions between subjects).
4. The ideological level (systems of beliefs, social representations, values and norms which validate and maintain social order)

THE FINDINGS OF A FIRST GENERATION OF RESEARCH IN GENEVA PROPOSED THE NOTION OF SOCIO-COGNITIVE CONFLICT AS THE CRUCIAL MECHANISM OF COGNITIVE DEVELOPMENT

Socio-Cognitive Conflict: A Notion of Fundamental Importance

Socio-cognitive conflict (Doise, Mugny & Perret-Clermont, 1974, 1975, 1976, 1985) is a concept that can bridge major theories of cognitive development (Perret-Clermont & Tartas, 2009) and a notion that accounts for the emergence of creativity in ways not possible by the scaffolding metaphor (Wood, Bruner & Ross, 1976) inspired by the Vygotskian tradition. Socio-cognitive conflict is defined as the conflict of perspectives in social interaction and it was extending an earlier proposal by Smedslund (1966) about the social nature of Piagetian decentration¹, resonating with Moscovici's insistence on the fact that social psychology's main aim is to study the conflict between the individual and society.

An important part of this first generation of research is Perret-Clermont's PhD work (Perret-Clermont, 1980) that related the question of studying peer interaction and cognitive development to the educational and sociological debates of reproduction of inequalities in education². This interest in communication and education that came both from the work of Bernstein (1974) and Bruner (1983, 1984)³ would be a hallmark of her work for years to come when she later extended that work to the study of situated activity of apprentices in vocational schools (Perret-Clermont & Perret, 2011) and also the study of ICT in education (Perret-Clermont & Perret, 2010; Perret-Clermont & Swartz, 2008). Her early work showed that communication could act as an intervention strategy to wipe out class differences provided there were some cognitive prerequisites in place. She also showed that in a context where norms of fairness and equality were part of the framing of the goal of the conservation of liquids task, the productivity of social interaction, leading to cognitive development of the children involved, could be enhanced.

In fact these concerns seem to have led to the later elaboration by Mugny of the notion of *social marking* with colleagues from Italy (Mugny, De Paolis and Carugati, 1984) working with younger children, which is part of a more general theoretical account of *social regulations* at different levels of analysis (Doise, 1986). These researchers identified some factors that may be distinguished in terms of different levels, which might hinder the production and resolution of socio-cognitive conflict. a) at the level of the individual characteristics of the participants. Here the authors basically refer to cognitive prerequisites (Perret-Clermont, 1980) of the participants but they leave open the possibility that social

¹ Decentration is overcoming centration. The latter describes what Piaget (1941/ 1952) proposed as the process where the young child naturally focuses attention on only one aspect of a problem at a time and may even behave as if ignoring the multidimensionality of an object or a problem. For example in the conservation of liquids task the child focuses his or her attention on the height of the glass but not the width. The coordination of different centration is a developmental achievement according to Piaget.

² Perret-Clermont was one of the first psychologists to introduce the debate of multiculturalism in relation to immigrants in Switzerland with Edo Pogliani (see Gretler et al., 1981).

³ Through contact with a student of Jerome Bruner, then in Oxford, Perret-Clermont also had an interest in younger ages than the ones she studied up to then (5-9 year olds). She was interested in Trevarthen's work and his work on intersubjectivity and as she finished her PhD she studied more of that with Michèle Grossen who was her first PhD student in Neuchâtel, and who studied the building of intersubjectivity in communication (Grossen, 1998; Grossen & Perret-Clermont, 1985).

characteristics or personality characteristics that were not yet been explored might have an effect; b) at the level of the characteristics of the encounters between participants; and finally c) at the level of the influence of more collective and general social representations.

This research developed itself in three generations that incorporated elements from social influence by Mugny and his colleagues in Geneva and Lausanne (Butera, Mugny and Buchs, 2001; Doise, Mugny & Perez, 1998; Quiamzade and Mugny, 2009; Quiamzade, Mugny, Dragulescu and Buchs, 2003) that due to lack of space we cannot discuss here (but see Psaltis & Zapiti, 2014).

The Second Generation of Research in Neuchâtel

A second generation of research was primarily concerned with a close examination of the specific features of social interactions themselves, as vehicles mediating the transmission of meaning from the experimenter to the child (Grossen & Perret-Clermont, 1994; Light & Perret-Clermont, 1989; Perret-Clermont, 1993; Perret-Clermont, Perret & Bell, 1991) and the co-construction of the context by the interlocutors (Grossen, 1998; Iannaccone & Perret-Clermont, 1990; Schubauer-Leoni et al. 1989).

It was motivated by a growing dissatisfaction with the methods of an underlying individual-social methodological dualism of the early work in Geneva (see Zittoun et al, 2007). For example, the work on the *experimental contract* by Grossen (see Schubauer-Leoni & Perret-Clermont, 1997) made clear that the way questions are posed or hints provided by the experimenter could lead the children to particular answers that did not actually reveal what the child thought about the object. On the one hand, this obviously suggests that part of the variability of the progress observed in the research of the first generation might be attributed to how competent the children are in the much broader domain of shared linguistic understandings and shared implicits in a context where shared meanings and rules are being negotiated. This better grasp of the role of meaning making processes in communication led to a series of reflective papers with methodological implications for the study of peer interaction and cognitive development. Some of this focused on the conservation of liquids task (Arcidiacono & Perret-Clermont, 2012; Muller-Mirza et al, 2003) and other with suggestions for the alteration of the original experimental design (Perret-Clermont, 1993), calling for caution on how we interpret the findings of these experiments and especially with the making of simplistic causality claims⁴.

A Third Generation of Research in Neuchâtel

More recently, a third generation of research in Neuchâtel expanded to the study of what was termed the study of the *microhistory* of individual cases moving towards the direction of a more idiographic form of methodology where the focus shifts into the study of a series of phases of testing and social interaction with a variety of tasks, even going back into an

⁴ Perret-Clermont (2012) is always struck by the way psychologists are copying models from the natural sciences, often in simplistic ways, at a time when since the 30s the natural sciences took a more nuanced approach on epistemology of experimentation.

understanding of the experiences that take place before the immediate context of the experimental context (e.g., familiarity with the experimental contract). The interest here is on the issue of transfer of newly acquired knowledge from phase to phase, setting to setting, object to object and partner to partner (Tartas, Baucal & Perret-Clermont, 2010; Zittoun & Perret-Clermont, 2009).

The Cambridge Strand of a Third Generation of Research

The main questions that concerned the third generation of research in both Neuchâtel and Geneva were also explored recently in Cambridge, and are currently under investigation in the Genetic Social Psychology Lab of the University of Cyprus. This work is directly related to the legacy of Gerard Duveen (Moscovici, Jovchelovitch, & Wagoner, 2013; Moscovici, 2010, 2013; Psaltis, 2014) and builds on his work that started at the Department of Social and Developmental Psychology of the University of Cambridge (Duveen & Psaltis, 2008; Leman & Duveen, 1999; Psaltis, 2005a, 2011, 2012a,b; Psaltis & Duveen, 2006, 2007; Psaltis, Duveen & Perret-Clermont, 2009; Psaltis & Zapiti, 2014; Zapiti & Psaltis, 2012; Zapiti, 2012). In these studies, peer interaction was observed in the educational setting of collaborative dyadic problem solving, understanding social interaction as the process of social representation of gender, whilst retaining the strengths of a structural analysis of Piagetian constructivism (for reviews and commentaries of this work see Ferrari, 2007; Castorina, 2010; Jovchelovitch, 2010; Gillespie & Cornish, 2010; Martin, 2007; Maynard, 2009; Nicolopoulou & Weintraub, 2009; Psaltis, 2012a; Simao, 2003; Psaltis & Zapiti, 2014). This series of studies explored the interplay of representations and identities through the articulation of intra-personal with interpersonal, inter-group and ideological/social representational dynamics (Doise, 1986), building both on Piagetian insights on the role of social relations in cognitive development (Piaget, 1932), and on his social psychology and sociology (Kitchener, 2004; Piaget, 1997/1995), together with the empirical work of the social Genevans on peer interaction and cognitive development (Doise, Mugny & Perret-Clermont, 1975; Perret-Clermont, 1980) and with insights from the social influence literature (Psaltis, 2005b; Moscovici, 1976; Doise, Mugny and Perez, 1998).

Social Representations as a system of values, ideas and practices was at the heart of genetic social psychology from the beginning (Moscovici, 1973) but it was only explored in the first and second generations of research in Neuchâtel and Geneva in the restricted sense of contracts and social marking. In the Cambridge strand of Genetic Social Psychology social representations are studied in their original broader societal definition as manifested in social interaction in their interplay with social identity dynamics.

Genetic Social Psychology

Duveen & Lloyd (1990) argue that a genetic perspective is implied in the conception of social representations. This is because the structure of any particular social representation is a construction and thus the outcome of some developmental process. Genesis of knowledge can take three forms: *Sociogenesis* concerns the construction and transformation of the social representations of social groups about specific objects; *ontogenesis* concerns the development

of individuals in relation to social representations; and *microgenesis* concerns the evocation and (re)construction of social representations in social interaction (Duveen & Lloyd, 1990).

From the genetic point of view, microgenesis thus holds a privileged and central position as it is the motor for ontogenesis and sociogenesis of social representations (Duveen & Lloyd, 1990). A process of negotiation and (re)construction of both social representations and identities is taking place in social interaction. According to this perspective, the *evocation* of social representations in social interaction occurs in the ways in which individuals construct an understanding of the situation and *position* themselves and their interlocutors as social subjects in the field of social representations. This process can run smoothly along the lines of the “taken for granted” but it can also lead to ruptures (see Zittoun, Gillespie, Duveen, Iverson & Psaltis, 2003).

The microgenesis of a social representation implies their reorganization towards a holistic structure with a certain coherence since the basic function of social representations is to make the unfamiliar familiar (Moscovici, 1973). Such processes of microgenesis are situated in groups, and are shaped by sociogenetic processes of public and mass mediated communication within and across them (Wagner, 1994). In this work we were mostly concerned with the articulation of microgenesis with ontogenesis in childhood at different levels of analysis but future work aims to expand this framework into the study of sociogenetic processes (Psaltis, 2011).

From Microgenesis to Ontogenesis: The Role of Social Identities

In the social developmental work of the late Gerard Duveen, one can recognize the long term project of building a *genetic social psychology* that has as its aim the studying of the articulation of all genetic aspects of social representations (see Castorina, 2010; Jovchelovitch, 2010; Leman, 2010). In this third line of research the *social-psychological subject* is the unit of analysis and it is premised on the empirical findings from the study of the ontogenesis of social representations of gender (Duveen, 1993; Lloyd & Duveen, 1989, 1990, 1992) and Duveen’s theoretical writings about the relations between social representations and identities (Duveen, 1997, 2000, 2001; Duveen & Lloyd, 1986). It also gives empirical evidence of the microgenesis of social representations and the importance of distinctions between varieties of communication or social interaction and their links with forms of learning or cognitive development (Duveen, 2002; Duveen & Psaltis, 2008; Leman & Duveen, 1999; Psaltis & Duveen, 2006, 2007; Psaltis, Duveen, & Perret-Clermont, 2009).

In our joint work with Duveen the experimental paradigm of pre-test, interaction, post-test (immediate and delayed) is employed (Psaltis & Duveen, 2006, 2007; Duveen & Psaltis, 2007; Psaltis, Duveen & Perret-Clermont, 2009; Psaltis, 2011a; Psaltis, in press). This classic design has also been modified following Perret-Clermont’s (1993) suggestion to replace post-tests with social interactions with peers (Zapiti & Psaltis, 2012) in order to explore the question of transfer of knowledge from setting to setting. In the aforementioned studies, 6-7 years old children interact under conditions where an asymmetry of gender status is crossed with an asymmetry of knowledge on cognitive tasks. This was done by using the “four pair type” design as in Leman & Duveen (1999) where for the social interaction phase four different pair types are created. The first type is the Mm (a male of higher developmental level paired with a male of lower developmental level), the Mf (a male of higher

developmental level paired with a female of lower developmental level), the Ff (a female of higher developmental level paired with a female of lower developmental level) and the Fm (a female of higher developmental level paired with a male of lower developmental level). The effects of such criss-crossing of asymmetries on conversation types and on the change of the representation of the conservation of liquids and the village task (see Doise & Mugny, 1984) were explored. In this kind of work one can clearly see the interplay between two processes of representation. The process of evoking social representations of gender and the process of evoking the social representation of the cognitive task which is of course also an opportunity for the reconstruction of knowledge of both representations in social interaction.

Positioning in collaborative dyadic problem-solving of a cognitive task can either be consistent with, or conflict with expectations about habitual ways of positioning the gendered-self derived from presuppositions of social representations of gender – the same “presuppositions buried under the layers of words and images” as discussed by Moscovici (Moscovici, 1994, p.168). A girl positioned as a novice by a boy asserting himself as an expert may find this situation all too familiar, while a boy who finds himself positioned as a novice by a girl may find that this conflicts with his expectations as an expression of a certain dominant masculinity. Indeed, this is exactly what is shown through our studies with the well-established “Fm effect” (Duveen & Psaltis, 2007; Psaltis, 2005a, 2005b, 2011a; Psaltis & Duveen, 2006, 2007; Psaltis, Duveen & Perret-Clermont, 2009; Zapiti & Psaltis, 2012; Zittoun et al., 2003). We consistently find that the conflicting nature of gender status and knowledge asymmetries in dyadic interaction of female expert-male novice (Fm) creates a more balanced communication between the interlocutors. Such communication is linked with more flexible and novel forms of knowledge, interiorization of operations, and in-depth understanding of the object under discussion by males in these dyads. As Jovchelovitch vividly commented on the “Fm effect” in Duveen (2002, p.148) “what the girls are doing is they are bringing the boys an apple, and when the boys bite into it, it becomes new knowledge for them”.

Another innovation of this line of third generation of studies is the introduction of a more molar level of analysis of unfolding communication in microgenetic time by distinguishing different types of conversation or interaction types. Rather than analyzing particular speech-acts or sequential patterns of speech-acts, this analysis considered the conversations across the interaction as a whole, and differentiated four conversation or interaction types that can be related with different forms of social recognition between the interlocutors (Duveen & Psaltis, 2008; Psaltis & Duveen, 2006, 2007; Psaltis, Duveen & Perret-Clermont, 2009; Psaltis, 2005b; Psaltis, 2014). For example on the conservation of liquids task the following conversation types were identified:

1. *Non-conserving*: The non-conserving child was able to persuade their conserving partner to agree on a wrong joint response of non-conservation. In many cases this interaction took the form of passive acceptance of the non-conserving position by the conserver.
2. *No Resistance*: Conversations which began with an assertion of conservation by the conserving child to which the non-conserving child offered no resistance. In many ways it is the reverse kind of the Non-conserving type
3. *Resistance*: Conversations where the non-conserver offered an argument in support of their position at least once during the interaction and

4. *Explicit recognition*: Conversations in which the non-conserving child gave some explicit indication that they had grasped the idea of conservation, like for example giving conservation arguments during the interaction.

The coding of interaction at this molar level of analysis provided a clearer and stronger pattern of relationships between this feature of the interaction and the outcome for the original non-conservers on the post-test. Progress on the post-test was observed for almost every child who participated in an *Explicit recognition* conversation (Psaltis & Duveen, 2006), but never for those from *Non-conserving* conversations. And while about half of the children from *No Resistance* and *Resistance* interactions made progress on the post-test, they did so without producing any novelty on the post-test. Novelty was almost exclusively observed in the post-tests of children who had participated in *Explicit recognition* (Psaltis and Duveen, 2006). *Explicit recognition* is the conversation type which is uniquely associated with the type of interaction which stimulates the reflection that leads to an authentic transformation in the representation. In this conversation type there is explicit recognition of conservation by the original non-conserver which creates a form of mutual recognition, which Rommetveit (1984) calls a *temporarily shared world* where both interlocutors know that the other knows the same thing that they themselves know. Such a conversation type is characterized by a form of recognition of the original non-conserver as a *thinking subject* (Psaltis & Duveen, 2007) or an autonomous agent, and the influence taking place here is bi-directional. On the contrary in *Incorrect Answer* and *No Resistance* there appears to be at play a form of instrumental recognition where one of the partners is relegated by the other to an object that either just fills in the slots offered by the other or is not taken into account at all. Influence here is uni-directional. Finally, *Resistance* seems to be a form of categorical recognition where there is a limit to the unidirectional influence that can be achieved by the other due to his or her social category membership.

Most of these studies had 6-7 year old Greek Cypriot elementary school students as their subjects. However, children of different ages reconstruct and enact social representations of gender differently (Leman, 2010) and for this reason the research program in the University of Cyprus recently expanded towards exploring the same questions with older children of 10-11 years old (Zapiti, 2012; Psaltis & Zapiti, 2014) and 14-15 years old (Psaltis & Panayi, in preparation)..

DISCUSSION: THE NECESSARY ELEMENTS OF A THEORY OF SOCIAL INTERACTION AND COGNITIVE DEVELOPMENT

Any theory of social interaction and cognitive development needs to be able to account for the emergence of novelty whilst at the same time explaining the mechanisms through which transfer of knowledge takes place. This cannot be done without the notion of socio-cognitive conflict. At the same time it needs to articulate Doise's four levels of analysis (Doise, 1986) in a way that cognitive development becomes socioculturally situated. There was an attempt in the first Genevan generation of research for this to be covered by the notion of social marking, since this notion was making the link between the *logical system* and the *normative metasystem* as discussed by Moscovici in his original work on psychoanalysis

(Moscovici, 1961/1976/2008). But *social marking* as it was proposed appears as a mechanism “too good to be true”, to use the same words that Moscovici (1990, p.179) used when he raised doubts about Vygotsky’s notion of internalization. What is missing in Doise’s notion of social marking, even if we accept that social marking does work in tandem with socio-cognitive conflict, is the dynamics emanating from group belongingness and social identities of the interlocutors as they relate to *positioning* and *resistance* (Duveen, 1993, 2001) in the unfolding microgenetic time of a social interaction.

FUTURE DIRECTIONS

A theory of *Genetic Social Psychology* can clarify a number of open questions in the field and it can open new questions that lie at the interface of the relationship between microgenetic, ontogenetic and sociogenetic processes (cf. Cole, 1995). It will hopefully offer a better understanding of the way forms of learning and cognitive development relate with the dynamics of social identity from a co-constructivist and relational perspective. Seeing knowledge construction and identity construction as two sides of the same coin will help us fill the gap in the Vygotskian formula of internalization from the interpersonal to the intrapersonal as Duveen suggested (1993). Researchers should turn their attention away from simplistic dichotomies of relational vs. constructivist/epistemic resolutions of socio-cognitive conflict into the study of *how* a social relation is re-established or challenged through the negotiation or not of a socio-cognitive conflict. As the well established by now “Fm effect” of our studies shows, it is not by avoiding, but, often, because of the struggle for a threatened identity, a social comparison, or the process of saving face, that social interaction and asymmetries can be a very productive source of cognitive progress (Psaltis, 2011a,b, 2012). The crucial question here is whether various asymmetries (knowledge, gender, popularity, academic reputation, social class) align or conflict in social interaction because it is the alignment or conflict of asymmetries that define the dynamics of social interaction.

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Chapter 3

**USING TESTS TO ASSESS COGNITIVE COMPETENCE:
A SITUATED PRACTICE**

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ABSTRACT

Drawing on three research fields, namely post-Piagetian research on intersubjectivity in test situations, the interactionist approach to test administration, and a dialogical perspective of work psychology, this chapter concerns test administration as both an institutional practice and an interpersonal encounter. It presents a study, which focused on the Wechsler Intelligence Scale for Children (WISC-R) and examined it from three different angles: the instructions (or prescriptions) provided in the *Manual of the WISC*, examiners' accounts of their use of the WISC, and observations of examiner-testee interactions.

The study started from the analysis of three sets of instructions prescribed in the *Manual of the WISC*. Then, it analysed examiners' accounts of their practices in order to understand how they interpreted these prescriptions. Finally, it showed how these prescriptions were interpreted in the actual practices of two psychologists who administered the WISC to four children aged between six and eight.

The comparison between these three sets of data showed that the practitioners' practices were underpinned by two types of tensions: (1) a tension between the psychometricians' standpoint, which focuses on standardised practices in test administration, and the practitioners' standpoint, which stresses the necessity of adapting the procedure and instructions of a test to the specificity of a testee's behaviour; (2) a tension between scientific reliability and situated reliability referring to the practitioners' reasonable confidence in the results obtained with a concrete child in a concrete situation. In this light, the psychologists' practices, far from being mere deviations (or deviance) from prescribed work, appear to be a situated accomplishment of actions that have escaped from standardisation.

INTRODUCTION

Assessing a person's level of competence or psychological functioning is a widespread social and institutional practice, which raises various questions as to the relevance of tests, their context-bound nature (are they culture-free? are they culture-fair?), their purpose, their consequences, etc. Though not restricted to professionals, tests are mostly used by psychologists, who benefit from social legitimacy in using tests and interpreting their results. However, administering tests is not only a social and institutional practice, it is also an interpersonal encounter, occurring in a concrete situation for a predefined purpose.

From the standpoint of psychometrics, examiner-testee interactions and the test situation itself are factors that need to be controlled because they are a vital component of test standardisation and, hence, test reliability. Adhering strictly to test procedures and instructions is crucial to ensuring a reliable measure of the testee's competence. Based on a dualistic conception of the person-environment relation, this view belongs to what may be called a monological (or factorial) conception of the human mind (Grossen, 2010; Jacques, 2000; Marková, Linell, Grossen, and Salazar Orvig, 2007).

From an interactionist and dialogical theoretical framework, we may, on the contrary, assume that the administration of tests necessarily entails the design of *concrete* situations, with *concrete* artefacts and *real* people. This assumption makes the test situation a suitable object of study.

1. TEST SITUATION AS AN OBJECT OF STUDY

Three research fields have already opened the way to the study of test situations. The first is a post-Piagetian research field, which criticised Piaget for neglecting the social and communicative conditions in which a child's stage of development is assessed. Together with Donaldson (1978), who showed that even slight variations in the presentation of a Piagetian test could change a child's answer, and Rommetveit, (1978) who analysed adult-child communication in Piagetian tests, many scholars showed that a child's reasoning cannot be decontextualized from the situation in which the child is tested, and that answering a question in a test implies sharing a joint definition of the situation and the task (Grossen and Perret-Clermont, 1994; Light and Perret-Clermont, 1989; Perret-Clermont and Nicolet, 2001; Perret-Clermont, Schubauer-Leoni and Trognon, 1992; Resnick, Säljö, Pontecorvo, and Burge, 1997).

These studies, together with post-Vygotskian research, then gave way to various investigations focusing on the relation between language, cognition and interaction in the school context (e.g., Muller Mirza, Tartas, Perret-Clermont and Iannaccone, 2009; Perret-Clermont, Perret and Bell, 1993; Trognon, Batt, Schwarz, Perret-Clermont, and Marro, 2006; Zittoun, Muller Mirza, and Perret-Clermont, 2006).

A second research field draws on an interactionist approach to test situations, and is best illustrated by a study carried out by Mehan, Hertweck, and Meihls (1986), who assumed that test administration, as a form of social interaction, cannot be standardized (see also Marlaire and Maynard, 1990).

They recorded twenty testing sessions between two school psychologists and eight students, analysed tester-testee interactions in the administration of the Wechsler Intelligence Scale for Children (WISC-R), and compared their observations with the standard testing procedures described in the *Manual of the WISC*. They showed that there were many deviations from the required standard procedures (such as giving clues after a child's request for clarification, or not giving clues when they were required) and that, sometimes, these deviations had an incidence on the child's final score.

Thirdly, test situations may also be considered from the standpoint of work psychology. Classically, work psychology showed that prescribed work (as described in the specifications) never does coincide with actual (or practical) work (the one actually carried out), and that this gap, far from being a "mistake" or an undesirable deviation, originates from the workers' capacity to adapt their actions to the specificity and uniqueness of a situation. This is why Davezies (1995) defines work as the activity that is developed to carry out what is *not* prescribed in work specifications. However, as Clot (2008, 2009) showed in his dialogical approach to work, the distinction between prescribed and actual work does not account for the workers' psychological activity.

In fact, direct observation of work does not account for the totality of what working means for a worker, since the methodology does not enable us to grasp non-directly observable dimensions, such as "intended work" or "impeded work" (that which could not be achieved), "dreamed work", etc. Although not applied to the study of test situations, the distinction between prescribed, actual, impeded, intended, dreamed, etc., work is inspiring and incites us to compare the prescriptions provided in a test manual, with examiners' actual practice and their verbal account of their practice. Such comparisons would help us to understand how testers contextualise their practices and how they interpret them.

With these three theoretical and empirical approaches as a background, we can now focus upon test situations and ask: (1) According to which work prescriptions are the examiners' practices framed? (2) How do examiners account for their practices? What do they consider to be important in their everyday professional practice? (3) What is the examiners' actual use of test? How do they interpret prescribed practices? What changes do they bring and why?

To answer these questions, I shall focus, as Mehan, Hertweck and Meihls (1986) did, on the WISC and examine its use from three angles: the prescriptions provided in the *Manual of the WISC*, the examiners' discourse and account of its use, and observations of examiner-testee interactions. As it should now be clear, my aim is not to focus on intelligence tests as such or to provide one more criticism about IQ tests, but to illustrate how, when defined as work, test situation and administration, can be taken as an object of study.

The version of the WISC under scrutiny is the WISC-III in its French adaptation, which was the version used by most of the psychologists who participated in the studies reported in this contribution.

Due to space restrictions, I shall limit myself to examining some prescriptions that appear in a short section entitled "Establishing a Good Contact" in Chapter 3 of the *Manual* (Wechsler, 1991, p. 33), a chapter that provides instructions about the administration of the WISC in general. I shall then examine how these prescriptions were interpreted in the examiners' accounts of their practices and finally I shall report some observations of examiner-testee interactions in order to show how these prescriptions were interpreted in the practitioners' actual practice.

2. THE MANUAL OF THE WISC AND ITS PRESCRIPTIONS

The section called “Establishing a Good Contact” is composed of seven paragraphs and forty lines. The first paragraph emphasises the importance of having a good relationship with the “subject” and gaining his/her confidence¹:

[1]. “A good relationship between the subject and the examiner is essential for the assessment examination. Accordingly, the examiner must adopt an encouraging and in no case threatening tone” (1991, p. 36).

The second paragraph further specifies that:

[2]. “The examiner should begin the test session by making the subject feel comfortable through an informal conversation on his/her activities and interests” (1991, p. 36).

And the third adds:

[3]. “As soon as the subject seems to be confident, the examiner can briefly present the test to him/her by using a language adapted to the subject’s age” (p. 37).

Other prescriptions in the fifth paragraph concern the examiner’s behaviour during the test:

[4]. “As the subtests proceed, the examiner must show his/her enthusiasm and interest for what the subject is doing. Throughout the administration, the examiner must encourage the subject by congratulating him/her for his/her efforts but, unless specified in the instructions, he should not indicate whether a response is correct or not. For example, the examiner should not tell the subject: “good” or “it’s correct” if the latter gives a correct response” (p. 37).

The *Manual* also gives two examples of encouragements that an examiner might give: “Try to do it”, “I think you can make it. Try again”.

Providing such detailed instructions suggests that in order to administer a test properly, examiners just have to learn a part and play it. Now, considering (a) that no prescription is able to take account of every event liable to happen in a concrete situation and everything that a “subject” is liable to do, (b) that the polysemic nature of language opens the way to various interpretations, we may not only anticipate that these prescriptions are difficult to apply, but that, by neglecting the specificity of a concrete situation, their strict observance might have unwanted consequences.

It therefore seems relevant to examine the role of these prescriptions in examiners’ reported practices and in actual test administrations. This is what I shall do by grouping these prescriptions into three sets: (a) establishing a good relationship with the subject and making

¹ These excerpts are verbatim translation from French into English so as to be as close as possible to the French formulation.

him/her feel comfortable through an informal conversation; (b) using language adapted to the subject's age; (c) encouraging the subject without revealing whether his/her response is correct or not.

3. THE PSYCHOLOGISTS' REPORTED PRACTICE

To examine this point, I shall draw on a corpus of seventeen semi-directed face-to-face interviews with psychologists working in three different services in the French-speaking part of Switzerland²: (1) *the School Psychology Service (SPS)*, which is intended for to students with school or psychological difficulties; (2) *the School and Career Service (SCS)*, which assesses the students' educational level and orientates them in their educational or professional career; (3) *the Psychological Counselling Centre (PCC)*, which is a pedopsychiatric service for children and adolescents³.

These psychologists were questioned, among others, about their use and choice of tests, their interpretation and delivery of the results and, more generally, on their attitudes towards tests.

3.1. "Establishing a Good Relationship and Making the Subject Feel Comfortable through Informal Conversation"

This first set of prescriptions is very present in the psychologists' accounts and testifies to their awareness of the conditions to be fulfilled in order to test a child:

[5]. if we have a child who is blocked and we face him with something like the WISC questions-answers err, we may get really very very different results than if we played with the child, if we got to know him. (Ann, SPS, 43)

These conditions refer in particular to the child's psychological state, his/her attitude or behaviour at the beginning of a test session (Grossen, Florez, and Lauvergeon, 2014). What some practitioners call "testability" is a condition to be reached in order to get results reflecting the subject's competence at its best. Evaluating the subject's "testability" appears then to be a way of reducing the tension between, on the one hand, psychometric requirements (the administration of a test under standardised conditions) and, on the other hand, the practical necessity of adapting to the specificity of a situation and testing the subjects under "fair" conditions, that is, in conditions enabling them to achieve their best performance (Grossen, *et al.*, 2014).

² A special thanks to Douchka Florez and Stéphanie Lauvergeon, who participated in the collection and analysis of the data collected in this study.

³ 6 psychologists (3 men, 3 women) in the SPS; 5 (1 man, 4 women) in the SCS and 6 (all women) in the PCC. They were all graduates in psychology, with more than a one-year professional experience.

3.2. “Using Language Adapted to the Subject’s Age”

The interviewed psychologists did not directly allude to this prescription, which, as Excerpt [3] showed, concerns the presentation of the WISC in general. However, some of them mentioned that the WISC-III has no Swiss standardisation (only a French and a Belgian), a fact that, according to Dan, requires some adjustments:

[6]. (...) there are questions that, I think, put Swiss people at a disadvantage because they contain French notions, so err it sometimes happens, when I code, I even evaluate by telling myself “well I estimate that it’s correct even if the response may not be totally correct”, precisely because it’s a French test and it’s not valid for a Swiss population, and this is for me one big handicap of the WISC. It’s also the reason why I don’t calculate IQ because err I think anyway that for me it contributes strictly nothing. it’s a number that in my opinion is more misleading than anything else (Dan, SPS, 44).

Dan’s reported practice, though infrequent, shows that by their active interpretation of the use and significance of a test, the psychologists are likely to adopt a practice — coding as correct a response that is not totally correct — that would certainly not be accepted by test developers, and in fact violates the *Manual’s* prescriptions. Examining how these practitioners account for such discrepancies shows, however, that far from being unacceptable deviations, these practices have a contextual relevance and testify to the practitioners’ accountability.

3.3. “Encouraging the Subject without Revealing whether the Response Is Correct or Not”

From the standpoint of psychometrics, not saying whether a response is correct, not giving any clue about the correct answer, and *a fortiori*, not providing the correct response, are keystones that ensure the validity of a test, and emphasise one central characteristic of the examiner’s role: his or her expected neutrality. Neutrality is specific to the communication contract of test situations, contrary to the “didactic contract” in which the teacher’s role is to guide the students and to give them feedback (Mercer, 2000; Schubauer-Leoni and Grossen, 1993).

However, being neutral may be difficult to achieve in a concrete situation because, as Olga (PPC) reported: “We actually often have to align, to stimulate the child, to encourage him”. Hence, the limit between encouraging and guiding the child may be blurred as Mehan, *et al.* (1986) also emphasised.

The analysis of the psychologists’ reported practices also showed that providing the correct answer may be justified for psychological reasons:

[7]. [...] for children I am sure are intelligent but they have for example [...] a difficult school trajectory, I let them code themselves (R: ah yeah). I explain to them what it means, and they see that they are at least among the average, that they are NORMAL, that they are like everybody else (..) often it encourages them a lot [...] (Ann, SPS 50-52).

Relying on her experience, Ann can roughly estimate whether a child's score is up to the average and, if so, she lets the child code his/her responses herself. This practice is used as a contextual resource to help children recover self-esteem and to encourage them. More than a deviation, it is an innovation, which aims to reach the ultimate goal of any consultation: to help a child struggling with difficulties at school. What seems then to be a heresy from the standpoint of psychometrics, becomes orthodoxy if we consider it in the broader context of psychological practice.

4. THE PSYCHOLOGISTS' OBSERVED PRACTICES

Drawing on Mehan, *et al.* (1986), two young psychologists — Berrah (2004) and Roux (2007) — who were doing internships, respectively, at the School Psychology Service and at the Psychological Counselling Centre, recorded sessions in which they were administering the WISC: Berrah administered the WISC-III to Thierry (a 7 year-old boy) and Miriam (a 6 year-old girl), and Roux the WISC-IV to Samuel and André (two 8 year-old boys).

Some of their observations are related to the three sets of prescriptions that served me as a red thread.

4.1. "Establishing a Good Relationship and Making the Subject Feel Comfortable through Informal Conversation"

In the psychologists' reported practices, "making the subject feel comfortable" appeared to be a condition for obtaining reliable results in the test. On a practical level, the psychologists may achieve this goal by playing with the child, or by having an informal discussion at the beginning of a test session, or between two subtests.

Observations of actual tester-testee interactions showed, however, that these informal discussions did not always have the expected outcomes:

[8]. Just after the Memory subtest, the examiner asks:

- 253 Ex so how was this exercise for you'
 254 André good
 255 Ex is it something you already had to do'
 255 André yes
 256 Ex where'
 257 André um at school
 261 Ex oh yes, so just one last thing for today (she shows the sheet of the Coding subtest)
 262 André ah I have to write . it's the X <jump of>
 263 Ex the what'
 264 André the jump . of four
 265 Ex oh no, not like the maths sheets at school. I'm going to explain to you how you have to fill the sheet (...) (Roux, 2007, p. 88)

The examiner's questions (253, 255, 256) might be interpreted as a manifestation of her interest in the child and as small talk aimed at relaxing him.

But the examiner's question (255) led the child to evoke the school context (257), so that, eventually, their exchange worked as a framing (Marková, *et al.*, 2007) that did not fit the situation and obliged the examiner to make a repair (265) that invalidated the child's definition of the task. In the end, what was probably intended to be a friendly talk with the child worked as an obstacle impeding comprehension of the task and situation.

4.2. "Using Language Adapted to the Subject's Age"

Echoing Dan's discourse in Excerpt [6], Berrah (2004) observed some lexical adaptations in the Arithmetic subtest:

[9]. The prescribed instruction of item 18 is: "If you buy 2 dozen pencils at 45 francs a dozen, how much change will you get back from 100 francs?". Here is the examiner's instruction:

Ex (...) WELL now ooh it gets hard here, it gets really hard, you have two boxes of pencils, ok boxes like this one (she shows a box of pencils on the table), one box costs 45 francs (...)

The examiner replaces the word "dozen", which is rather rare in spoken French language, by the word "box". She also underlines the task difficulty ("it gets hard"), an observation that can be interpreted as a face-work strategy (Goffman, 1967), which anticipates the child's difficulty to answer. In item 15 (not shown), she also replaces the words "tickets for a tombola" by the words "candies", which is more usual (Berrah, 2004, p. 24). These lexical adaptations, minimal as they are, can be seen as guidance strategies that are likely to affect the child's score.

4.3. "Encouraging the Subject without Telling if the Response Is Correct"

Observations of tester-testee interactions showed that the examiner generally respected this prescription. However, Berrah observed that the examiner used the feedback "d'accord" (a French equivalent of "ok") exclusively when the child's response was incorrect, and a feedback such as "yeah", "you're right", "exactly" when the response was correct. In both cases, the meaning of such feedback was ambiguous and could be understood either as an indication that the response was correct or as a simple phatic.

Observations of examiner-testee interactions also showed that there are numerous empathic comments and cheerful encouragements:

[10]. After Thierry's correct response in the Information subtest:

219 Ex you see that you found them all ((the seasons)) (2 sec), you see that you know them (Berrah, 2004, p. 40).

or after the Coding subtest:

- 289 Ex STOP, bravo! super! you have done a lot! was it good, was it easy'
(Berrah, 2004, p. 63)

Such encouragements may be interpreted as sincere congratulations for a successful answer, but, indirectly, they are also clues that define the situation as one in which the child's responses were assessed.

Other examples showed that there is no clear-cut boundary between giving encouragements and guiding the child toward a correct response, as illustrated in the next excerpt, which follows Excerpt [9]:

[11].

- 2323 Ex (...) one box costs 45 francs
2324 Marcel 45!
2325 Ex 45! and you, you give- you want to buy two boxes ok and you give
hundred francs to the salesman, how much change will he give you
back' (Berrah, 2004, p. 118)

Besides a lexical change ("box" instead of "dozen"), the examiner anchors the problem into a concrete situation by pointing to a real box on the table; she also personifies the instruction ("you give hundred francs", "... will he give back to you") and simplifies the syntactic construction of the instruction (suppression of "if").

All these changes offer subtle guidance and scaffolding. As shows the next excerpt, children may play an active role in provoking the examiner's encouragements:

[12].

- 340 Thierry ha I don't know either! ((complaining tone))
341 Exa well think about it, what is it' to what does it mean' what-
342 Thierry this makes, this is to make music
343 Exa they both make music, you see you know, don't you' (Berrah, 2004, p. 66)

Thierry's complaining tone elicits the examiner's injunction ("think about it") and reformulation (341), which are followed by a response (342) that scores one point.

Similarly, the child may also ask whether his or her response is correct or not, as was frequently observed:

[13]. André is completing the Letter-Number Sequencing subtest.

- 532 André is it correct'
533 Ex what do you think'
534 André err yes
535 Ex so can we continue'
536 André yes (Roux, 2007, p. 38)

André's question (532) indirectly reveals that he defines the situation as a school situation, in which knowing whether a response is correct or not is part of the didactic contract at work within the classroom.

The examiner's answer (533) and further question (535) might then be seen as an avoidance strategy that, on a pragmatic level, both fulfils the need for a response and satisfies André's question. The child's reaction appeals to the tester's capacity of improvisation and leads her to develop avoidance strategies that are not described in the *Manual*.

CONCLUSION

The comparison between the prescriptions given in the *WISC Manual* and the testers' reported and actual practices brings to light that the practitioners' practices are underpinned by a tension between, on the one hand, the *psychometricians' standpoint*, which focuses on standardised practices in test administration, and, on the other hand, the *practitioners' standpoint*, which stresses the necessity of adapting the procedure and instructions of a test to the specificity of a testee's behaviour. By construing general procedures of test administration, psychometricians do not account for contextual characteristics, and by assuming that an instruction has always the same meaning because it is fixed, they neglect the polysemy of language. Hence, the practitioners are left with the responsibility of managing concrete, unexpected, unpredictable and uncontrollable events, such as: what should be done if a child is blocked with fright by the test situation? What should be done if the WISC has to be used in a French-speaking country in which no standardisation has been done? What should be done if the testee incites the tester to stray away from expected neutrality? In these cases, their practices, far from being mere deviations (or deviance) from prescribed work, appear on the contrary to be *work*, that is, a situated accomplishment of actions that have escaped from standardisation. Echoing the tension between the psychometricians' and the practitioners' standpoints, there is thus another tension opposing *scientific reliability* (or validity) (as defined by psychometrics) to *situated reliability* (Grossen *et al.*, 2014), that is, an *ad hoc* construction, which mingles bodies of knowledge pertaining to psychometrics, clinical psychology, etc., but also relates to personal experience, team discussions, everyday conversation, common sense, etc. From the practitioners' standpoint, what then appears to be important is to achieve reasonable confidence in the test results, a fact that does not prevent these results from having their reality in the professional arena of school difficulties and, to paraphrase Thomas (1928), to be real in their consequences.

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Chapter 4

**PIAGET, VYGOTSKIJ AND THE EUROPEAN
APPROACH IN SOCIAL PSYCHOLOGY OF EDUCATION:
A SPACE FOR A VIRTUOUS DIALOGUE?**

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ABSTRACT

The chapter discusses some crucial points of Piaget's and Vygotsky's positions about the dynamics individual-society (the 'social' and the 'cognitive'), as a way of contextualizing the contribution of the European perspective on the social -psychology of development and education, an issue of major importance for contemporary developmental and educational psychology. Three generations of studies have been described since the early seventies, with important articulations both of levels of analysis and of different scenarios, moving from classical Piagetian tasks to school subjects. It is worth noting the move off from the space as a topological issue (village) in the first generation of studies to the social marking of space (classroom) to the more recent contribution on the thinking space. Therefore this then a fil rouge goes through a long way across 40 years of research, a common thread, fil rouge which is visible in terms of the movement towards the contextualization of children's developing thinking space. What is offered is the opening of the 'black box' of the relations between the individual and society, and a contribution for a deeper understanding of the zone of proximal development.

INTRODUCTION

The choice of considering Piaget's and Vygotsky's work as a starting point for the journey in Europe's an approach to social psychology of development and education is suggested by a well- established recommendation that which permeated social sciences at the beginning of 20th. century, (Baldwin 1895; Levy-Bruhl, 1922) who pointed out at logical processes as products of historical development. They had a great influence on the

psychologists of the 1920's who tried to go beyond simplistic notions about the mind as a by-product of natural selection and to understand human consciousness as a product of sociocultural development. As Moscovici (1990, p. 168) suggests, there are at least two ways of approaching the interplay between 'the social' and 'the cognitive' (i.e. between social and cognitive or developmental psychology) or, in other terms, how deeply social relations and social changes are accompanied by profound transformations of thought, with regard to the appropriation of cognitive instruments in both in children and in adults.

The 'Bartlett way' recommends the comparison of representations and beliefs of groups situated at different levels of historical evolution. In particular, Bartlett (1928) reminds us that the best introduction to the understanding of the social dynamics of cognitive constructions is to compare the novices and the experts within their own field or culture and not to compare the primitive and the ordinary member of a modern social group. Thus the main aim of cognitive social psychology must be to carefully describe the modern and the normal in their milieumilieu and in relation to topics, which are significant tofor their common life. A complementary contribution to this way can beis to be found in Cattaneo's work (1864) about the crucial role that interpersonal and group conflicts play in producing mental phenomena and mental organization.

The 'Vygostkian way', but which is also that of Piaget, passes through the child as the equivalent of a primitive and younger culture, and follows its own development. This way therefore postulates that the social nature of human cognition appears in the individual's incorporation of social experiences. We I use explicitly use the word incorporation as a way of maintaining the notion of adaptation (i.e. accomodationaccommodation and assimilation) and the notion of transmission (and internalization as in ZPD) as the two different and grand ways through which Piaget and Vygotsky tried to understand how human beings negotiate between each otherthem and with physical and social world.

2. PIAGET, VYGOTSKY AND THE SEARCH FOR A SOCIAL: PSYCHOLOGICAL PERSPECTIVE

Reading Piaget from the perspective of social psychology is often a frustrating experience. Few authors have been as attentive as he was to the microgenetic aspects of the research process itself, in his description of his clinical interviews. Yet despite this, microgenesis has only a limited role to play in his theoretical account of the developmental processes. Reading his accounts of the child's development, one has often has the impression that he is listening to only one partner of a triangular conversation; the two missing Others are representations of cultural objects (number, time, space, etc.) that enter the child's everyday life, and the adult (experimenter, or partner) (Carugati, De Paolis & Palmonari, 1985).

On the other hand, the Vygotskian formula, which suggests that all development proceeds from the interpsychological level to the intrapsychological level, seems to offer a very general solution to the question of how children become social actors. But this formula needs to be integrated by a social psychological theorization (Carugati & Selleri, 1996; Perret-Clermont, Carugati & Oates, 2004).

The main point here is that in Vygotskian contribution and in the Russian neo-Vygotskians (Karpov, 2003), there are several problems, when we try to get information

about what they mean as society, social groups, social identity and even how peers are theoretically conceptualized, and the role the different articulations of the 'social' (Matteucci, Carugati, et al. 2008) play in the dynamics of "the social situation of development" (Karpov, 2003, p. 139). In fact, the general formula that Russian neo-Vygotskians systematically use (borrowed by Vygotsky, they say) is ... "tools are invented by human society, and they are acquired by children in the course of interpersonal communication with adults or more experienced peers" (*italics added*) (*ibidem*, p. 139).

Similar arguments could be addressed to Piaget, even if we should recognize that there is at least two (or even more) Piagets that should be taken into account. There is the less familiar sociologist concerned with constraint as a main issue in the constitution of society, and who, like many other sociologists, acknowledged the significance of the psychological internalization of social constraints and sees childhood as the major site of this process of internalization: the child who develops is in this sense, always the well-socialized child. But there is also the Piaget who claims the radical autonomy of the constructive aspects of cognition.

Piaget stresses the inner logic of the coordination of actions, which always tends always to the equilibration of universal cognitive structures; the emphasis on developmental logic leads to that equation which claims that forms of social interaction are isomorphic with cognitive structures. To cooperate, as he puts it, is to operate in common: a radical cognitive autonomy thus leads inevitably to a universal systems of co-ordinations. This is an extremely fragile argument, which can be sustained only as far as it remains at the level of Piaget's global metapsychological formula. Whenever it is subject to a closer scrutiny it seems to fracture into two unconnected lines of argument, as the sociologist becomes unraveled from the psychologist. Curiously enough, Piaget's grasp of the dialectic fails him at this crucial point, or perhaps we should say that he failed to assimilate the finer details of the lessons in dialectics he received from Goldmann (1976).

In fact, some of Piaget's work embodies insightful investigations of the ontogenesis of representations of social reality, i.e. accounts of how the child becomes a participant in collective semiotic systems. But there is also the Piaget who insists that the development of cognitive structures is an endogenous process. It is this Piaget who is the most troublesome, since, despite his recognition of social interaction as a factor in development, this argument seems to reserve what is essential about cognitive development to a sphere removed from social life. From this point of view the development of representations of social reality consists of no more than a generic assimilation of the adult world at successive stages of cognitive development; a corollary of this line of argument is that a logical thinker should be a well-socialized adult and, with some irony, logical thought and social conformism should go hand in hand!

In more general terms, how is the issue of the 'social' addressed to Piaget and Vygotskij?

It is reasonable to assert that both Vygotsky and Piaget share a common reference to the French tradition in sociology and anthropology, thus they claim and share a sort of collective psychology or a psychology of crowds or foules or masses; a tradition which is in line with the *Zeitgeist* during the '20s in Europe; more specifically we refer to the French sociologist Durkheim and the anthropologist Lévy-Brühl, with a specific reference that Vygotsky acknowledges to Blondel and Halbwachs (Kozulin 1990, 122 and ff.). The collective psychology of Piaget and Vygotsky holds the dualism between collective representations

(culture for Vygotsky, adults' representational world and their constraints upon children for Piaget) and the individual human cognition of, dualism, which is well expressed by Durkheim:

thereDurkheim: there are in [the man] two classes of states of consciousness that differ from each other in origin and nature, and in the end toward which they aim. One class merely expresses our organism and the object to which they are most directly related. Strictly individual, the states of consciousness of this class connect us only with ourselves, and we can no more detach them from ourselves than we can detach ourselves from our bodies. theThe states of consciousness of the other class, on the contrary, come to us fromform society; they transfers society into us and connect us with something that surpasses us. beingBeing collective, they are impersonal; they turn us toward ends that we hold in common with other individualsmen; it is through them and them alone that we can communicate with others... in brief, this duality corresponds to the double existence that we lead concurrently; the one purely individual and rooted in our organism, the other social and nothing but an extension of the society (*from: "Essays on sociology and philosophy", quoted in Kozulin 1990, p. 126*).

This dualism is resolved by Piaget by means of a radical autonomy of cognitive functioning (the social being isomorphic with and derivative from the cognitive) whilst by Vygotsky the social isbeing logically, causally, and temporarily antecedent to the individual, and being transmitted /internalized. Thus, in Piaget's terms the social becomes individual as long as (at the conditions under which) the cognitive structures allow the social contents to be assimilated: the child therefore is socialized by society.

For Vygotsky the transformation of the social into the individual is seen as a matter of society, which individualizes itself in different individuals; or in other terms, society expresses itself continuously through each singular individual. Moreover the way of transformation of social in to the individual does constitutes the main issue of his research program, i.e. the development of higher forms of behavior: the mastering of the external means of cultural development and cognition (language writing, counting, drawing); the development of the higher mental functions (selective attention, logical memory, concept formation, etc.). The generative function of human meaningful human activities becomes of a major concern in his theoretical journey; the function of joint activities in mediating systems of symbols through material tools, other symbolic tools, and other human beings becomes apparent. Yet even if some authors recognize that Vygotsky comes very close to Janet and Mead whenas far as Vygotsky states that children begin to use the same form of behavior in relation to themselves that others initially used in relation to them (Kozulin, 1990, p. 115) (echoing one of the major theoretical points of agreement duringalong the '20s), it remains that the problem of individuation remains, i.e. the problem of a theory of socialization is founded not in the dualistic formula society vs. the individual; this, is far from beinghaving been resolved by both authors.

The main issue here is less what is internalized than how society could be successful in making people internalize. In other terms, what it lacks both in Vygotsky and in Piaget is a theory of socialization, which implements the Self as the third partner between Mind and Society. But speaking of Self, it implies a theoretical articulation of society and culture into small groups, significant others, peer groups and peer culture; a theory thatwhich should be grounded in the processes of communication and semiotization. Moreover, what Vygotsky and Piaget had to cope with wereis the corollary issues of individuation i.e. the paths of

individual development and the dynamics of socialization. The theoretical contribution of the French school¹ (Tarde, 1890;1898; Binet, 1900, *inter alia*) at the beginning of the 20th. century, seems indispensable for the understanding how Piaget and Vygotsky approached this problem within their theories of human cognition. But the French tradition was permeated by a majoritarian interpretation of human behavior as induced by imitation, suggestion (suggestibility) with only a minoritarian view held by the Italian philosopher Carlo Cattaneo (1854), who asserted that cognitive activities are better done through conflicts of different viewpoints (*psicologia delle menti associate*), conflicts arising between groups and between individuals. It was the only voice, which claimed at the time that intergroup and interindividual conflicts could be useful for cognitive functioning and problem solving.

The reference to Cattaneo and the issue of conflict allows us to consider another major problem in Vygotsky and Piaget contributions from the point of view of social psychology. I refer to the lack of a dialectical interpretation of the relationships between the society and the individual: the dialectics are reduced at the individual level by Piaget through the dynamics of conflict between schemes and observables or between schemes, through the general model of “*equilibration majorante*”, while in Vygotsky we do not find any real function of dialectics (Valsiner & van der Veer, 2000). One may ask why Vygotsky did not take into account dialectics, whilst anchoring his theorization on Durkheim and Lévy-Bruhl? The issue is of great interest both at historical and cultural levels but I am not an expert in either neither both domains. Yet a tentative way of understanding, which I am proposing as an amateur, is suggested by an insightful remark put forward by Berger and Luckmann several decades ago. According to Berger and Luckmann (1966, p. 15-17), Marx extensively discusses the issue of the social determination of human knowledge and the role of dialectics in understanding the relationships between the human and human nature, in the “*Economic and Philosophical Manuscripts*” written in 1844, which fell but fallen into oblivion for decades and was rediscovered and adequately studied only since 1932. Moreover, the classical dominant sociological thought, interpreted by Durkheim, Weber and Pareto, in a sense, underestimates the power of dialectics in building their sociology of knowledge.

At this point an integration of Durkheim, Mead, and the dialectical approach to the knowledge could be useful. Once more a possible way to overcome the dualism between society and the individual and of avoiding the shortcomings of a model of socialization based on a reductionist view of imitation, internalization², suggestibility and social constraints is of working on the notions of interpersonal communication, interpersonal conflict, Self, and identity as social-psychological useful tools for studying cognitive functioning. This general program of research was recommended decades ago by Moscovici (1972), when he suggested that social psychology could or should be the anthropology of the modern world and social psychology should conceptually work on a triangular perspective when it studies cognition: cognition is by no means a matter of the relationships between the Self and the Object or the relation between the Other (the society) and the Self, but the Other being an integral part of the triangulation between Self-Other- Society.

¹ On the other hand, at the beginning of the 20th century, hypnosis, suggestion, and the more general notion of imitation were largely shared as an explanatory principle of psychic life by scholars like Tarde (1890; 1898), Binet (1900) and Baldwin (1895).

² An interesting discussion about the double use of the French word *intériorisation* in Piaget and the internalization in Vygotskij is presented in Psaltis, Duveen & Perret-Clermont (2009), pp. 297-299.

3. TOWARDS A SOCIAL PSYCHOLOGY OF DEVELOPMENT AND EDUCATION: EUROPEAN PERSPECTIVES

A sketched way of presenting the European perspective on cognitive functioning is to summarize three distinctive generations of studies.

The 'First Generation'

This program has been in progress working out since the mid '70s, first of all in Geneva, and soon disseminated in several European research groups, through experimental studies on the influence of social interaction in building cognitive structures (with Piagetian-like tasks).

At this point one might ask which key notions are there upon which a social developmental line of research has been founded. Several notions assume a crucial role. We shall only map them and make a few remarks, as a way to build the conceptual framework we propose for understanding this specific European approach to the social construction of cognitive functioning.

The first pair of notions is cooperation vs. competition. The well-known tradition in social psychology, since Sherif's classical studies (1967) underlines that every decision-making is both affected and does affect various social dimensions like value orientations, superordinate goals; very important for our argument here, is the general claim that cooperation and competition are neither abstract, universal qualities of social interaction, nor individual traits of individuals: on the contrary, both these social situations are highly affected by concrete variables and do affect partners' cognitive performances.

The second pair is imitation vs. conflict. We have already discussed these two notions as the core of both social and developmental psychology since the individual's first steps. Cattaneo's contribution (1864) about the foundation of social psychology as a new discipline, autonomous from both philosophy and sociology, emphasizes mental phenomena not as a result of internal contradictions within individual minds but as a concrete and overt disagreement between concrete individuals and groups. On the other hand, at the beginning of the 20th century hypnosis, suggestion, and the more general notion of imitation was largely shared as an explanatory principle of psychic life by scholars like Tarde (1890; 1898), Binet (1900) and Baldwin (1895).

The third notion we consider relevant is the articulation of the levels of analysis, a conceptual framework formulated by Doise (1982), both for describing and planning research to study different levels of social dynamics (from intraindividual through interindividual and positional to representational and ideological) that can affect cognitive functioning (Matteucci, Carugati et al. 2008). Here the notion of articulation is central insofar as the interindividual level might be conceived of as (for instance) the source of individual cognitive functioning; another case is the status of each partner of interaction, as representing specific social dynamics which could activate imitation and compliance vs. contradiction and conflict between individual answers in a problem-solving situation or in a Piagetian-like task.

The first sketch of a sociogenetic model of cognitive functioning was presented by Doise, Mugny & Perret-Clermont (1975) where the role of cooperation was operationalized as a tool for eliciting the coordination of concrete actions or different points of view (or schemes, in a

Piagetian framework) concerning a concrete operational task (i.e. motor coordination; conservation of length, liquids, number, spatial relations); the coordination during the interaction between two children was found beneficial for a better common solution than each child would be individually capable of. The label of these 'first generation' studies (Carugati & Gilly, 1993) has been recently adopted by other scholars (Zittoun et al. 2007; Psaltis, Duveen & Perret-Clermont, 2009).

Three important results must be underlined: first, children are able to solve a similar task in an individual post-test situation, which implies that they have transformed their previous pre-operational schemes. Second, children show in the post- test situation the ability to generalize a better solution in a different conservation task. Third, children might benefit from the partner's answer even it is inferior to their own: that means the non- necessity of one partner being more expert than the other, a result which is of major importance for a reformulation of Vygotskian ZPD³.

These kinds of 'first generation' studies sought an explanation by no means in terms of imitation but in terms of socio-cognitive conflict. Recovering the importance of the notion of conflict both in social and in developmental psychology, this notion (Doise, Mugny & Perret-Clermont, 1975; see also Mugny, De Paolis & Carugati, 1984; Carugati, De Paolis & Mugny, 1985; Matteucci, Carugati et al. 2008) has been introduced which stresses the effect of the simultaneous comparison of different individual perspectives or points of view during social interaction that necessitates and gives rise to their integration within a new cognitive organization, with no specific necessity that one of the partners be more expert than the peer. It is worth noting that in the first studies on coordination of spatial relations it was shown that the necessity, as the first step for nonconserving children, is both to recognize the initial different solutions, to regulate their divergence, and to construct a final correct (conserving) solution. We underline these two conditions, because these results were assumed as evidence for arguing against a behavioral (modeling) explanation of cognitive development and because they anticipate some dynamics of the next generation of studies.

A further claim in these studies is that the social regulations that govern a given interaction play a constitutive role in building new cognitive coordination. Thus the articulation between the level of representations of norms (made salient through a specific device in the task) and individual cognitive functioning is apparent. The case in point is the task of the conservation of spatial transformations, where two different representations are used: a village vs. a classroom. The latter version of the task is thought to be more effective for a non- conserver child than the former, as far as the reproduction of a classroom (through the position of pupils and teachers), it necessitates the respect of a social norm governing the reciprocal asymmetrical status of both of pupils and teacher's. This is an example of social marking (Mugny, De Paolis & Carugati (1984), a notion which reminds us of the normative interplay of relations of cognitive order (topological) with those of a social order (status asymmetry), relations which can be activated in children even in the absence of a direct

³ In fact, for Vygotskij, the social process structuring psychological development is envisaged mainly as a single type of social relation, in which there is always an asymmetry of knowledge between an expert and a novice (Duveen, 1997). On this point other authors (Valsiner & van der Veer, 2000) claim that ZPD goes far beyond adult-child transmission, quoting Vygotsky, where he refers to creative appropriation, no passive internalization, creativity, imagination, innovation. These different positions cannot be discussed here in details, but they underline how Vygotsky's contribution (his intellectual success and failures) is still of paramount importance for the future of developmental and educational psychology.

interaction with a partner. Here it is apparent the importance of social relations and norms is apparent as a symbolic order giving meaning to the everyday practices at school; relations that are manipulated in order to show how the symbolic order mastered by children might be effective in building cognitive tools.

A nice example of social marking, in terms of the meaning of the rules that which govern the solution of a spatial task, is offered by Mugny et al. (1988). These authors used the general paradigm of the classroom, manipulating the rule underlying the placing of the pupils' and teacher's desks. The explicitation of the rule (pupils' desks must be placed according to their good behavior) governing the topology of the classroom, improves the conservation of spatial relations, in particular when pupils are allowed first to construct the model and later to reproduce it from a different difficult position (transformation of 270°). In general terms, it seems that social marking is more effective when children recognize a meaningful set of social rules governing the solution of a cognitive task.

It is worth noting that research in social marking is of major importance for two reasons. First, it showed that the scenario of a classroom is not a naïve way of facilitating the task, but it represents both a topological/architectural space and a semiotic space where integrated topological rules and social norms are integrated. The systematic positive results gathered with the classroom scenario vs. other familiar spaces (tv room, car) underline that the correspondence of topological rules (classroom space: teacher's desk vs. pupils' seats) and social norms (asymmetry of teacher-pupil role) is by no means a simple matter of facilitation of any tasks (De Paolis & Girotto, 1987). The second reason is that research on social marking integrates the articulation of levels of analysis recommended by Doise (1982) as far as the social representations of teacher-pupils are concretely implemented in the social marking framework concretely by a scenario of a classroom, with pupils' seats and teacher's desk. In this sense, in the 'first generation' studies, some characteristics have been anticipated and operationalized with what Psaltis, Duveen & Perret-Clermont (2009) refer to as the 'third generation' studies, i.e., the fourth level of the culture of a community (p. 304).

The 'Second Generation'

As suggested by Cattaneo (1864) even scientific work is governed by a thesis - antithesis pendulum, represented by concrete research groups. It is the case of the 'second generation' studies, which switched the pendulum both from Piagetian tasks to procedural perspectives and from the notion of socio-cognitive conflict and social marking to the destabilization and control of procedures (Gilly, 1988). A second switch is represented by the studies initiated in the early 1990s in Neuchâtel.

In these sets of studies (mainly held in Aix-en-Provence), the beneficial effects of interaction depend on the destabilization of the procedures of problem-solving as far as it triggers the questioning and the change in procedures and representations concerning a given task, for instance, the notions of left and right, hypothetical-deductive reasoning in a fictitious weight task (cfr. for a review, Gilly, 1988; Gilly, Blaye & Roux, 1988; Gilly, 1989). To be effective, the partner's action must disrupt the other's problem-solving strategy at the very beginning when they are being implemented. In this case, explicit and argued opposition expressed in a conflictual way has indeed been shown to be effective. But the authors have also found that interaction does not necessarily have to take place in an explicit social

conflict mode in order to bring about beneficial destabilization. The control function over the ongoing production of a solution, can be exerted by triggering a verification of a statement or solution proposed by one of the partners, or simply by reformulating the partner's proposal.

Another characteristic of these studies is that they stress the role of initial cognitive functioning of the subjects, not just their initial levels of development. In fact, several studies have shown that the definition of the problem situation affects both individual problem solving procedures initially triggered, and the ways in which the subjects interact. Hence the claim of an explanation of socio-cognitive mechanisms that must be based on the analysis of the interdependency between the type of problem to be solved, the cognitive functioning of the individual and the socio-cognitive functioning of the dyad.⁴

A fine grain analysis of the type of task set at the center of the joint activity (between child, adult-experimenter and the task as the focus of their interaction) has been labeled by the authors 'second generation' studies (we agree on it) (Psaltis, Duveen & Perret-Clermont, 2009).

For example, a series of studies whose common ground is the notion of "contract" (communication contract, experimental contract, didactic contract) have renewed the general claim (Schubauer-Leoni, 1986; Elbers, 1986) that experimental and didactic situations are interactional settings governed by specific contracts made up of explicit and implicit rules, on the basis of which social actors adjust their behaviour. In the same vein, Grossen's analysis of test situations (1988) and Schubauer Leoni & Grossen's (1993) work on negotiation of the meaning of questions in didactic and experimental contracts have provided some interesting examples of the role played by the meaning attributed to the situation, in terms of both children's and adult's reciprocal expectations and meta-expectations concerning the task and the final solution. In this sense, we agree upon the claims that this line of research is an effort to analyze the communicative processes at work in the interactions among children and between children and adult/experimenter⁵, as a part of the 'second generation' studies, and introduce the 'third generation' where the articulation of levels of analysis reach intergroup/positional dynamics and specific social representations (i.e. gender) has become the focus for the research.

The 'Third Generation'

A further perspective has been developed in an explicit social psychological framework. The case in point is the effects of social positions attributed to boys and girls in conditions of

⁴ An interlude: social meaning, social practices and cognitive constructions. The 'second generation' studies have some precursors during the seventies, when the problems of the meaning of a cognitive task and the expectations activated in the subjects questioned both in experimental and in a more concrete school situations, were empirically studied in developmental psychology. Rose & Blank's studies (1974) on the role of double questioning in Piagetian tasks (i.e. conservation of length); Light, Buckingham & Robbins' (1979) contribution about conservation tasks as interactional settings; Donaldson's (1978) notion of tasks which "make human sense" for young children are only some examples of a well-established (even if theoretically heterogeneous) tradition which underlines the inextricability of meaning and expectations in every cognitive activity. The issue of 'human sense' has its counterpart and could be discussed in the framework of social marking (see above).

⁵ It is worth noting that the different influence played by the child's partner (in the scenario of experimenter vs. an adult interested in the child's play) and the very place/ space where the same task is proposed (classroom vs. courtyard) was studied in Neuchatel in the same years (Schubauer-Leoni, Perret-Clermont & Grossen, 1992).

social comparison in the scenario of school settings (Monteil, 1988). Here small groups of young students (14-to 16-year-olds) attend a class given by a teacher in classroom-like conditions. In the basic form of the paradigm, students first perform a lure task whose content is similar to that of the following class. During the experimental phase (the course) the first variable manipulated is the students' status: according to the results of the lure task, 50% of the students in each class-like group are publicly (but by chance) assigned to the 'success' status, while 50% to the 'failure' status. The second variable is the social position mode, which is used to define two social positions: anonymity vs. visibility). In the anonymity position, students are told that no one will be questioned at the end of the class, whereas in the visibility position, students are told that each of them will be questioned.

The effects of being assigned to 'success vs. failure' social position (according to the everyday life in school) clearly interact with the effect of being assigned to a 'visibility vs. anonymity' position (according with the everyday life in school): in fact, students in 'failure' position show better performance in the 'anonymous' position than in the 'visible' one. Conversely, students in the 'success' position succeed in a 'visible' (or individualized) position more than in the anonymous one. When the context of task is manipulated (mathematics, biology, technical training) the positive performances are the strongest ones in the case of mathematics for successful students in the visible position, whereas in technical training condition there are fewer differences in between conditions.

These results show the articulation of three levels of analysis: i.e. the influence of shared social representations of school subjects (the social prestige for mathematics - level 4, societal) combined with the differential social positions in the school culture (success vs. failure and visibility vs. anonymity of school marks - level 3 positional, status asymmetry), on performance in a school-like activity (level 1, individual performance). In the same vein, it should be acknowledged a further shift from the classical Piagetian framework should be acknowledged (already introduced by Gilly and Aix colleagues; see above - the second generation studies) toward social psychological dynamics, i.e. the effect of microgenesis of representations of gender, social asymmetries, and the effect of everyday life routines and peer culture, and the focus on a fine grain analysis of conversation between peers.

Let us discuss them in details. Leman & Duveen (1999), by crossing gender with level of moral judgment (autonomous vs. heteronomous), found that while generally the autonomous partner was generally able to persuade his/her heteronomous partner in reaching a joint solution to a dilemma, the effect was different if the autonomous child was a girl rather than a boy. In particular the girls had to spend more time and to produce a broader range of arguments to reach the agreement from their partner. Another result is that boys are more assertive in beginning the conversation, leaving little space to enter the conversation and question the challenge of the partner's assertion. Girls more frequently initiate the conversation with an interrogative, giving the partner the opportunity of keeping open space for deeply exploring the different options of the dilemma. This dynamic of conversation echoes the different ways of regulating the peer interaction among children that was documented by Mugny, De Paolis & Carugati (1984) when they discuss the difficulties of activating a socio-cognitive conflict.

The difficulty 'before' the experimental phase is that a difference in response must be perceived and recognized as if such a socio-cognitive conflict is to occur. In practice not all differences in response necessarily give rise to the kind of socio cognitive conflict we have conceptualized as being a source of cognitive development. Why? First, one might consider

the transience of a young child's successive responses. What is perceived as large can become small, without contradiction. This is a feature of his/her preoperational characteristic of thinking. It can therefore sometimes seem perfectly legitimate to the child that there should be inter-individual differences in response. In such a case there is no conflict since the other's response is readily integrated within the child's own system of responses. What is involved here, however, is simply a matter of the initial cognitive and social competences of the child.

More significant are the inter-relational factors, which may prevent the child from taking the response of his/her partner into consideration. We have already seen that these may reside in the partner's style of interaction (see above). Hence, when one partner (particularly a boy) is assertive and denies the other as legitimate for taking part in the interaction, the other fails to progress. It could be quite simply be that the partner's response slips from the other child's attention. In the absence of any process of social comparison, socio-cognitive conflict cannot assume any reality for the child. This kind of effect reflects the unilaterality versus reciprocity dimension in relationships between peers (Carugati, De Paolis & Mugny, 1980-1981), in which at one extreme there exists a kind of disregard of the response of the other. Similarly, the meaning of the instructions given by the experimenter plays an essential role; thus, what does 'come to an agreement' mean in different situations? When it is a matter of discussing how to share the same quantity of juice (but put in two different glasses), a consensus can assume a genuine meaning because the relation of sharing is characterized by a norm of equality. Agreement on the equivalence of two villages cannot be unambiguously socially marked, and subjects may more easily agree on a social resolution of the problem, such as one responding without the involvement of the other or each responding in turn (juxtaposition). Another, surely essential set of mechanisms comes into play, namely the mechanisms of attribution whereby each partner gives a plausible meaning to the differences of the proposed solutions.

First, there is a mode of attribution involving reference to the self (auto-attribution). Thus the child can simply attribute any difference to his own incompetence (or vice versa!), this being somehow sufficient to deny the difference. The corollary to this is attribution of greater competence (or incompetence) to the partner. An attribution of this kind may depend on the identity of the partner, particularly on whether the partner is a peer (boy vs. girl!) or an adult, if the environment is such that it is the adult above all who is considered the repository of knowledge and consequently the one responsible for development. In this case, the adult's solution necessarily constitutes the correct centration (or at least correct in the sense of being adequate to a specific situation). Thus the child will more readily accept the adult's solution as an appropriate centration or at least a way of complying with the adult authority.

Furthermore, there are likely to be cross-cultural variations in this respect. In brief, there will exist dominant social regulations, rendered more or less salient according to the nature of inter-individual relations, which will influence the degree to which others' solution is accepted as valid centration and hence used as basies for comparison with the child's own solution, a comparison which may then give rise to socio-cognitive conflict.

Let us now suppose that a child recognizes a partner's contradicting response as a valid centration and 'accepts' a comparison with his/her own. At this point the pre-conditions for socio-cognitive conflict will have been fulfilled. A new question is what will the child do, when confronted with this conflict?

Psaltis, Duveen & Perret-Clermont (2009) consistently use the notion of persuasion. In fact we could refer to theories of social influence. Are situations of socio-cognitive conflict

not also situations of social influence? And as a corollary, are not social influence situations also socio-cognitive conflict situations? There is clearly a close connection between situations in which a child finds his/her judgments of the inequality in the length of rods, for example, contradicted by a partner and the situations created by Asch (1952), Sherif (1935), Moscovici (1976) and indeed Milgram (1974). Work on social influence stresses the conflictual nature of social influence situations, visualizing the form of a socio-cognitive reorganization of responses in terms of this conflict (Moscovici, 1976; Mugny, 1981). Let us then try and conceptualize this issue of methods of socio-cognitive conflict resolution in the terms of this approach. What in effect will be the response to conflict once it occurs? Straight away one can anticipate that only certain methods or modalities are going to result in a new cognitive elaboration.

For the moment we will confine ourselves to defining the modality types of modality favoring cognitive development in terms of the negative case: the conflict will be cognitively regulated (i.e. 'in operational terms' or tending to an operational solution of the problem) by a new cognitive elaboration when it is not regulated in terms of an exclusively 'relational' modality. Then we may witness an attempt to an elaboration (indeed a co-elaboration) of a cognitive instrument capable of integrating the various centrations within a coherent system that does not involve denying any of the centrations actually made by the various participants. Thus if two children believe that in one direction one of two rods is longer, but their respective centrations are opposed, they could without denying the respective points of view converge on a response of equality integrating these diverging centrations within a compensatory system. In the same way, Italian/Swiss and foreign children may integrate their respective positions without having to deny their own categorical identities by developing the reciprocity of the concept of a foreigner thus: 'In your country, I am a foreigner, but not in my country where you are the foreigner.' And again in the same way, projective space allows integration of highly heterogeneous 'perceptual' points of view within a coherent system.

In fact not all modalities of negotiating in a conflicting situation involve the elaboration of such cognitive instruments. One can also identify processes of conflict resolution similar to conformity, to normalization and even to social differentiation. In each of these instances one could claim that a relational regulation has supplanted a cognitive regulation.

The relation of conformity may often occur within the context of a power relationship (status and relational asymmetries). In this case, conformity comes down to a form of negotiation aimed at the neutralization of the conflict via an overt, socially explicit adoption of the other's solution. A huge amount of experiments have shown that this particular mode of social regulation appears in the relation of a child to an adult. On several occasions it has been possible to establish that a child has adopted an adult's solution, either correct or incorrect, but without a post-test cognitive progress. At the same time the impact of this asymmetry varies considerably according to the adult's style of interaction, which can influence a more or a less relational resolution of the conflict (Carugati, De Paolis & Mugny, 1980-81; 1985).

Summing up, conformity, compliance, and juxtaposition, are strategies of relational negotiations of the interindividual conflict, triggered by the experimental scenario, whose negative outcome is no individual progress of each of partner. The positive outcome is the result of the some socio-cognitive conditions. First, the acceptance of the partner's first proposal of solution, for the same task; then the negotiation, through provisional solutions, challenging and questioning them verbally (conversation) or non- verbally (moving rods, houses of village). The last step is the co-construction of a final, shared solution (i.e.

reciprocity). This is a sketch of the dynamics when an interaction ends with a progress of both partners (children) and a progress in a post-test situation. The case of interaction between a child and an adult is completely different, because of the explicit social and cognitive asymmetry, at least in terms of the child's expectation toward the adult's expertise. But given that the experimental scenario implies a first incorrect (incorrect from the child's point of view!) solution, and the adult is consistent with it, even if the child changes the adult's solution, is the child ready to take the relational risk of contradicting the adult? Two relational solutions are possible for the child: complying with the other's solution and thus conforming on that solution, or resistance toward the adult. These dynamics are echoed in 'third generation' studies by Psaltis & Duveen (2006), particularly when these authors look after the novelty of arguments used in the post-test (use of arguments that non-conservers were not exposed to during the interaction). These authors turn back to the classical question of the conservation of liquids. They ask themselves about what is there in communication that makes a non-conserver become a conserver. They find four different styles of communication among their children (boys and girls). Female non-conservers who did show some progress through *no resistance* were characteristic for the inflexible and rigid character of their new form of understanding in that they were not able to use any novel arguments to support their newly acquired belief. It was as if an old belief was replaced by a new belief. Interestingly similar dynamics of misrecognition or instrumental recognition were observed in some transcripts of children's conversations, where the conservers lost the argument, even if in these conversations type the non-conserver was constraining the conserver. These discussions are called *non-conserving*. None of these communications led to cognitive change for non-conservers; post-test performance for non-conservers who took part in this conversation-type followed closely that of the performance of a control group of non-conservers that worked alone on the same problem. Thus it was like the *other* (in this case the conserver) did not 'count' in these communications. *Compliance* by one of the partners and *unilateral respect* was clearly more likely in these two conversation types.

However, we are also able to identify two other conversation types in the original non-conservers. These types are called *resistance* and *explicit recognition*. In *resistance* the non-conservers support their original point of view at least once and in *explicit recognition* the original non-conservers at some point during their interaction start using conservation arguments themselves, in a sense they are showing conversion during the interaction.

They are showing conversion and not compliance since almost all of the non-conservers engaged in *explicit recognition* become conservers in a delayed post-test. Moreover, many of them are using novel arguments that they were not exposed to them by their conserving partners during communication. In these discussions of *Explicit Recognition* the children are more at ease to voice an opinion thus some form of social recognition of each partner as a thinking *subject* is at play and *reciprocity* is more likely to emerge. Both partners recognize the other as a thinking *subject* by reaching a form of intersubjectivity.

This form of understanding entails a construction of the other as a reflective agent thus social recognition of the other and the self as a *thinking subject* is achieved. In both *resistance* and *explicit recognition* both children take a substantial part of the responsibility and control for the task. What differentiates the two conversation types in terms of behavioral style of the partners is that *resistance* is less successful than *explicit recognition* in terms of the introduction of novelty and extension of knowledge to similar activities.

Going further on the molar analysis of dynamics of conversation, in the generation studies where the conversation-type was crossed with gender (Psaltis & Duveen, 2006), and results show that about a half of the children who took part in the explicit recognition pattern made use of a novel argument. These findings support the position that the activation of social representations of gender in research on cognitive development in children contains the social conditions of their influence in the problem-solving situation. The variations in conversational types between the different pair types suggest that the *pragmatic imperatives* and corollary *identity regulations* in each pair type vary. However, the influence of these identity regulations had been delayed and there were pernicious effects upon the cognitive progress of non-operational children despite the fact that no effects were reported regarding the joint solution to the problem. The way interactions are structured by the bipolar opposition (boys vs. girls) that at the same time denotes power asymmetries is most clearly observed in the finding that non-conservers boys are more likely to contribute more in the discussion and make it more balanced in mixed-gender dyads than same-sex dyads whereas for girls it is exactly the opposite. That is, girl non-conservers are more likely to contribute more in same-sex dyads than mixed-dyads. This finding in turn suggests that the key to explaining such a finding lies upon the congruence of gender values and ideas with the argumentative attitude of the male conserver in the one mixed-sex pairing and the incongruence of the same values and ideas with the argumentative attitude of the female conserver in the other. The way to make sense of the Psaltis' and Duveen's findings is to give an account of the role of *identity regulation* as a function of social representations of gender in the mixed-sex pair types. Moscovici's (1984; Mugny & Carugati, 1985; Carugati, 1990a,b; Carugati & Selleri, 2004; Carugati & Selleri, 2013; Carugati & Selleri, in press) claim that the purpose of all representations is to make something unfamiliar or unfamiliarity itself familiar becomes relevant even in the children's problem solving situations where the task of interacting with another partner of the same, or more importantly the other gender, is a *process of knowledge construction of both the other and the task*. Moreover by way of both extending an identity to the partner as an object and by way of constructing the task as an object of our knowledge, a child constitutes him/herself. It is in this sense that cognitive development and identity development could be considered as two sides of the same coin (Carugati & Selleri, in press). In fact gender mark reactions to conversational moves that are activated by the hierarchical bipolar opposition, might be both hindering and promoting decentration, depending on the ongoing interaction between gender and knowledge asymmetries.

We also agree on Psaltis and Duveen's claim (2006) that understanding the pragmatic imperatives of the situation becomes central. The mixed results about girls passive/resistance toward boys' conserving arguments seem a good sign that social and cognitive regulations are inextricably linked and they support or / hinder each other. Pragmatic imperatives for girls and for boys might have a very different meaning and influence both on the quality or new cognitive arguments and on progress: avoidance of self boasting for girls, social loafing for boys, with the consequence of conformity, compliance, juxtaposition (see above), strategies of resolving the relational interpersonal conflict.

4. EXTENDING THE DIALOGUE

The journey through some important contribution of the European approach to social psychology of cognitive development and education should now be reconsidered in a more theoretical framework. It seems that this common thread goes a long way across about 40 years of research. This thread which is visible in terms of the continuation of the movement towards the contextualization of children's developing intelligence through an articulation of different levels of analysis. What has been well established for decades is the opening of the 'black box' of social interaction and the empirical evidence of the conditions (causal dynamics) that trigger cognitive development.

How have these results been reached? Perhaps through the move from the binary (self-other) to the ternary or triangular (self-object-other) framing of the interaction (either experimental or in everyday life). Echoing the Moscovici's suggestion (1984) of expanding this move, Zittoun & Perret-Clermont (2009) suggest four *social psychological lenses*. The first lens emphasizes the dynamics of interaction; the second highlights the rules and frames that regulate interaction, and the frames in which people give sense to these interactions and strive for their goals; the third questions the dynamics of transition in the re-use of previous competence or knowledge; and the fourth renders visible the role played by social/cultural/artifacts or instruments. Three sorts of instrument can be distinguished: tools that are useful to do things and act upon the world (e.g., a calculator to solve a mathematical task: *primary artifacts*); artifacts that are useful to guide the former (e.g. the rules for using calculators: *secondary artifacts*); cultural elements which mostly carry meaning encapsulated in semiotic codes (writing, painting, music, poem, shared beliefs, social representations of gender: *tertiary artifacts*; Carugati & Sella, 2005). The four lenses (Zittoun & Perret-Clermont, 2009) offer complementary points of view for empirically studying cognitive development, and shed an appropriate light on the journey along the above-mentioned research. A fifth lens is added as far as a person is conceived within her psycho-social history, her socialization through which she has cumulated experience, reflected upon that experience, and turned that reflected experience into a resource for apprehending new experiences, in other terms, the fifth lens locates the person in her socio-cultural environment, and questions intrapsychological processes.

A way of expanding this lens is to acknowledge the role of stereotype threatening in moderating both the working out of interaction (and socio-cognitive conflict) and the final results of it in educational settings. For instance, a scenario with a cross-representation of gender and school subjects (i.e. mathematics for girls) might be hindering girls by a self-handicapping strategy of representing themselves as non expert. But even in this case, a more cultural move and transformation of cultural representations of female gender in girls socialization seem to have positive outcome in girls performance in mathematics, results that are acknowledged also in experimental research on stereotype threatening (Else-Quest, Shibley Hyde & Linn, 2010; Hartley & Sutton, 2013)

A theoretical and methodological consequence is that we should reverse the spotlight of the research, introducing the necessity of taking into account the time dimension in the research on cognitive development. In fact it is a bizarre situation, that time (we mean cultural transformation in the dynamics of children's socialization) is a more or less neglected component of empirical research, apart from the conceptual framing suggested by Doise

many years ago with his spiral metaphor (1984), which itself echoes the intuition of Vygotsky's zone of proximal development. This last reference suggests the second Perret-Clermont's (2004) further major contribution to the expansion of the articulation or research in cognitive development: the notion of *thinking space*. If at the roots of the European approach was the choice of studying the construction of spatial coordinations (the task of village!), followed by the representation of classroom (the social marking of space), thinking space provides for becomes for the research during the coming years a useful metaphor (but not only a metaphor) for encompassing dynamic mental activities, both classical cognitive and symbolic (*lato sensu*), a radical alternative to the reduction to behavioral (*evergreen*) or neuro-scientific (so-called) *modern* approaches to human development.

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**PART III: WITHIN AND BETWEEN FRAMES
FOR THINKING**

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Chapter 5

**FRAMES, FRAMING AND THINKING SPACE:
A SOCIOCULTURAL EXPLORATION WITHIN AN
EDUCATIONAL PROJECT**

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ABSTRACT

Until quite recently most researchers in education have concentrated on the study of learning as an intra-individual phenomenon, ignoring its interactional and contextual dimensions, and conceptualised cognition as a- cultural and a- historical. Sociocultural theory has contributed to a large extent to understanding learning and cognition as “situated” and has emphasised the constitutive role of culture in mind. However the nature of the relationships between psychological processes and their contexts are objects of debate: some researchers focus on the context as an activity system, and others on the context as the product of intersubjective dynamics. Perret-Clermont’s works, in this perspective, have contributed in an innovative way to the reflexions about the interdependence of micro and macro levels of analysis in social psychology of learning (Perret-Clermont, 2004a).

In the context of education, teachers and researchers regularly observe that when they organise settings meant to teach specific objects of knowledge there are discrepancies between their objectives and what their students learn. Taking the opposite view to authors who conceive these discrepancies as failures, in this chapter, I shall analyse the way various actors involved in an original “educational project”, called a Knowledge Exchange Network, have “framed” (Goffman, 1974) it while appreciating the relational and institutional contexts that both framed their actions and were re-built within the interactional dynamics.

I try to show that the “discrepancies” between what was intended and what was done can be viewed as the manifestation of meaning-making processes and sometimes as a window on creative processes.

I would like at the end to discuss the role of what Perret-Clermont calls a “thinking space” (Perret-Clermont, 2004b).

IS LEARNING A MIRACLE?

To a certain extent, the fact that a person can appropriate knowledge brought by another, and that insight is gained from this interaction, can be considered as a miracle! This is what Anne-Nelly Perret-Clermont has raised regularly (e.g. Perret-Clermont, 2001; 2004a), and it is this mysterious phenomenon which she has investigated and contributed so much to for several years.

Within the framework of her works, and in a broader way in the field of a sociocultural psychology of learning, some important elements were provided to try to understand this phenomenon:

- Learning cannot be reduced to a kind of biological maturation. The capacities of individuals, their motivations and personal aspirations are certainly important but are not enough to explain it. Learning requires the presence of an “alter”, more or less an expert of the object of learning who supports and questions the process of acquisition. Thus the dimension of the *interaction* is essential.
- In any society, knowledge transmission is an object of particular care. Whether in a family circle, in the fields, in a museum, in front of a computer or at school, interactions aiming at knowledge transmission and construction are designed to make learning happen. Such “learning designs” (which are not always set up explicitly) are bounded by a time and space organization, some specific artifacts, roles assigned to the interacting persons, modalities of interaction (Rogoff, 2003). Thus the interactions occur in a setting, governed by implicit or explicit codes, rules, contracts which settle the communication, create mutual expectations, lead the actions - what Goffman calls a *frame* (Goffman, 1974; Zittoun and Perret-Clermont, 2009).
- Another essential element, which to a certain extent disrupts anticipations about learning, is the fact that the persons who participate in the setting interpret it, *frame* it, and construct proper meanings that affect and transform the setting itself and what is learned.

Following the works of Perret-Clermont, and many times in association with her, I have been interested in these transformation and re-elaboration processes of settings in the framework of what I would call here “educational projects”. I went in the field, in sometimes exotic contexts. I closely examined various projects or interventions¹, which were by definition complex as they were situated in historical, cultural and institutional contexts and inhabited by multiple actors – and realised once more that the miracle described by Anne-Nelly Perret-Clermont does not come true straightaway! In spite of their willingness and the care the designers provide to their projects, a gap is often observed between what was planned and what is achieved: learners do not learn what was intended, and what was considered as important issues and goals by the designers is not taken into consideration by the participants.

¹ For example in Madagascar (Muller Mirza, 2005) when I observed a formative intervention in the field of international development, or at school in lessons organised around debates in which argumentation was used as a meansway of teaching and learning (Muller Mirza & Perret-Clermont, 2008, 2009) or again at school in the framework of courses lessons on education for otherness cultural diversity (Muller Mirza, Grossen, de Diesbach-Dolder & Nicollin, submitted).

For example, a training programme for farmers in Madagascar, led by a Swiss institution of international cooperation, aiming at establishing formative interventions along the needs of the farmers, turned out to be considered by these, at first, as an intervention which did not solve their problems and even endangered the activities which were at the heart of their social organisation (Muller Mirza, 2005; Muller Mirza and Perret-Clermont, 2008). In the face of this “gap” between their objectives and the results, the teachers, promoters or researchers in education express their disappointment, or worse, blame the learners as unable to understand, to change, to collaborate, to develop.

Following psychologists adopting a sociocultural approach namely in the workplace, it is possible, however, to put forward another interpretation. In this context, they observe that these gaps are not only an integral part of the work and the collective activity, but might also lead to change, development and learning, in a way that was not anticipated (Clot, 2001; Engeström and Sannino, 2010; Muller Mirza, 2012; Perret and Perret-Clermont, 2011; Rémy, 2012; Tartas and Muller Mirza, 2007).

It is these processes of rupture and innovation that I would like to examine in this chapter. I shall analyse the observations I made several years ago in a particular context, a “citizen project” called a Knowledge Exchange Network (KEN). This project, which originated in the 1970s in France, aimed at offering persons of any social class and training background an opportunity to transmit and acquire new objects of knowledge, as an alternative to the official institutions of training. I shall examine how this project was born, the goals and implicit theories that underlie its functioning, and how its initial objectives were transformed in the process of its implementation.

My theoretical framework will adopt a sociocultural perspective which focuses on the relationship between individual and collective levels of analysis, and draw upon two main lines of research: 1) research into the field of social interactions, learning and development, and 2) research into the field of “situated cognition” theories. The notions which Goffman and other authors call frame and framing, as well as those of “discrepancy” and “activity” developed by Clot and colleagues in the “clinic of activity”, will be used as tools for analysis. Let us first provide some elements relating to the choice of the object of study.

The Choice of the Knowledge Exchange Network (KEN)

I choose here to re-read data I gathered within the framework of a “Knowledge Exchange Network (KEN) in Strasbourg (Muller, 1994; Muller Mirza and Perret-Clermont, 1999). This choice is dictated by several reasons. The first is obviously that this project lends itself well to the envisaged analysis, as far as various stages of its implementation (and thus transformations) can be identified: the concept of the Network takes its origin in the 1970s and was developed by of a couple of teachers who wished to provide a space for persons excluded from the system of diplomas, and relegated to the fringes of society. Among many adaptations of the original concept throughout the world, it was then revisited by a group of researchers at the University of Strasbourg, who saw in the KEN a means to spread “scientific objects of knowledge” to the layperson. This project was thus concretely implemented in the city of Strasbourg by a team of socio-educational workers, volunteers and friends of the academics who were involved in the setting up of “knowledge exchanges” (i.e. the teaching-and- learning settings set up between the “providers” and “receivers”). And

finally, the project has been re-interpreted and transformed by the participants in the settings, as we shall see in the analysis of transcripts of verbal interactions.

The second reason is that this project is an interesting illustration of what one could call a “citizen project”, which is close to what Anne-Nelly Perret-Clermont has promoted been interested in following Piaget, Claparède, Ferrière, Bovet. She has been particularly interested in both her professional and personal life in “the promotion of peace and responsible citizenship via education - not any kind of education -, but programmes sustaining the respectful socialization of the growing child” (Perret-Clermont, 2011, p. 8). In the case of the KENs, the idea is actually to provide a space in which each person, regardless of his or her diplomas and background, can be recognised as a person who knows and who is able to learn, and as an active member of society.

The third reason is that the KENs are situated on the fringes of the social institutions classically appointed to educate the younger generations. In this sense, it can be conceived as a place in which the work of framing (in Goffman’s sense of the term) can turn out to be difficult for the persons who participate in it².

SOCIAL INTERACTIONS AND SYSTEMS OF ACTIVITY

Over the past decades, important contributions were made in the field of a sociocultural approach to the psychology of learning, so as to better understand the links between learning processes and the settings in which they take place. In this approach, researchers generally agree that “(a) interaction with other people and artifacts plays an important role in learning and in the development of mind, and (b) what occurs in the microenvironment in which individual learning is observed is affected by larger contexts, both at community and global levels” (Hatano and Wertsch, 2001, p. 78). For the purpose of this chapter, we shall examine separately these assumptions (that are often articulated in research however) and explore notions like frame, framing and activity that can help us to understand the possible role of discrepancies.

THE PSYCHOSOCIAL TRIANGLE AND ITS MEDIATIONS

Social psychology of learning provided the possibility for a “ternary” reading of psychological phenomena: to the classic subject-object relation, it added a third essential element, the “alter” (Moscovici, 1984). This “psychosocial triangle”, expressing the interrelations between person, other and object, has deeply modified the conception of the learning processes which can no longer be understood as a binary relationship but “as requiring participants (person and other), a common object of discourse, and dynamic relationships through which the object can be constructed and roles and positions negotiated” (Zittoun and Perret-Clermont, 2009, p. 388). In this line of research three aspects at least are relevant for our discussion:

² A fourth reason is that this study was the first research I conducted as part of my studies in psychology under the direction of Anne-Nelly Perret-Clermont (Muller, 1994)!

- The social dynamics between the participants who interact toward an object of knowledge can be sources of cognitive reconstruction, under certain conditions (Grossen, 2009; Muller Mirza and Perret-Clermont, 2009; Perret-Clermont, 1980; Tartas, Baucal, and Perret-Clermont, 2010);
- As the persons who interact are “social”, so is the object around which they interact (Grossen, 2010; Muller Mirza and Perret-Clermont, 2008; Schubauer-Leoni, Perret-Clermont, and Grossen, 1992), as are the mediational tools they use (Moro and Rickenmann, 2004; Wertsch, 1991);
- Sociocognitive dynamics are “crossed” by institutional and cultural dimensions (Grossen and Salazar Orvig, 2011; Zittoun and Grossen, in press).

Learning processes thus cannot be understood only at the intrapersonal level: “learning, in the double sense of 'grasping the knowledge of another person' and 'to develop new skills' (...) turns out to be an eminently cultural activity which takes place only if it is socially organised and personally significant” (Perret-Clermont and Carugati, 2004, p. 177) (my translation).

PSYCHOLOGICAL PROCESSES ARE “SITUATED”

For thirty years now, an alternative to the traditional conception of learning as processes contained in the mind of the learners has been gaining ground. These theories, which draw upon a situated activity theory, and broadly refer to a sociocultural approach and to Lev Vygotsky as a seminal scholar, “do not separate action, thought, feeling, and value and their collective, cultural-historical forms of located, interested, conflictual, meaningful activity” (Lave, 1993, p. 7).

Although the contexts, objects of study and methodological choices are diverse among the researchers, they generally share a conception whereby psychological processes and environment are conceived in a dialectical relation that assumes “the partially determined, partially determining character of human agency” (Lave, 1988, p. 16). Within this framework, the idea is that environment is not something outside of the individual as a “circumstance of development, as an aggregate of objective conditions existing without reference to the [individual]” (Vygotsky, 1998, p. 198). A shift in the boundaries of cognition and the environment begins to make sense (Bruner, 2009; Cole, 1995).

One of the important contributions of these works is to have allowed going beyond a mentalist and transmissive conception of learning. However, all the authors do not share the same conception of the mechanisms underlying the relation between psychological processes and environment. Two visions, in a very broad outline, provide different perspectives to the relations that constitute the contextualisation of activity (Lave, 1993): the first focuses on the context as an activity system, and the second on the context as the product of intersubjective dynamics. The first argues that the central theoretical relation is historically constituted between persons engaged in socioculturally constructed activity and the world with which they are engaged (see for instance Engeström, 1987). The other focuses on the construction of the world in social interactions: this leads to the view that activity is its own context. Here the

central theoretical relation is the intersubjective relation among co-participants in social interaction:

“The implication of this scientific position is that social structures, patterns or milieus are not taken for granted, but studied as phenomena that are emerging within practices” (Ludvigsen, Lund, Rasmussen, and Säljö, 2011, p. 4).

Without detailing each of these approaches (see for example Goodwin and Duranti, 1992; Grossen, 2001; Moro, 2001; Lave, 1993), I shall highlight, with Lave, two main limits: “Those who start with the view that social activity is its own context dispute claims that objective social structures exist other than in their social-interactional construction in situ. Activity theorists argue, on the other hand, that the concrete connectedness and meaning of activity cannot be accounted for by analysis of the immediate situation” (Lave, 1993, p. 20). Another limit, in a broader sense, is that it makes it difficult to report processes of creation and development of the psychological activity which is precisely conceived as taking place in the gap between the “given” of the situation and the “created” (Béguin and Clot, 2004).

FRAME AND FRAMING

In any situation, Goffman (1974) claims, people try to answer the question “What is going on here?” and make reference to “frames” in order to provide a definition of the situation. We use frames to identify what is taking place. For example, a person who approaches you with a stick can be a gangster or a friend who enjoys frightening you:

“I assume that definitions of a situation are built up in accordance with principals of organization which govern events [...] and our subjective involvement in them; frame is the word I use to refer to such of these basic elements as I am able to identify” (Goffman, 1974, p. 10).

It is not possible to understand what is at stake in an interaction, Goffman writes, unless one has worked out an understanding of the rules of the frames in which this interaction takes place (c.f. also Gonos, 1977).

In the context of education, the teachers are trained to be able to set up what authors call “milieus”, which testify to their intention through a pedagogical design, and include material, symbolic, and linguistic artifacts. This design aims not only at marking the borders between what will be at stake in this specific context (in contrast with other contexts of everyday life, like playing with peers or discussing with parents) but also at focusing the attention of the learners on the operations of thought that are expected (Brossard, 2005). In this way it plays a crucial role in learning. In another context, the therapeutic context, some psychologists provide interesting elements in order to understand their role. In this context, the setting, with its space and time borders, with its specific rules of interacting, aims at establishing a “therapeutic space” which allows to give meaning to the behaviour of both the therapist and the patient and contributes to the “elaboration” work. The therapist does not lead the patient but plays the role of the “guardian” of the setting, and therefore of the psychological processes (Gilliéron, 1992, p. 126). Anne-Nelly Perret-Clermont (2004b) used the metaphor

of the thinking space – characterised by its heterogeneous nature, physical, symbolical, psychic and social – and transposed it to the learning context.

However, when facing an unfamiliar situation, identifying the frame can turn out to be problematic for the individuals. So, whereas the term “frame” emphasises the rules which structure any situation, that of “framing” indicates the activity of interpretation by the subject and their ability to transform rules through this activity (Grossen, 2001).

The question of the tension between frame and framing is interesting and can highlight important issues, for example in the context of education. In this context, sometimes the students face difficulties in understanding what is at stake, in terms of knowledge and modes of reasoning. Contrasting with hypotheses which consider these difficulties as inherent to the child itself or to its cultural and social background, sociocultural approaches question the very nature of the design and the way the students construct meanings towards it. The students are sometimes invited to appropriate tools independently of the functions of these tools and do not understand the meaning and global purpose of the situation in the same way as the teacher does. Sometimes, the way the task is set up directs them to a “frame” which is not the one planned by the teacher. Bautier and Goigoux (2004), Bautier and Rochex (2007), Bonnéry (2009)’s works, although the authors do not use this term, provide examples of this phenomenon and its implications on the production of social inequalities. When for example a teacher asks her students to colour geographical maps, some students “frame” this task as a task of colouring, and not as a task of learning as other students do. The same task thus gives rise to multiple interpretations and the teacher’s objective is no longer the same as his or her students’ (Muller Mirza, 2013; Pramling and Säljö, sous presse; Säljö and Wyndhamn, 1993; Scherr and Hammer, 2009).

DISCREPANCIES AND PSYCHOLOGICAL ACTIVITY

The studies by psychologists in working contexts provide an important insight: that any work activity is always a compromise between prescribed and real work, sometimes also between what is requested from the practitioner and what her or his work would rather require (Clot, 2008), and therefore involves a work of interpretation and creation. Their analysis is based on an essential distinction between prescribed work—that is, the task that is given to practitioners—and real work—that is, what practitioners actually do to perform the given task. This distinction implies the need for individual and collective interpretation of the task in order to perform it (Clot and Kostulski, 2011).

Individual action is therefore at a crossroad between regularity and novelty, generality and singularity, what the authors call on the one hand the “programme” and on the other the (individual) “activity”. Within the framework of a laundry, for example, an employee evokes the difficulty of integrating two standards, both of them being criteria to be acknowledged as a professional, which she considered at the beginning as antagonistic, that of quantity (reaching a given number of washed clothes to be hung up) and of quality (checking the cleanliness of every garment). Gradually, she developed milestones in her action, so as to be fast while “keeping an eye”. When the load of 50 kg of clothes arrives on the rail in front of her, she identifies how the clothes are laid out according to e.g. the

direction of the linings, and chooses one which can be rapidly removed and put on a hanger to be checked (Astier, 2003).

These research works shed light on four important features for our purpose, at least.

The first is the importance of the settings that allow the growing child and adults to have access to the cultural artifacts and resources of a society. Settings might therefore function as a room in which learning and thinking occur.

The second feature is that there is no direct correspondence between the prescribed task, the programme or the "plan", to use Suchman's word, and the action performed. In her analysis of human-machine interactions, Suchman insists on the fact that the "plans" ("or any other form of prescriptive representation") cannot be conceived "as representations (mental or otherwise) existing prior to and determining of action" (Suchman, 1987, p. 187).

The action performed is the result of an interpretation by the actor, his or her work of framing, and in this sense the organisation of the action is an emergent dimension stemming from the way the actor perceives the elements of the situation. Finally, the discrepancy between planned and performed action can be considered as the sign of the psychological activity of the persons who give meaning to the situation and contribute to modifying it. For the researcher, it appears as a window on the processes of meaning making, as a testimony to the fact that people are "not only living in an environment. They also built an environment to live in" (Clot, 1997, p. 127).

METHODOLOGICAL PROCEDURE AND FOCUS OF THE ANALYSIS

The questions which will organise the analysis are the following: How was a project like the "Knowledge Exchange Network" framed by the various actors who designed and made it exist? To what extent was this project an object of interpretation and transformation? What are the discrepancies which can be observed between what was planned and what was achieved? And in what sense did these discrepancies bring elements of novelty and creativity, if they did so? In order to attempt a response, it is important at first to identify both the actors who are relevant for the analysis, and the timing of the project. Here I choose three categories of actors, the "designers" (those of the initial KEN project and those of the KEN in Strasbourg), the "organisers" (the persons who organise the "knowledge exchanges" in Strasbourg) and the "participants" (providers and receivers, in the terminology of the KENs). I choose to study two main "times"³: that of the birth of the first KEN project and that of the birth of the project in Strasbourg (with particular focus on the second). As with a microscope, I shall study in greater detail how the KEN project was defined, understood and interpreted by the various actors, how they framed it, how they used it as a frame which steered their actions, and how they reconstructed it. It is thus the tensions between frame and framing that will be studied. For each of these times, the perspectives of the actors (designers, organisers, and participants) will be examined through the "psychosocial triangle" lens: the

³ The term of "time" here is to be understood in the specific context of our analysis: it refers to a chronological dimension, as the first one is situated before the second (the KEN in Strasbourg, time 2, was designed after the KEN of time 1). However, each of these times does not describe an entity which one could refer to a different temporal era because both coexist today.

relation between providers and receivers in the learning setting, the object of knowledge, and the purpose actors confer to the project itself.

In order to analyse the tension between frame and framing, the researcher needs to collect information on the perspectives of the various actors, "from the inside". To conduct this study, I chose the participating observation method and collected different types of texts on the KEN, narratives recorded in semi-directive interviews, and the transcriptions of the interactions in 6 knowledge exchange settings (in which I acted as a receiver), as well as my field notes. The fieldwork lasted four months.

FRAMING AND REFRAMING PROCESSES

The Designers' Perspective: The Time of the "Social Project" (Time 1)

In the 1970s, in a suburb close to Paris, Evry, the first "Knowledge Exchange Network" was born on the initiative of a primary school teacher and of her husband, Claire and Marc Héber-Suffrin (Héber-Suffrin, 1998)⁴.

This project relates, in the eyes of the Héber-Suffrin, to a criticism of the classical institutions like schools that produce social exclusion and suffering. All the principles which constitute the KEN can moreover be read in contrast with school. The roles of the main actors of the educational relationship, learners and teachers, are conceived in terms of equality and symmetry. Indeed, all the members of a Network are at the same time providers and receivers within knowledge exchange settings, without financial compensation: Pierre teaches the violin to Nadia, but Nadia transmits her knowledge about conductivity to Sten. The "teacher" may be an expert in a given situation, but becomes a novice in another context. This conception appears as particularly original compared with the relation between the role of teachers and students in the school context. There the knowledge is detained by a group of individuals whose status is socially established. Their functions and places are fixed in advance, neither negotiable nor reversible, and the learners generally have no possibility of formulating their wishes about the topics they learn.

Moreover, concerning the object of knowledge in the KENs, it is stipulated that "all knowledge topics are equal": Mauritian cooking or the use of Excel software, origami or English are considered as equal offers. There also, the contrast with school practices can be noted: at school, knowledge drawing from personal experience is only little valued, and topics that are taught are situated in a hierarchy indicated by their place in the school programmes and the way they are assessed.

Regarding the general purpose of the KENs, the promoters seem to focus on the strengthening of social links. In one of her presentations of the KENs, Claire Héber-Suffrin emphasised the difficulties met by people living in cities regarding the destruction of social networks, their exclusion from the systems of training, conflicts between cultural and

⁴ Since then, such networks have not only expanded in France and other European countries and beyond, but have now gained some degree of recognition in political and educational circles. In February 2013, Claire Héber-Suffrin was awarded the medal of Officer of the Legion of Honour by French Prime Minister Jean-Marc Ayrault. Researchers have become interested in this movement, which has given rise to some publications. The association of networks has its own publications and information is collected on a website (<http://rers-asso.org/>).

socioeconomic groups. Through participation in a KEN, people are meant to foster self-esteem, develop new relationships and to be helped "to see what is already a success in their life" (Héber-Suffrin, 1998, p. 25, my translation). The first KENs are thus framed both in contrast with the school system and towards a space for enhancing social links.

THE PERSPECTIVE OF THE DESIGNERS OF THE KEN IN STRASBOURG: THE TIME OF THE SCIENTIFIC PROJECT (TIME 2)

The principles which govern the network in Strasbourg, established in 1992, coincide with the "original" goals. However, this project has some specificities. The first president, Baudouin Jurdant, a professor at the University of Strasbourg Louis Pasteur, saw in the system of the KENs – since it is a project carried out by the citizens, based on reciprocity and free access - a way of promoting the transmission of "scientific" knowledge. Jurdant developed an original criticism towards the classic methods of transmission of scientific knowledge (Jurdant, 2009), and in particular towards the myth of "knowledge sharing". He denounced the effects of the practices of the scientific popularisation which, by trying to "translate" the developments of research, only contribute to accentuate the distance between scientists and non-scientists. He saw in the KENs an opportunity to impede the ambiguities of popularisation. Not only because within the KEN, physical meetings might occur between scientists and non scientists, but especially due to the fact that, by virtue of the rule of reciprocity, the scientist does not appear only as the one who knows: he or she can also play a receiver's role and no longer appear omniscient. The receiver facing the scientist realises that he or she knows things which the scientist does not.

The Network in Strasbourg was originally connected with the project by Héber-Suffrin, but distinguishes itself from it by its focus on the scientific object of knowledge in particular. In this sense, the definition of the object of knowledge is a little different compared with what we observed in Time 1 of the social project. From an object "pretext" in Time 1, the object of knowledge becomes central for a scientific education of the citizens in Time 2. But if the "scientific" nature of objects of knowledge became so important in the framework of the Strasbourg network, what happened to the "equal" value of all objects of knowledge, which was so central in Héber-Suffrin's conception?

THE ORGANISERS' PERSPECTIVE: A TENSION BETWEEN SOCIAL PROJECT AND SCIENTIFIC PROJECT

How do the members of its steering committee implement the project? How do they interpret the "frame" which defines, from the point of view of its designers at least, some organizing principles? From the interviews conducted with five organisers (who participate in the sessions of the committee, design the knowledge exchange settings, update the list of objects of knowledge demands, etc.), I shall examine here more particularly their conceptions of the goals of the network, the characteristics of the object of knowledge and the relation between the various actors within the learning setting.

Their answers report a certain tension between, on the one hand, a definition of the objectives of the network in terms of transmission of "scientific" objects of knowledge and, on the other hand, in terms of "social link". Gilles, one of the organisers and an educator, for example, defines the network in these terms: "For me, it was with the objective of a social worker: working on the social link". Gustave, a retired man who left school very young and did an apprenticeship, also raises the importance of social relationship: "I am here because I want to help!".

This perspective is contrasted by other committee members who rather insist on the transmission of scientific objects of knowledge. This distinction is, however, often evoked with irony by the organisers themselves, who spoke about the "intellectual group" and the "social group". It is somewhat a paradox that on the one hand, the KEN claims that the notion of equality should define the relationships between the members and towards the objects of knowledge, and on the other, the organisers reinvent hierarchies and subgroups among themselves.

Interestingly, this distinction might refer to the "social" project of the designers of the KEN at its origin and the "scientific" project carried by the designers of the KEN in Strasbourg. And both perceptions are articulated and characterise this KEN as explained by Gilles:

"We can say that the objective is the 'exchange of knowledge', but there is also the idea of a network and, well, if the objective was only the exchange of knowledge we could work with a desk, a telephone and a permanent employee, who would spend time calling and putting people in touch, but we are good at much more than simply the exchange of knowledge between two or three persons, we have a network in mind".

The representations on the object of knowledge are contrasted. Some organisers perceive it as the central element which gives meaning to the Network, and others as an element certainly important, but which especially plays a role in supporting relations between persons of various walks of life, and contributes to the development of self-respect. As for the "equal value" of the objects of knowledge, we also observe some differences compared with the principles expressed in the texts of Héber-Suffrin. During a casual conversation, I heard a comment by an organizer: "I do not much like this drift towards astrology. Is it knowledge?".

Thus, processes of appropriation, distinction and differentiation towards the model of Networks developed by Héber-Suffrin appear as constituent of the elaboration and of the existence of the KEN in Strasbourg itself.

THE PARTICIPANTS' PERSPECTIVE: REINVENTING THE NETWORK

A frame is elaborated, meant to bound borders, to mark out a space around rules and objects, oriented toward finalities. From the point of view of the participants - the persons who are going "to live" within this frame - how is it interpreted and understood? How is it "framed"? I shall examine here the perspective of the persons who participate in the exchange settings.

To do so, I shall analyse two types kinds of data: the types of organized exchanges, and the dynamics of the interactions, from the transcripts of the recorded “exchanges of knowledge”.

The Scientific Objects of Knowledge

What about objects of knowledge offered and requested in the list elaborated by the members of the KEN? It turns out that on the list in 1994, only 8 objects of knowledge out of 300 approximately could be clearly identified as “scientific” objects of knowledge (telephony, high/low voltage; electron microscope; entomology), and that today, no more can be really distinguished as such out of the 200 objects on the list available on the site (<http://www.rers-strasbourg.eu/>).

Furthermore, in 1994 almost no exchanges had been organised on these topics. If we consider that the objects of knowledge are also objects of representations and are “social” themselves, making them available in the framework of the KEN is not enough to modify a representation which defines them as “inaccessible”!. We can also wonder if the network, for a majority of participants, does not represent a place either to meet people and friends, or to acquire “useful” knowledge (for example, “English” and “German” exchange settings were highly successful).

Interactive Dynamics in Exchange Settings

How are the roles of “providers” and “receivers” defined and negotiated in the interactions, and which meaning is attributed to the object of knowledge? Whereas the texts relating to the KENs and the organisers use specific words to name the roles of the persons who will interact with each other in the frame of an “exchange of knowledge” - ie. a “provider” to indicate the person who is meant to transmit an object of knowledge, and a “receiver” to indicate the person who is interested in learning - and insist on the dimension of parity and reciprocity, it can be interesting in our perspective to examine in detail how these roles are co-constituted in the course of the interactions. We shall adopt here an analysis of the interactions as a place for “emergence”.

Provider’s and Receiver’s Roles: A Positioning Dynamic

From an interactional analysis of the exchanges, we observed that the providers and the receivers “did” different things which situated them in distinct places toward each other. The providers organised the physical and temporal features of the setting, chose the tools necessary to perform the task. They showed, explained, indicated, made reference to the past and the future of the interaction, etc.

In a complementary way, the receivers asked questions, accepted the regulative rules suggested by the provider, handled objects and tools to perform the task, answered the questions. A routinisation of this interactive pattern (which shares common points with that observed in IRF teacher-students interactions; see Mercer and Littleton, 2007 or Wegerif, 2005) emerges and is constituted within the interaction. The providers rarely asked questions

which encouraged receivers to take extended turns to express their thoughts, reveal their misunderstandings and make relevant comments, and receivers rarely asked open questions which would promote debates and argumentation. Through the discursive dynamics, roles and places are constituted in asymmetry.

The Definition of the Object of Knowledge

We thus observe that interactions in which between providers and receivers, according to the roles to which they are associated assigned, are focused towards teaching and learning the topics foreseen by the exchange of knowledge setting. Little room is left for conversations which would not be in connection with it. We may even say that it is as though the participants took advantage of every opportunity to bring or to ask a new element related to learning. Here are some examples:

Excerpt 1

Receiver: "tuiles" [a kind of biscuit] I do not know to make them and I love them
 Provider: well here we go we are going to learn

Excerpt 2

Receiver: is this the butter we need?
 Provider: yes it is cooking-butter you use a little less with cooking-butter don't you

Excerpt 3

Receiver: do you oil the plate or use butter?
 Provider: I would rather use butter for tuiles, it's more refined

Other examples taken from the same "Simple and Nice Cooking" exchange setting show a diversity of objects of teaching and learning that are evoked. Here are extracts in which the interlocutors teach and learn

... how to understand the specific vocabulary of a recipe:

Provider: Half a tablespoon half a tablespoon "TS" means tablespoon

... or the use of kitchenware:

Receiver: do you have scales?
 Provider: no need, there is a measure

... or some "cooking tactics" that are not found in any recipe books:

Provider: You know the "gougère" [savoury choux pastry] you don't have to open your oven either

Provider: just add a little salt to beat the egg whites until stiff.

Through these observations, we can highlight the fact that from the point of view of the receivers, the objective of the interaction seems to be defined around the idea of acquiring new knowledge or “tricks” thanks to the expertise of the provider. In this perspective they situate themselves as “novices” towards an expert, and seek to enhance their know-how. From the point of view of the providers, it seems important to meet the expectations of the receivers by explaining, providing additional information, and in so doing to justify their status as an expert.

We might however imagine that, within the framework of a KEN, open exploration of the objects of knowledge would be favoured, and this by virtue of the principle of reciprocity which governs the networks. Yet providers and receivers seem to put quite a lot of effort into building a relation marked by asymmetry.

CONCLUSION

In approaching teaching and learning, socio-cultural theory has emphasised the “situatedness” of psychological processes. If the nature of the relationships between psychological processes and their contexts is object of discussion, it seems that the theoretical positions focusing either on the system of activity or the intersubjective processes are not incompatible. Rather, they show that more attention should be paid to the relationship between the micro-context of learning situations and other levels of analysis, and to the meaning-making processes. In this chapter, I choose to take into account the perspectives of the main actors involved in the designing and implementing of an educational project, and to examine the way they framed and reframed the settings in which they think and learn.

What did we learn from this exploration?

An educational project, aiming at teaching and learning, cannot be understood according to a line of simple causality where the promoters conceive, the teachers implement and the students learn: “This linear view ignores what we know of interventions as contested terrains, full of resistance, reinterpretation, and surprises from the actors below” (Engeström, 2011, p. 601). The actors frame and reframe the context in which they are interacting, and also resist. And this is precisely what we have observed in the study presented in this chapter. The designers of the Network in Strasbourg saw in the model of the KENs - originally conceived to support social integration - an opportunity to transmit objects of knowledge of a particular type: scientific objects of knowledge. If the initial promoters framed their project in contrast with the school system, the promoters in Strasbourg designed their Network in contrast with the system of scientific popularisation. The organisers of this Network, themselves situated in various professional institutions, expressed different points of view, in favour of a “social” model or in favour of a “scientific” model. The participants, from their point of view, rather focused on objects of knowledge which have no scientific character. While reciprocity and parity were at the core of the Network project, the interactions between providers and receivers show asymmetric dynamics. At each level, the poles of the psychosocial triangle were reshaped: the object is not the same, the relation between “learners” and “teachers” has a different tint, the purposes are different.

These differences show the movements resulting from thinking activities developed by the various actors who, from their place, attribute different meanings to the elements of the

project. To a certain extent, these persons observations perfectly illustrate the processes shown by Anne-Nelly Perret-Clermont when she says that "'a transmission cannot be successful without an act of appropriation, a part of 'reinvention' or creation'" (Perret-Clermont, 2001, p. 66).

From the analysis of interactions, we observed a clear differentiation between the role of receiver and that of provider in complementary positions. How can we understand this finding? This observation seems to indicate that objects of knowledge are not insignificant objects of discussion, and that teaching and learning implies a commitment from the person, inviting him or her to position him or herself and to position the other, to define identities. Teaching and learning involve taking risks - the risk of being branded as ignorant even when we are one is supposed to be the expert, and when we are being the so-called novice, the risk of not succeeding, not understanding. Is it so surprising then that within this framework context, that cannot be framed as a familiar social institution one, providers and receivers, who meet for the first time, spend so much time symbolically establishing rules and expectations? This reminds us that in order for thinking and learning to develop, it is certainly important from the point of view of the participants that a frame is established and defined. It is this frame which provides security and allows participants to play, make mistakes, and express feelings. But this frame, generally, is legitimised by an institution which defines rules, duties, and guardians of the rules. When the "frame of the frame" is too fuzzy, the work of framing is certainly more costly and it makes difficult the elaboration of what Perret-Clermont calls a "thinking space".

However, learning does occur! At the end of the "origami exchange setting" for instance, a participant said: "what is funny in the origami is that I was convinced that I would not be able to fold a square in two, which may be true [laughter], but at the same time, I succeeded (...) That's what is good in the origami exchange, nobody says 'it is fine it is bad it is wrong', there is general advice [from the provider] which is 'look after points and mark the folds' [laughter]".]". When roles are established and finalities made clear, when the basis of intersubjectivity is grounded, thinking and learning may happen.

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Chapter 6

**SOCIAL INTERACTIONS IN FAMILIES AND SCHOOLS
AS CONTEXTS FOR THE DEVELOPMENT OF
SPACES OF THINKING**

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ABSTRACT

The aim of this chapter is to present and discuss some of our empirical data collected in educational contexts in order to show the relevance of conversational processes among children and adults. Within a socio-cultural perspective, we assume that the child's thought is developed through discourse, especially during everyday activities involving peer interactions and adult-guided discussions. In order to examine the conversational procedures by means of which participants jointly construct and negotiate social relationships, we consider family and school contexts as two analytic frameworks for the development of spaces of thinking during the everyday lives of adults and children. In particular, we analyze how family conversations and school discussions offer interactional opportunities through which children can foster a critical attitude in the process of discussion carried out with peers and adults. Implications of discursive practices in these two educational settings are discussed in order to highlight the relevance of social interactions as spaces of thinking and development.

INTRODUCTION

This chapter aims to explore the relevance of conversational processes among children and adults in two educational contexts, such as families and schools. Within a socio-cultural perspective, we assume that the child's thought is developed through discourse, especially during everyday activities: the examination of the conversational procedures by means of which participants jointly construct and negotiate social relationships is thus a powerful way to understand how adults and children develop spaces of thinking during their everyday lives.

Families and schools are assumed as two analytic frameworks offering interactional opportunities through which children can foster a critical attitude in the process of discussion carried out with peers and adults. Through the presentation and the qualitative analysis of some of our data collected in both contexts, we intend to highlight the role of social interactions in these settings, assumed as spaces of development and thinking in children and adults.

SOCIAL INTERACTIONS IN CONTEXT: A THEORETICAL FRAME

People do not develop alone in a social vacuum but within settings of joint activities that confront them with different discourses, subjectivities, perspectives, and opinions (Perret-Clermont, 2006). As participants of such contexts, children and adults have to construct their moves, to test the acceptability of their actions for communication, understanding and success. These aspects are crucial for the development of critical attitude in social activities and for learning processes. However, fundamental questions remain to be opened, such as: How is this achieved? In which conditions and situations? How do people learn to co-ordinate different meanings and movements in various social activities of the everyday lives? In our perspective, conversation plays a central role in this endeavour: in conversation thoughts are implied within a set of rules that require and scaffold some kind of interpersonal coordination and joint activity. Thoughts are shaped within the unfolding of conversation, a conversation that is not a mere container of thoughts and learning, but it is a constituent (Rigotti & Rocci, 2006) of learning and socialization processes.

The link between conversation and context allows us to another crucial element that guides our research: the evidence that the role of language cannot be separated from the overall socio-cultural knowledge (Valsiner, 1995; Pontecorvo & Arcidiacono, 2010). Children learn progressively a complex set of relations between contexts of use and linguistic features. Linguistic knowledge is embedded in socio-cultural knowledge, and at the same time values, rules, concepts are acquired through language. This process of *language socialization* (Ochs & Schieffelin, 1984; Schieffelin & Ochs, 1986) includes both socialization through language and socialization to use language. It is a process that is never completed and never ends (Ochs, 1990): every interaction is potentially a socializing experience inasmuch members of a social group are socializing each other by negotiating and sharing situational meanings (Pontecorvo, Fasulo & Sterponi, 1998, 2001).

In presenting our contribution we assume a socio-cultural perspective (Zutavern & Perret-Clermont, 2000; Perret-Clermont, Carugati & Oates, 2004) within which a special attention is devoted to the semiotic tools people use in accomplishing cognitive activities. According to Vygotskij (1934/1962), a fundamental role is thus attributed to language in order to define the child's development as a progression accomplished through a complex set of culturally shared and socially supported language-games (Jost, 1995). For instance, understanding mental states of others, false belief or deceit in children can be a matter of learning the appropriate cultural language-games for intentional behaviour in their internal logical sequence. Our intention is to analyze development and education as social constructions and practices, in which people are continuously oriented to become competent and to achieve understanding (Edwards, 1995). Such an epistemological approach can help

the elaboration of a psychological perspective that aims at understanding how development and education take place within a culture as social, cognitive and linguistic processes.

A CONVERSATIONAL AND DISCURSIVE APPROACH TO THE STUDY OF DEVELOPMENT AND EDUCATION

We found in conversation and discourse analysis (Sacks, Schegloff & Jefferson, 1974; Schenkein, 1978; Atkinson & Heritage, 1984; Goodwin, 1981; Button & Lee, 1987; Schegloff, 1989; Sacks, 1992) a powerful tool for a cultural and discursive approach that is offering means adequate to the presentation and explanation of human behaviour and of its development. In using both approaches to explore talk-in-interaction we are trying to combine a language socialization dimension to our psychological interest in understanding how children practice cognitive competences in different everyday activities. Indeed our choice for studying interactions in families and schools is not random: it is driven by the fact that these are the major settings in which children's socialization and development occur. In line with the language socialization research trends (Ochs, 1982; Schieffelin, 1990; Ochs, Pontecorvo & Fasulo, 1996; Pontecorvo & Arcidiacono, 2007; Arcidiacono, 2011) our study explores, within the Italian context, how children are socialized to a particular type of language-game or procedure of reasoning, the argumentative discourse, which can be found both in school setting and in the family context of dinnertime conversations. By adopting a comparative look we will try to single out similarities and peculiarities of the two speech events in terms of contexts that foster a critical attitude in discussion and as spaces of children's thinking and development, in the direction highlighted by Perret-Clermont¹ in her work along years concerning different settings of activity (Perret-Clermont & Nicolet, 1988; Perret-Clermont, 1993, 2004, 2005; Perret-Clermont & Iannaccone, 2005; Arcidiacono & Perret-Clermont, 2009, 2010, in press; Bugnon, Arcidiacono & Perret-Clermont, 2010; Sinclair-Harding, Miserez, Arcidiacono & Perret-Clermont, 2013; Breux, Arcidiacono & Perret-Clermont, in press). The inherently discursive and cultural nature of cognitive activities will be taken into account in order to throw light on how the cognitive development actually unfolds within everyday socialization activities.

EXPLORING EDUCATIONAL CONTEXTS

Family and school are surely the two most prominent *loci* of young children linguistic and cognitive socialization, although there are several differences between the two contexts (Fasulo & Pontecorvo, 1999; Pontecorvo, 2004; Arcidiacono, 2013). In our research within the family setting, a particular type of family has been observed: a middle class family composed by two parents and at least two children (one of them between 3 and 5 years of age) meeting at dinnertime. We are aware that middle class refers to the social stratum lying

¹ The first author of this chapter recalls that the first time she encountered Anne-Nelly Perret-Clermont research work was in December 1972 (Perret-Clermont, 1979) in the "Trappeto" Study Center of Danilo Dolci, with Wilhelm Doise and Jacques Vonèche both involved in the project of building an organizing new ways for infant education from three to six years old.

above the working class and below the upper class. Precisely because most families identify with the middle class, understanding tacit assumptions about middle class working families moved to the center of the research interest. As highlighted in other studies within the family context (Arcidiacono & Pontecorvo, 2010), we assume that the basis for the commonly expressed view to be middle class is therefore that many or most of families call ourselves middle class, and that the old badges of status of the working class are no anymore longer reliable. On the other side, classroom activities at different grades have been studied from the point of view of the discursive activity led by participants in various situations. As hypothesized and shown by several researchers (e.g. Heath, 1983; Davies, 1997), the common ground about the two contexts is the fact that both parents and teachers have the dominant aim of socializing children, although they differ in the priorities and in the tools they use. Actually, if the general mechanisms of interaction do not differ too much, a difference is due to the fact, for example, that children's accountability is in the family linked to "doing" and to the possible negative consequences of actions, while in school is more linked to knowing, and then to the cognitive contour of activities: paying attention, answering, remembering, giving cognitive explanation.

Our analyses of school practices have single out that children's reasoning is highly co-constructed and narrative activity is often spontaneously co-authored and multi-voiced. To some extent, children's clashing positions are never simply juxtaposed but are negotiated, transformed and often blended in new reasoning paths. Another element concerns the fact that children's reasoning unfolds through complex argumentative patterns; overwhelmingly, hypothetical format and counterfactual structure are used in different situations at school. More, reasoning processes are rhetorically shaped and participants make use of refined discursive strategies and rhetorical moves for achieving agreement and consensus about a task or a pedagogical activity. These features of children's reasoning in school setting are closely linked with the results of other studies that have already shown that narrative activities in a wide range of human contexts are overwhelmingly co-constructed (Pontecorvo, Amendola & Fasulo, 1994), that they often stimulate hypothetical thinking (Ochs, Taylor, Rudolph & Smith, 1992) and constitute a privileged tool for cognitive and linguistic socialization (Lucariello & Nelson, 1987; Pontecorvo & Fasulo, 1997).

The interesting evidences about children's competences in school activities of reasoning led us to develop other hypotheses about the role of the school in terms of educational context in which different spaces of thinking can be developed. Do children learn to argue before they go to school and when can we say that they are improving their learning within the school context? How are they socialized to the discursive tools and the rhetorical devices of everyday reasoning outside the school? In trying to answer to these questions we need to turn back to another context of interest we have developed during the last decades, the study of family dinner conversations.

Indeed also in family dinner conversations there is a remarkable amount of spaces of thinking in which people (adults and children) can use talk, narratives, spontaneous conversations as occasions to improve their communicative and social capacities. In particular, previous research has shown that narratives are spread throughout all the various speech activities participants commonly accomplish in talking together at dinner table (i.e. remembering, planning, jokes' telling, disputes). Remarkable studies on the activity of storytelling (Jefferson, 1978; Goodwin, 1984) have shown that since their very beginning narratives are interactional accomplishments. However, an uptake from another participant is

necessary in order to have narratives' unfolding overwhelmingly carried out collectively. This is true not only when there is agreement and harmony between the co-tellers of the storytelling; even when speakers don't share the same view on the reported events the narrative is most of the time co-constructed through quick turn's exchanges, oppositions of descriptions, negotiation of remembering. By participating to family conversations, children acquire the conventions of story-telling, the discursive devices to construct the reality (Bruner, 1990) so that they practice different forms of participation in collective activities.

In comparison with the school context, in family narratives participation roles are more flexible and often exchanged: within the same storytelling not only the role of narrator is shared and passed among participants, children included; also challenging moves such as critique and refusal can be performed by all participants. As suggested by Ochs and Taylor (1995), social familiarity encourages complex reasoning: *"where participants know one another well, they may be less hesitant to express uncertainty or perplexity over the problematic affairs in the narration and more open to invite the help of others in explaining the narrated events. Where participants know one another well they are able within limits to enter into the other's telling of events and reconfigure the other's version without dissolving the relationship"* (p. 43). This aspect allow us to highlight a commonality between school and family in terms of educational implications: familiarity among children and between teachers and children is not only to be pursued as it offers to all the participants a positive emotional milieu for their everyday experience also because it contributes to create a proper space to encourage complex cognitive processes.

METHODOLOGICAL NOTE: THE SETTING OF THE RESEARCH WITHIN THE FAMILY CONTEXT

The data presented in this chapter are drawn from a corpus of a large research project on family conversations that started in Italy in 1991². Researchers met participant families in a preliminary phase, to inform them about the general lines of the research and the procedures. The collection of the data is based on video-recordings of family dinners: during the first visit, a researcher was present in order to place the camera and to instruct the participants on how to use the technology. The video-recordings following the first one were done by the family autonomously, when the researchers were not present. Each family videotaped their dinnertime 3 times, over a 20-day period; the first videotaped dinner was not used for the aims of the research, in order to familiarize the participants with the camera and it was left to the family. All dinnertime conversations were fully transcribed (Jefferson, 1985). For the symbols used in the transcription, see the appendix. All transcriptions were revised by two researchers (reaching a high level of consent) and then coded. The unit of analysis has been the *topic* of discourse, defined as the subject of a conversational sequence of no less than three consecutive turns of at least two different speakers.

² The first suggestion came from a similar project started in 1989 in USA and directed by Ochs. For more details about the Italian research group, cf. Pontecorvo (1996).

EMPIRICAL EVIDENCES: NARRATIVES IN A FAMILY CONVERSATION

In this section we intend to introduce and to discuss an example of conversation among family members in which different narratives and social interactions can be highlighted as elements for the development of thinking spaces.

Firstly, we present an excerpt involving four participants (the mother, the father, and two children: Luca, 10 years 9 months old; Luisa, 3 years 10 months old) that are engaged in a dinnertime conversation at home. The topic of the discussion concerns a TV program for children, titled “L'albero azzurro” (“The Blue Tree”), that Luisa is used to watch. The names used to identify the participants are fictitious.

Excerpt 1

1. Luisa: e poi ho visto .h poi io sono intelligente: molto intelligente. perché, ho seguito l'albero l'albero azzurro, che è molto intelligente. lo seguo. non è che tu non aprì il cervello. non lo segui, non lo segui perché tu non sei intelligente Luca.
and then I watched .h then I'm clever: very clever. because, I watched the albero the albero azzurro, that is very clever. I watched it. it is not that you don't open the mind. you don't watch it, you don't watch it because you are not clever: Luca.
2. Luca: ((ride))
((laughs))
3. MOM: io sono intelligente: co- ma che: dici! ((ridendo e parlando al posto di Luca))
I'm clever: wh- but what: are you saying! ((laughing and speaking in Luca's name))
4. Luca: mhm mhm perché ridete?
mhm mhm why are you laughing?
5. MOM: perché Luca è intelligente. che gli stai dicendo? che non è intelligente? ((a Luisa))
because Luca is clever. what are you saying to him? that he is not clever? ((to Luisa))
6. DAD: la bambina ((Luisa)) vuole, voleva dire, se tu dici che Luca non è intelligente, Luca si offende
the girl ((Luisa)) wants, she was saying, if you say that Luca is not clever, Luca will be annoyed
7. MOM: perché dice “allora sono cretino”. ((ridendo))
if not he says “so I'm stupid”. ((laughing))
8. Luisa: ma io mi devo offendere. che voi ridete:
but I have to be annoyed. because you are laughing:
9. MOM: perché ti devi offendere? amore mio, ma noi non è che per te,

- ridiamo per quello che hai detto. perché tu hai detto che tuo fratello è cretino. anzi che non si offende Luca e che ride. a te ti piacerebbe se tuo fratello ti, ti dicesse "perché tu non hai cervello?". cara Luisa,
- why have you to be annoyed? my darling, but we are not laughing because of you, we are laughing because of your words. because you have said that your brother is stupid. it's strange that Luca is not annoyed and he is laughing. would you like that your brother will, will say "why you don't have a mind?". dear Luisa,*
10. DAD: l'albero azzurro è una: una trasmissione veramente che apre il cervello diglielo. è così? ((a Luisa)) e quando noi la vediamo Luca non c'è mai. per questo la bambina ((Luisa)) ha voluto sottolineare questa cosa qua.
- the albero azzurro is a: a program that really opens the mind let's say to him. right? ((to Luisa)) and when we watch it Luca is not here. for this reason the girl ((Luisa)) was highlighting this aspect.*
11. MOM: ma noi non lo possiamo sapere tutto questo discorso. io capisco questo. anche "Luca" capisce questo. scusami, sai.
- but we can't know all these aspects. I understand it. "Luca" too he understands it. please, excuse me.*
12. DAD: perché lei ((Luisa)) è più piccola e ha più tempo per vedere queste cose.
- because she ((Luisa)) is younger and she has more time to watch this kind of program.*
13. Luca: no io dico (.) magari "fossi" io piccolo!
- no I'm saying (.) if only I "was" a little child!*
14. DAD: "è vero?" "eh?"
- "really?" "eh?"*

In order to show how this sequence is structured as a space of thinking among family members, we intend to highlight different elements that participants employ during this excerpt of dinnertime conversation as components of a narrative process. The first intervention of Luisa is an assertion implying an inference about the people watching a specific kind of TV program (turn 1: *and then I watched then I'm clever very clever because I watched the albero azzurro, that is very clever. I watched it. it is not that you don't open the mind. you don't watch it, you don't watch it because you are not clever Luca*). As the program "L'albero azzurro" is a clever TV program, people watching it are clever, and consequently, the others are not clever. In the line of this kind of reasoning, as Luca is not watching the program "L'albero azzurro", he can't be clever. The logic inference used by Luisa follows a "*modus ponens*" (*if p → so q; as it is p → then it is q*) that is typical of an argumentative reasoning linking a premise to a conclusion. The intervention of the girl provokes the reaction of the other participants: while Luca is laughing, the mother tries to

invite Luisa to account for her assertion. This requested accountability is due to the fact that a family rule has been violated (Luca has been annoyed) and takes the form of a request for justification (turn 3: *but what are you saying!*), a counter-assertion (turn 5: *Luca is clever*) and an explicit disagreement (turn 5: *what are you saying to him? that he is not clever?*). In other words, the mother's intervention is also a way to reproach Luisa because she is using any correct disagreement to Luca (turn 5).

The sequence developed by participants is a form of socialization to the social discourse. The words used by the family members have an effect also at the emotional level: the mother uses the inferential form "*if...so...*" as a reported speech (Goffman, 1981) that voices the potential internal reaction of Luca in front of his sister's assertion. Luisa is thus confronted to the voice of Luca that is embodied by the mother: the adult is trying to build a rational side of the exchange (turn 9: *why have you to be annoyed?*). At the same time, she is making a distinction between a personal disqualification of Luisa and a disagreement (turn 9: *but we are not laughing because of you we are laughing because of your words*). The mother's argumentation is sustained by a hypothetical empathic scenario in which the child (Luisa) is confronted to the other's point of view, in order to be able to take the other's position.

At the end of the sequence, a repair of the family solidarity is needed: the capacity to take care about participants, in terms of vicarious account (Sterponi, 2003) is displayed by the parents when they sustain the reasons of both children. The confrontation/conflict between the children is transferred to a parental level. Two distinct sides are created: the father aligns the position of Luisa, reformulating her intention (turn 10: *the albero azzurro is a program that really opens the mind let's say to him. right? and when we watch it Luca is not here for this reason the child – Luisa – was highlighting this aspect*), while the mother defends Luca offering some arguments that make reasonable his position (turn 11: *but we can't know all these aspects. I understand it. Luca too he understands it*). Within this frame, Luca uses the father's argumentative repertory in order to use the situation as a space to affirm his position (turn 13: *no I'm saying if only I was a little child!*) in front of Luisa.

The excerpt we have presented above is an example of how the discursive nature of cognitive, affective and relational processes in family conversations is accomplished by participants in and through the social interactions of their everyday lives. The verbal exchanges at dinnertime are spaces that allow for the possibility to catch the intersubjectivity among participants through the observation of social practices at home. In particular, family members assume different socializing roles that are often mediating the conversational exchanges between parents and children in the attempt to realize a mutual comprehension.

METHODOLOGICAL NOTE: THE SETTING OF THE RESEARCH WITHIN THE SCHOOL CONTEXT

The research conducted in the school context concerns a project aiming at exploring the scientific and narrative capacities of Italian preschool children between 5 and 6 years of age (for more details, cf. Orsolini & Pontecorvo, 1992). In this chapter, we focus our attention on a narrative recorded activity led in Rome by the teacher in a classroom including 12 children and implying different phases. Firstly, small groups of four children were read by the teacher a Tolstoj's fairy tale "*Masha and the bear*"; the reading was interrupted at crucial points and

the children were asked to predict how the story would continue. The teacher led the discussion by asking children to explain the intentions and the motives behind the actions of the characters in the story, to evaluate what other actions might be plausible given those motives, and to evaluate the cleverness of the story protagonist (Masha) and her adversary (the bear); finally, an overall discussion took place in the large-group context. The story summary of "Masha and the bear" is the following: *Masha went with her friends to the wood. She got lost and she found a small house in which a bear was living: the bear compelled her to stay with him. She would like to run away from the bear and she asked him to bring a basket full of fritters to her grandparents' house. The bear offered to do it for her. She prepared the basket and told him not to open it: "I will climb up the oak tree and I will check on you from there!" While the bear went outside to look whether it was raining, Masha hid within the basket and put the fritters dish over her head. During the way, when the bear stopped, Masha said to him: "I saw you. Do not stop, go on!" So they arrived at the grandparents' house. When they were nearby, the dogs barked because of the bear's scent. The bear was frightened and ran away. Masha was free!*

EMPIRICAL EVIDENCES: NARRATIVE ACTIVITIES OF PRESCHOOL CHILDREN

In this section we present an example of discussion developed by a small group of children (Fabiola, Sabrina and Walter) in the classroom about the reasons of the protagonist's actions of the story ("Masha"). The system of transcription is the same used in the previous excerpt. The names used to identify the participants are fictitious.

Excerpt 2

1. Teacher: come ha fatto ((Masha)) a scappare da dentro- dalla casetta dell'orso?
how could ((Masha)) flee from within- from the bear's house?
2. Fabiola: lei stava a vedere se pioveva, allora, il cestino era aperto, allora lei, zacchete! se ficca dentro, però così- e in testa ce mette le frittelle. ma se è grande ((Masha)) se rompe er cestino però!
she was looking whether it rained, then, the basket was open, then she, zacchete! ((Italian onomatopoeia)) she slips in, but so- and she puts the fritters on her head. but if she is big ((Masha)) the basket will break down!
3. Walter: perché se Masha era come noi o come te poteva rompere il cestino, perché il cestino sarà così o così ((piccolo))
because if Masha was like us or like you she could have broken the basket, because the basket was so and so ((little))
4. Sabrina: il cestino era grande, se no non ce metteva neanche le

- frittelle. Ce n'ha messo tre o quattro. o cinque o sei!
the basket was big, otherwise she could not even put the fritters in it. she has put three or four. or five or six!
5. Fabiola: *o sei!* almeno. dopo il cestino: *ciacchete!*
or six! at least. after the basket: ciacchete ((onomatopoeia that means "crashing down"))
6. Walter: see, così sei è più grande, sei chili pesa, no? con le frittelle, così ce se mette Masha che pesa almeno sette chili e quello ((il cestino)) se sfascia tutto. sette chili, quaranta chili!
yeah, so six is bigger, it weighs six kilos, doesn't it? with the fritters, so Masha puts herself that weighs at least seven kilos and that ((the basket)) will all crash down. seven kilos, forty kilos!

Excerpt 2 is a complex narrative activity jointly accomplished in a preschool setting. Children's collaborative reasoning, rather than emerging from mutual agreement, is realized through oppositions and explanations along a counterfactual line. In fact, Fabiola provides her narrative version, puts forward her hypothesis but formulates herself a possible objection: the solution would not work if Masha was too big (turn 2: *but if she – Masha – is big the basket will break down!*). The use of conditional forms from which negative effects can be derived results typical in the preschool setting: Fabiola and afterwards other children use them as the more compelling forms when they want to deny an alternative hypothesis produced by another participant. Challenges, oppositions, counter-proposals facilitate reasoning to unfold. Opposing hypotheses, the accounting activity it triggers and the seeking for consensus allow children to reach collectively an articulation of reasoning far more complex than the one each of them would achieve alone. In other words, through contrasting perspectives they are co-constructing higher level of reasoning.

Following Bruner (1986), we can affirm that children are constructing a dual landscape³, switching back and forth between action and consciousness. The narrative is rather complex as it considers both the protagonists' actions and their thoughts and feelings. Furthermore, they add their own perspectives as narrators. The landscape of consciousness illuminates protagonists' doings and offers to the audience the narrator's position and the interpretation of the events. As result, the enrichment of the reasoning through this dual landscape is deployed collectively: it is worth noting that the narrative activity children are engaged in allows for different perspectives to be put forward and negotiated. Different plots can be followed and, insofar as they respect the criteria of internal consistency, they can all be considered equally possible and acceptable. As consequence, the narrative activity not only organizes the experience and imbues it with meaning: it illuminates the experience and it also reveals a multiplicity of interpretive frames for organizing the experience (Capps & Ochs, 1995; Ochs & Capps, 1996; Ochs, 1997). Therefore, narrative activity promotes plurality and cultivates

³ The concept of the double landscape history in the understanding has been introduced in order to explain the need to combine the story of the childhood with reference to the emotions, thoughts and feelings of the protagonists.

critical thinking. It encourages comparisons among different perspectives and understandings; it brings different voices into dialogue without aiming at making of them a unison chorus.

CONCLUSION

One of the more relevant results of our findings in two educational contexts is related to the fact that children's reasoning does not emerge from mutual agreement, but from oppositions, challenges, even from diverse reasoning forms. Children develop them collaboratively in particular discursive phases, with a clear preference for specific strategies, as we found in children's interactions both in discourses about school narratives and in family conversations. The continuity in the reasoning processes in diverse settings concerns the evidence that a self-produced co-constructive discourse in children is almost always performed in a semantically contingent way, showing a refined skill to build up claims and justifications through opposition and counter-opposition. This way of reasoning through arguing seems to be found almost naturally in different types of peer interactions as well as in peer-adult interactions in family and school contexts.

The proposed analyses show the relevance of conversational processes both between adults and children and among children themselves in studying the child's thought through discourse: this discursive and conversational perspective accounts for a set of general dimensions in the frame of socio-cultural psychology. In particular, we have observed the complexity of narrative activities in family and preschool settings. Children are able to suggest various alternatives and different narrative versions through peer discussion: others points of view and hypotheses can be taken into account as well as criticized. This clashing of perspectives triggers a collective reasoning whereby children attempt to resolve discrepancies and, in the case of school narratives, sketch a meaningful storyline towards narrated events. Furthermore, faced with the need of defending their positions and undermining others' points of view, participants have the opportunity for exercising their argumentative skills and for improving their capacity of handling narrative situations.

Family and school situations seem to be productive spaces for thinking development. Doing qualitative research in such contexts has to be intended as a proper modality to observe the reality, to describe and to understand it. However, a specific attention has to be paid to the role of the context in fostering a critical attitude in discussion, because the possibility of identifying a space of thinking development is the result of a complex coordination of cognitive, social and emotional dimensions. As people are thinking, reasoning and acting always within a cultural and social setting, our perspective to study the development as a thinking space allows us to consider the interrelation of personal and collective elements of every social interaction. Looking at how the narrative task facilitates the construction of spaces of thinking and offers help for children narrative comprehension, we can be able to properly understand the processes of socialization among adults and children. The family meetings and the school settings can be thought as spaces of potential development, in which the capacity to account and the sense of responsibility can be improved through discursive, argumentative and narrative activities, culturally and historically situated within specific frames of interaction.

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APPENDIX: TRANSCRIPTION SYMBOLS

.	falling intonation
?	rising intonation
!	exclaiming intonation
,	continuing intonation
-	abrupt cut-off
:	prolonging of sounds
—	stressed syllable
.h	inhalation
° °	quiet speech
“ ”	reported speech
(.)	pause (2/10 second or less)
(())	non-transcribing segment of talk

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Chapter 7

**REASONING ABOUT EVOLUTION: METAPHORS IN
TEACHER STUDENTS' RENDERING OF
DARWINIAN IDEAS**

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ABSTRACT

Against the background of several studies pointing out the inherent metaphorical nature of Darwinian evolutionary theory, a premise for this study is that these metaphors need to be handled in one way or another when trying to learn, explain or discuss the theory. The reasoning of groups of teacher students will be analysed. The focus is on how they use and handle metaphorical features of concepts when explaining and discussing issues related to evolutionary theory. What metaphors are used, how do they represent evolution, and how do the learners take these metaphors into consideration in their reasoning? It is shown that in their reasoning the teacher students use (a) anthropomorphic and teleological metaphors, (b) that they speak of evolution in terms of metaphors of 'steering' and progression, and that they construe geological time in terms of spatial and visual metaphors, and (c) that the participants to some extent see these metaphors as problematic, as is evident in explications of similes and in their use of meta-communicative markers. The results of this empirical study are related to previous analyses of metaphors in Darwin, and some implications of the findings for science education are discussed.

INTRODUCTION

In recent years, the issue of metaphor has become central in research into language, learning, reasoning and understanding in educational science, science studies, linguistics, psychology and many other fields of study (e.g., Aubusson, Harrison & Ritchie, 2006; Barclay, 1997; Cameron, 2003; Draaisma, 2000; Gibbs, 1994, 2008; Keller, 1995, 2002; Knowles & Moon, 2006; Lakoff & Johnson, 1980; Leary, 1990; Ortony, 1997; Pramling &

Säljö, 2007; Säljö, 2002). No longer considered merely an ornamental feature of language, the inherent metaphorical nature of language use has been increasingly recognized. Studies have clarified the frequent occurrence and important functions filled by metaphorical language use in many domains of human activity, including science and research. For example, Ochs, Gonzales and Jacoby (1996) analysed how physicists in a laboratory used anthropomorphic metaphors, that is, spoke about non-human entities in human terms, when trying to make sense of observational data concerning sub-atomic particles and their apparently irregular movements on a projection. In a series of studies, Evelyn Fox Keller (1995, 2002) has analysed the use of metaphors in the scientific work of biologists. Through the example of developmental biology (morphogenesis, embryogenesis), Keller (2002) investigates “[w]hat counts as an explanation in actual scientific practice” (p. 4). She argues that in this specific disciplinary area, there are three historically emerging forms of explanation: (i) by using physical and mathematical models, (ii) by using metaphors. “The core of my argument is that much of the theoretical work involved in constructing persuasive narratives of development out of genetic data depends on productive use of the cognitive tensions generated by ambiguity and polysemy and, more generally, by the introduction of novel metaphors” (Keller, 2002, p. 7), and, finally, (iii) by the introduction of new technologies (i.e., how technological development in the form of, most importantly, computers, “have begun to transform biologists’ understanding of what counts as an explanation”, Keller, 2002, p. 8). She further argues that metaphorical ambiguities or uncertainties are not “a lapse in proper scientific methodology”, but rather what has “lent the concept of genetic program its remarkable productivity” (Keller, 2002, p. 147), and that “taken together”, the metaphors in effect have a “remarkable capacity for lending mutual strength to one another, and in the process lending this collective of figures an air of literality” (Keller, 2002, p. 146). Finally, Keller argues that in “addition to directing the attention of researchers, metaphors guide their activities and material manipulations” (Keller, 2002, p. 290), that is, their manners of thinking, seeing and doing science. Keller adds that some of the metaphors, for instance in genetics, have migrated to everyday discourse and become part of common sense: “A belief long standing among geneticists (and one that has acquired greater currency in recent years for the public at large) is that genes are the primary agents of life” (1995, p. 3, italics omitted); they are construed as exerting agency in their own right, much like human beings act in their environment.

There is also a growing body of literature on how metaphor appears in contexts of teaching and learning in various settings; among young children (Jakobson & Wickman, 2007; Thulin & Pramling, 2009), among students (Halldén, 1988, 1998; Tamir & Zohar, 1991) as well as university lecturers (Corts, 2006; Littlemore, 2001). In fact, coming to terms with a field of knowledge such as a scientific discipline to some extent involves appropriating and being clear about how to use a certain set of metaphors that work as concepts in that field. For example, learning about principles of Darwin’s theory of evolution implies knowing how to take ‘adaptation’ in this context as distinct from the everyday use of the term. Developing an awareness of this relationship between the tools of our knowing, on the one hand, and, on the other hand, what they are used to refer to in a body of knowledge is an important aspect of developing a scientific understanding.

Previous analyses (Al-Zahrani, 2008; Pramling, 2009; Young, 1971, see below) of Darwin’s (1859) original text have clarified certain problems regarding the use of metaphor in Darwin’s writing. In the present study, our point of departure is that these problems of the

metaphorical nature of constructs must be handled by learners in instructional settings, when reading about evolution and when using this perspective for reasoning about nature. How the metaphors used by Darwin come into play in students' reasoning, and, in addition, how students consider this issue, are interesting and important problems for anyone engaging with the theory.

Analytically the focus on metaphor may be grounded in sociocultural (Wertsch, 2007) and sociocognitive (Perret-Clermont & Carugati, 2001; Zittoun & Perret-Clermont, 2009) perspectives on the interrelationship between language and thinking. To speak metaphorically means to speak about something in terms of something else that it, in a literal sense, is not (see below, and Lakoff & Johnson, 1980, for an extensive account). As we have already pointed out, metaphor is an important and constitutive element of how language mediates the world. Concepts and terms function as communicative tools (Vygotsky, 1978) that people use in social action, and the metaphorical qualities are central for communicating and for producing *in situ* shared understanding between interlocutors.

REASONING METAPHORICALLY, THE CASE OF DARWIN

Pramling's (2009) analysis of *On the origin of species by means of natural selection, or the preservation of favoured races in the struggle for life* showed a frequent use of metaphorical language in Darwin's (1859) writing. The analysis also illustrated how Darwin himself, at times, struggled with this problem, as is evident in his explicit comments on this very issue. Consider as an example the following section from his book, when he introduces and explains the term 'Struggle for existence':

I should premise that I use the term Struggle for Existence in a large and *metaphorical sense*, including dependence of one being on another, and including (which is more important) not only the life of the individual, but success in leaving progeny. Two canine animals in a time of dearth, may be *truly said* to struggle with each other which shall get food and live. But a plant on the edge of a desert *is said* to struggle for life against the drought, *though more properly it should be said* to be dependent on the moisture. (Darwin, 1859, p. 62; our emphases)

Thus, 'Struggle for existence' is, by Darwin himself, construed as a metaphor in his theorizing. He then elaborates on how he intends this metaphor to be taken in this context. Importantly, he makes the distinction between how something is said, and what more properly should be said (i.e. what, in fact, is meant by what is said). Darwin continues:

As the mistletoe is disseminated by birds, its existence depends on birds; and *it may metaphorically be said* to struggle with other fruit-bearing plants, in order to tempt birds to devour and thus disseminate its seeds rather than those of other plants. In these several senses, which pass into each other, *I use for convenience sake* the general term of struggle for existence. (p. 63; our emphases)

As evident in this quote, Darwin himself is aware of, and struggles with, the metaphorical nature of this way of referring to evolutionary phenomena. At the same time, writing that the

metaphor is used 'for convenience sake' may be seen as problematic. As argued by Campbell (1997), metaphor is constituent rather than incidental to the theory of evolution in Darwin (1859). The metaphorical reasoning by Darwin, among other things, is used for

accounting for (a) evolution as a process of change, (b) relations (affinities) between species, and (c) geological time. These are three aspects that cut to the very heart of the theory of evolution as presented by Darwin, and therefore these metaphors need to be handled by students in learning or reasoning about the theory. (Pramling, 2009, p. 543)

Another recent study by Al-Zahrani (2008) analysed the so-called 'conceptual metaphors' 'underlying' Darwin's theory. According to the analysis, these are 'nature is a mother', 'nature is a breeder', 'life is war', 'life is a race' and 'evolution is progress' (Al-Zahrani, 2008). These metaphors the author considers to be more basic than the metaphors actually used by Darwin explicitly in his reasoning. An early analysis of metaphor in Darwin, focussing on the 'selection' metaphor, and, thus, on the relationship between domestication and nature, is found in Young (1971). Young argues that this metaphor was pivotal not only to Darwin's reasoning but also to the reception of the theory.

It is clear from Pramling's (2009) study that Darwin repeatedly resorts to anthropomorphism and to the use of teleological expressions. Accordingly, these two kinds of metaphors (i.e., that non-human processes are transformed into human-like actions, and that a purposeless process is referred to as having a purpose), as well as the issue of how to conceive of and communicate about geological time through metaphor, will be of interest to consider in relation to the analysis of the empirical material in this study, where the views and conceptions of university students training to be teachers will be scrutinized.

Considering the metaphorical nature of Darwin's theoretical account, anyone learning or reasoning about the theory cannot take the theory and its conceptual elements literally. Rather, the manners in which the theory is presented, what it refers to and the claims that can be made about what it says, stand in complex relationships to each other and need to be continuously considered. This makes the learning and teaching of the theory, and how people reason about and with it, interesting to study. In the present study, we will not attend to the teaching of evolutionary theory. Our focus is on how teacher students reason about evolution and evolutionary processes.

REASONING METAPHORICALLY, THE CASE OF LEARNERS

How upper-secondary students (16 to 19 years) use metaphors when speaking about evolution has been studied in earlier research. Halldén (1988) analysed students' written essays on evolution. One finding was that the students, at times, tended to represent 'adaptation' as an intentional act with nature as the agent. The study also showed how the students failed to distinguish between two different levels of description, i.e. when considering adaptation in relation to an individual, on the one hand, and when considering it in relation to the species, on the other hand. By not recognizing this distinction in their explanations, Halldén argues that, "the species becomes individualized or personalized and explanations become anthropomorphic in kind" (p. 548). Hence, both these findings testify to the use of what we will refer to as reasoning in terms of an 'anthropomorphic metaphor'.

Another study (Pedersen, 1992) of younger students (grades 7 and 9) showed a preference for teleological reasoning. This was particularly evident in the context of using the concept of 'adaptation'. Hence, in these cases the students reasoned about adaptation in terms of an actor acting in a certain way in order to achieve a certain *telos* or goal. An example would be a student arguing that "the giraffe got its long neck in order to eat from the crown of the trees" (Pedersen, 1992, p. 76; our translation).

While Halldén (1988) and Pedersen (1992) show the use of metaphorical reasoning in students (albeit younger students than those to be studied in the present article), neither analyses whether the speakers (or writers) themselves consider their ways of reasoning as metaphorical or not. This issue was considered in another study of students' (grades 10 to 12) explanations of evolution (Tamir & Zohar, 1991). Interviewing students about evolution, the researchers asked whether they did in fact think that their anthropomorphic and teleological reasoning applied in this case. Some students replied that they simply used these expressions for the sake of convenience. Other students did not recognize the distinction between their ways of reasoning and what they referred to. How students themselves consider this issue of the metaphorical nature of the concepts of the theory of evolution has not been analysed previously. Do students make visible an awareness of the metaphors of the Darwinian account of evolution, individually through meta-communication, or collectively through negotiating this issue? This question will be pursued in the present study.

METHOD

If the premise – of the centrality of metaphors in knowledge formation and subsequent learning (as stated above) – is sound, then studying how future teachers handle this problem is of some interest. For this reason, three different groups of teacher students were asked to participate; one group studying to become biology teachers, and two groups studying to become home economics/handicrafts and social science teachers, respectively. For the sake of brevity, these groups will be referred to as Bio, Hom, and Soc. The groups have been chosen for the following reasons. The biology students will soon become teachers in biology. In that role, teaching evolutionary theory will be a central task. Some of the Hom-students have read biology at the university level during their education, while others have not. This fact opens up for interesting tensions in the discussions in how to speak about the topic. The Soc-students do not read biology in their education. But since the social (and/or cultural) and the biological aspects of evolutionary phenomena have a complex relationship and sometimes are seen as in conflict, the issue of how these students approach questions about evolution is of some interest. It should also be noted that all three participating groups of students are training to become teachers, and in their role as teachers they will all be confronted with the problem of managing the distinction between *how* something is represented (referred to, explained) and *what* is referred to. It is precisely this tension between what is referred to and how it is referred to that is at play in the use of metaphor as analysed in the present study. While not all these students will teach explicitly about evolution, some basic knowledge of this theory is presumed to be a part of common knowledge among (in this case, university) educated adults.

THE EMPIRICAL MATERIAL

The material to be analysed consists of transcribed recordings of teacher students engaged in group discussions. The task was given to the students as group work in a regular university setting. They were informed that we were interested in how they reasoned about the problems they were given. Each group was given a paper with the questions to discuss, and all sessions were audio recorded. The participants were 45 teacher students divided into 11 groups. In groups of no more than five members, the students were asked to discuss the following questions:

- 1) What is the meaning of the theory of evolution – what is the theory of evolution and what does it say about how evolution works?
- 2) Is the theory credible – what objections against the theory have been or can be raised?
- 3) Does evolution go on now as well (why/why not)?

The discussion of each group took about half-an-hour, the shortest being about 20 minutes long. The discussions were later transcribed in full. The transcriptions were verbatim representations of what participants said, but owing to our analytical interest in the uses of metaphors we did not include details such as pauses, overlaps etc. We have added punctuation marks and some other written language conventions to facilitate reading of the transcripts. The transcribed material is about 280 pages in length. There are a few groups where some of the participants' voices sound very similar. Hence, the risk of occasional confusion about exactly who is speaking cannot be excluded.

DUAL-PERSPECTIVE ANALYSIS

Metaphorical speech is understood in a wide sense as synonymous with figurative language (including simile, analogy, and metonymy). To speak metaphorically means to speak about something in terms of something else that it cannot literally be (cf. Lakoff & Johnson, 1980). Identifying and analysing metaphorical speech requires the analyst to be able to discern a 'discrepancy' or 'incongruence' (Cameron, 2003; Fichtner, 1999) between *what* is referred to and *how* it is referred to. For example, saying that 'inflation rises' is metaphorical, since inflation is not a physical entity that can rise, that is move spatially. While metaphors are pervasive in language, mundane as well as scientific, people often speak in such a way without realizing that they speak metaphorically (Mercer, 2000). And when a speaker, for example a teacher, uses a metaphorical expression, it does not necessarily mean that the listener, for example a student, will understand the utterance as involving the use of a metaphor. In fact, even the opposite may occur, a student may take as metaphorical an utterance that is not intended as such by the speaker, the teacher. An example is given by Lakoff and Johnson (1980) in their seminal work on "metaphors we live by." An exchange student commented on the metaphor that he kept hearing, 'the solution of my problems.' While the teacher did not intend this expression to be understood as a metaphor, the student understood 'solution' in the sense of a chemical process. He thus understood this expression

as “a large volume of liquid, bubbling and smoking, containing all of your problems, either dissolved or in the form of precipitates, with catalysts constantly dissolving some problems (for the time being) and precipitating out others” (Lakoff & Johnson, 1980, p. 143). Finally, speakers may not give any indication that they consider utterances metaphorical, even though they may be clear cases of such speech from an analytical perspective.

These observations have important analytical consequences. In our view, they imply that we need to attend analytically to both the analyst’s perspective and to the participant’s perspective, and, in addition, to how the latter may be negotiated between participants. From the analyst’s perspective, an utterance may be considered metaphorical on the basis of etymological knowledge about a term or an expression that clarifies a metaphorical aspect perhaps no longer visible to speakers. Many metaphors have been conventionalized or naturalized and thus cease to be perceived as metaphors, as has been pointed out by Ricoeur (2003) in his analyses of the differences between live and conventional metaphors (cf. Zittoun & Cerchia, 2013). An example would be ‘malaria’, which probably does not appear as a metaphor to a modern speaker of English. However, as Dewey (1938/2008) has pointed out, the word ‘malaria’ is made up of two words meaning ‘bad air’ (Italian ‘mala’ and ‘aria’), indicating how the disease was originally thought to spread. Hence, as analysts we can say that there is a particular kind of ‘discrepancy’ between the way we refer to ‘malaria’ and what is being referred to. Since language, including metaphors, semiotically mediates (Wertsch, 2007), that is ‘in-forms’ our perceiving and understanding of the world (cf. Luria, 1976), becoming aware of the metaphors used, for example in a scientific theory, is of considerable importance for instruction.

Attending to the learner’s (i.e. participant’s) perspective in this context means analysing how speakers themselves consider their ways of speaking, as clarified individually or negotiated collaboratively in conversation. One interesting aspect is if the speaker him- or herself meta-communicates about how the utterance is to be taken, literally or metaphorically. For instance, a speaker may say, ‘metaphorically speaking, it could be said that...’. As we already pointed out, Darwin (1859) himself, on several occasions in his account of evolution, uses this kind of qualifying and clarifying meta-language (see above), and so may of course learners. However, there are many subtle meta-markers (Goatly, 1997; Pramling, 2006) used by speakers to clarify that they do not intend their utterances to be taken literally, but rather metaphorically. Some examples of such markers are expressions such as ‘kind of’, ‘so to speak’, and ‘similar to’. Finally, speakers may use expressions that from the analyst’s perspective are considered metaphorical, but they may do so without giving any indication that they consider their speech in this way. In fact, being aware of the distinction between the tools of our knowing and our knowledge, that is the discrepant relationship between ways of referring and what is referred to, constitutes an important insight when learning abstract and complex scientific knowledge such as evolutionary theory.

In the analysis, such discrepancies will be identified, reported and analysed (cf. Knudsen, 2003). The criteria for selection of examples are instances of talk where either the teacher students themselves make explicit, or in some way thematize, a problem having to do with the relation between a particular way of referring and what is referred to, or where we as analysts can identify such an incongruence or discrepancy in relation to phenomena or concepts that could be argued to be important when it comes to understanding evolutionary phenomena in Darwinian terms.

The empirical questions serving as premises for our analysis are: What metaphors are used, how do they represent evolution, and how do the students take the metaphorical nature of expressions into consideration in their reasoning?

RESULTS: ACCOUNTING FOR EVOLUTION

This section reports the empirical study of the teacher students discussing some issues in relation to the evolutionary theory that bring to the fore the use of metaphor. In the analysis, we will not report each individual question in turn, but instead scrutinize the material at large for the metaphors used. Looking at the material, metaphors can be seen to play a central role, and they appear frequently. We will summarize our analysis by means of a number of categories. Since anthropomorphic metaphors are so frequent and prevalent in the reasoning of the students (as in Darwin's writing), they will not be presented as a separate category. Anthropomorphism seems to serve as a pervasive thought pattern. The categories of metaphors we present point to underlying assumptions that the students seem to fall back on when speaking about evolution.

A Steering Metaphor

When discussing the first question of how evolution works, the following exchange takes place (Hom):

- 1 B: Uh, well, what it depends on, that's mostly chance, different mutations and
- 2 A: Mm
- 3 B: Species that are isolated from each other and develop in different ways there
- 4 C: It was chance, I guess, until man started steering

The metaphor of 'steering' (turn 4) is introduced in the conversation as a mechanism for evolutionary change: in the beginning it was "chance", then "man started steering." The term 'steering' implies purpose and action (i.e., teleology and anthropomorphism, respectively). It seems to work in a direction of assuming that evolution is in a sense determined rather than contingent (see further below about this distinction) and that humans intervene. Later in the same discussion, the following is said:

- 5 D: Yes, exactly, and it's the ones who had a chance to multiply, the ones who are ugly, on the outskirts of the community, society, they're not permitted to, just like with animals, in nature, so to speak, the males which are
- 6 A: Natural selection takes place there, you mean
- 7 D: Yes
- 8 A: Mm

In turn 5, D says about the evolution (procreation) of humans, that "just like with animals, in nature, so to speak." Thus, human beings (social, cultural life) are seen in terms

of, or by way of, an ‘as in nature’ analogy. It is also of interest that the expression “so to speak” is inserted to qualify the claim made. This meta-comment implies that the speaker does not intend the utterance to be taken literally but rather as a manner of speaking.

The act of steering presumes intentional choice (to decide where to steer and/or where from to steer), that is, the anthropomorphic notion of human agency (something that has been shown to be fundamental also for Darwin’s own reasoning and terminology, see above). The metaphor of ‘steering’ is also introduced, and refuted, fairly early on by one of the biology groups:

9 A: Actually, it is a bit interesting, that uh when one talks about this global problem, greenhouse effect and that sort of thing, so even if it’s true that species disappear because uh the environment changes and then then there are other species that

10 B: Mm

11 A: That benefit then, and that evolution then, even if we humans steer

12 B: Yes

[---]

13 B: I had a lot of that in my [period of practising as a teacher], we talked about ethology, on the way into the ethology chapter where here, and we talked about genetics, and just this business of getting them to understand that natural selection is not about something that’s steered, evolution doesn’t so to speak have a goal, and it was like, ‘but what, not a goal?’ Well, I said, who was it who sat and threw meteors at the earth, so to speak, nobody decided that that was going to happen or decided that man would do like this, and it’s not a goal

14 A: It was god, huh

15 B: But what we do, huh, well, there are a lot of people who’d really like it to be like this, that it’s so steered, so to speak

16 D: Mm

In turn 11, the student uses the word ‘steer’ to account for human intervention. But a few turns later (turn 13), another student makes a point that evolution (natural selection as) is not “steered”, that is, it is not on its way to a ‘goal state’ (non-purposive). The misunderstanding of talking about natural selection as something happening intentionally and purposefully (i.e., as implied by anthropomorphism and teleology) is pointed to by the student on the basis of experiences gained during a recent period of practising as a teacher in school during the final semester of her education. The student claims that this is an obvious difficulty for pupils trying to learn the theory of evolution. This excerpt is also interesting in the sense that it illustrates how a metaphor can ‘lead in different directions’. The term ‘steer’ implies human actions (turn 11). But then evolution is said not to be “steered” in the sense of not having a goal (turn 13). Finally, in turn 14, God is introduced (somewhat ironically) as a potential actor who could have determined the course of events. Through “steering” and “goal”, a non-purposive process is spoken about as if it were purposive (teleology). But in saying that no-one “decided” (turn 13, and in relation to God, turn 14) a distinction is made between determinism and contingency. In this way, and within the communicative framework established by the steering metaphor, two different issues can be discussed.

One group of biology students also uses the ‘steering’ metaphor when accounting for how to see the question of the relation of religion to the theory of evolution:

- 17 A: That there are so many Christians and Muslims who believe in the theory of evolution
 18 C: Yes
 19 B: Mm
 20 D: Although they think god steers
 21 A: Is behind
 22 D: Yes
 23 B: Yes
 24 A: That's how it is

God (a final purpose) is introduced as an agent who "steers" (turn 20) and "is behind" (turn 21) evolution. Thus, an alternative conception is conceived in terms of the same metaphor, but with a different 'driver'. But the metaphor of 'steering,' in addition to implying anthropomorphism and teleology, also makes it possible to apply a deterministic notion (rather than contingency) as a principle for evolution.

The 'steering' metaphor (which requires someone to actively decide or intend to steer one way rather than another, towards or from somewhere) is in our view anthropomorphic and teleological in nature. These latter forms of metaphor seem to be rather pervasive in the reasoning analysed.

Evolution as Progress

Throughout the empirical material, evolution is talked about as if it were a movement forward, that is, some kind of physical transportation (walk, journey) along a track. One group (Soc) discussing whether evolution is still "going on" or not argues that:

- 25 C: Is evolution going on now too?
 26 A: And it ought to, it, if it heh heh, reasonably speaking, it oughtn't come to a stop
 27 C: No
 28 A: Should it?
 29 B: Why, why not, why?
 30 A: No 'cos we we 'cos people continue to propagate, possibly one could talk about this business of cloning and that we exclude uh already at the foetal stage we exclude children who who seem to be a bit different and so on, what the effects this could have
 31 B: Mm
 32 A: But it's not like it stops an evolution, because it
 33 B: No
 34 A: It does continue but maybe it
 35 B: Changes direction
 36 A: Could be changes as a result
 37 B: Mm
 38 A: Possibly
 39 C: Unforeseen consequences in the future
 40 A: Yes

Evolution as a process that could “come to a stop” is rejected (turns 26 and 32), but it may “change direction” (turn 35). Thus, the direction (towards where it is heading, so to speak) may change by actions performed by humans (turn 36). Turns 30 and 39 point to evolution as being contingent and not predetermined (cf. above).

The stepwise or journey metaphor for evolution may also be invoked when discussing objections to the theory (Bio):

41 C: Because are there any scientific objections?

42 A: Don't know, but something else, another objection they have, I guess it's that there aren't any intermediate steps

43 C: Exactly

44 A: That there are

45 C: You (inaudible) missing links and

46 A: Yes, that they haven't found fossils from

47 C: Yes

48 A: All the periods perhaps

49 D: Mm

50 A: Or not enough of them, then

51 C: Mm

52 A: That's an objection, I guess

53 C: Uh exactly (Bio)

The lack of fossil remains for some geological periods is spoken about in terms of “that there aren't any intermediate steps” (turn 42) – in the metaphor of evolution as progression (cf. Darwin, 1859; Pramling, 2009). (The metaphor of “missing links” [turn 45] – in ‘the great chain of being’ – is also used.)

Among the students, it is not only that evolution is seen as a progression or movement forward along a track, but also the place of humans is spoken of in these terms. For example, in discussing the theory, it is argued in one group (Hom):

54 C: Although I don't actually think that's quite true of humans

55 B: No-no, but

56 D: In that society

57 B: That's the theory, the theory of evolution

58 C: Yes

59 B: Isn't it?

60 C: Mm, but I think humans have taken a step away from that just a little bit since we have medical care, which the animals on the savannah or the chaffinch in the tree don't have, do they?

61 B: No

Through human inventions, we are said to have “taken a step away from that just a little bit” (turn 60). Thus, we do not fully belong there, that is in nature, or in (the theory of) evolution, any longer.

The process of evolution as a journey towards a goal (i.e., as a directed or steered process, even if the particular metaphor of ‘steering’ is not used here) also appears in the

following excerpt, when the members of one group (Bio) discuss whether evolution is still going on or if it has come to a halt:

62 C: But of course it is

63 A: Sure it does, purely biologically speaking, you could say that it's going on all the time

64 C: Mm

[---]

69 D: (?) necessarily has to continue? Maybe we've changed so much that sort of everything dies and then there's no evolution at all, heh

70 B: No

71 C: Although I think this is a process, we are a process in evolution

72 B: Mm

73 C: So I think, like, that one can't say that we've come and destroyed evolution, 'cos evolu, if if if evolution doesn't have a goal, then it can't be destroyed, that's my idea, just this business of, does something not have a goal, then you can't disrupt the journey towards the goal

74 D: Mm

75 C: In some way, so we go on doing our thing then maybe our actions have consequences for evolution

76 D: Mm

77 C: But that doesn't have to mean that we've destroyed it because of that, I don't think so

78 A: That can't happen surely?

79 C: No

80 A: That's if one blows up

81 C: Ha ha

82 A: The whole planet so that nothing survives, then that's the end of the story, but

83 C: 'Cos maybe one

84 A: As soon as there's something that survives, then obviously it develops

85 C: Uh exactly

In turn 71, student C argues that "we are a process in evolution", and that "if evolution doesn't have a goal then it can't be destroyed" (turn 73), and "does something not have a goal, then you can't disrupt the journey towards the goal" (turn 73). She makes explicit that the metaphor of evolution as a journey (or progression) towards a goal is misleading, and in this sense she points to a problematic feature of the metaphoric of the terms used.

Struggle for Existence, and Other Teleology Metaphors

A group of students (Bio), when discussing the theory of evolution and the difficulties that pupils may have in understanding it, comment in the following manner:

86 B: They got so, they got so upset when you said to them that it doesn't have any goal, it could end up anywhere

87 D: 'Cos I guess was, in the pr... too, during the practice period[Swedish: "praktiken", i.e., a period of practising as a teacher] they brought up, so there are very many people who hold the view that, well, why are there wasps? Is it just because they're supposed to sting us, or why are there ticks?

88 B: Mm

89 D: Just to make life difficult for humans

90 B: Mm

91 D: 'Cos everything has to have a purpose

92 A: Mm

93 B: Mm

94 D: In nature

95 A: Mm

96 D: It is, and maybe it doesn't have it and instead their purpose is to multiply

97 A: Mm

98 D: And have offspring, and

99 C: Mm

100 D: Survive

101 C: But just the fact that everything should revolve round us

102 D: Yes, that's also this fixation they have

103 A: Yes

Here, the common conception of evolution, as well as of all creatures, as having a "purpose" is first made explicit (turn 91) and then refuted (turn 96). At the same time, the difficulty of avoiding teleological metaphors is illustrated (in turn 96) through the use of "purpose" by the student (as "their purpose is to multiply", "and have offspring", and "survive"). Hence, the same metaphor ('purpose') is used in accounting for a misunderstanding as well as for the proposed alternative notion. Turn 86 also points to evolution as contingent and not predetermined.

When discussing the theory in one group (Soc), the argumentation goes as follows:

104 A: Yeah, also have to think about how this should be tackled, I eh, but what it means is, I guess, that that eh species change and eh

105 B: I think that one they

106 A: Develop

107 B: (?) for themselves

108 A: And become other

109 B: That they're very egoistic

110 A: What? Heh heh

111 B: Okay

112 A: What what?

113 B: That they're egoistic, that's why, I mean, like giraffes, if I take giraffes as

114 A: Yeah

115 B: Example, that they made sure that their species could survive

116 A: Although it sounds like it's conscious, that it's like this, now now look here guys, let's go and get a bit longer necks

117 B: Well, I don't know

- 118 A: Heh
 119 B: Whether it was conscious or not
 120 C: I guess humans can be egoistic, maybe, but animals are probably more um
 121 A: I don't understand what what heh
 122 C: Heh, no if you were going to talk about
 123 A: But the theory of evolution is, I suppose, um, sometimes random or not, I suppose mutations occur like, uh, a, I don't know, a gazelle is running on the savannah and then suddenly it gets, uh, a litter of young ones, some of which have a bit longer neck, let's say, and then it turns out that uh, they're very attractive to the females
 124 B: Yes, yes
 125 A: Or the males
 126 C: Mm
 127 A: And or more likely like this, they survive better 'cos they get hold of food better and that's why some sort of natural process takes place, that those of them without a longer neck, they they kick the bucket or develop in some other direction
 128 C: Mm
 129 A: 'Cos maybe they get better, I don't know, legs, huh, haven't a clue
 130 C: Mm
 131 A: But adapting in that way, in the way animals adapt to
 132 B: Nature
 133 C: The environment
 134 A: Circumstances
 135 C: Yeah
 136 A: So that they are able
 137 B: Mm
 138 A: Or like those grasshoppers that look exactly like what they're sitting on so that, mm, well they can avoid being killed, that must be what's

In this long discussion, the anthropomorphic notion of "egoistic" (turn 109) is introduced but refuted (in turn 116) as "it sounds like it's conscious." Then, instead of such a purposive category, the concept of "random" is introduced (turn 123). In this manner, "animals adapt to nature", "the environment", "circumstances" (turns 131-134). However, (in turns 136 and 138), the teleological notion of "so that" (as purposive) is reintroduced (in order to survive, "so that, mm, well they can avoid being killed").

When discussing how evolution takes place, the members of group (Hom) argue:

- 139 D: Survival of the fittest
 140 A: One is specialized in certain things
 141 C: Yeah, ah
 142 A: Mm
 143 C: But if one uh
 144 A: Maybe Eskimos develop a certain type of eyes, then, just because the sunlight is so strong up there and
 145 C: Mm
 146 A: Thick skin, then, in order to stand the cold and
 147 C: Mm

- 148 D: Mm, 'cos those who have it manage better
 149 C: Yes, exactly
 150 A: And then they survive
 151 C: A question of survival
 152 A: Species that don't have it become extinct
 153 C: Yes (Hom)

Evolution is spoken of as shown by the fact that “one is specialized in certain things” (turn 140). But then a teleological “in order to” argument is given (turn 146). But when concluding this discussion, a statement contradicting the latter mode of reasoning is given: “Mm, 'cos those who have it manage better” (turn 148) – which may be seen as the opposite to the “in order to” reasoning in the previous turns (as purposive aiming, “in order to stand the cold”).

These kinds of ambiguities are often apparent when reasoning in terms of ‘adaptation.’ Consider as an example the following. A group (Soc), having touched upon how the theory of evolution ‘has been put to improper use’ (as in ‘Social Darwinism’), goes on:

- 154 B: That's why I think it's better if we focus on this business of adaptation in development
 155 A: Mm
 156 B: That it's a way of becoming adapted
 157 A: Mm
 158 B: To the environment or
 159 A: Mm
 160 B: Uh developing skills that enable one
 161 A: Mm
 162 B: Doesn't necessarily mean that one is strong in the normative way, rather, it's a creative and inventive feature
 163 A: Mm
 164 B: Of every living thing in some way
 165 D: Mm

Note how first development is phrased as “that it's a way of becoming adapted” [rather than saying “to adapt oneself”] (turn 156) “to the environment” (turn 158). But then this is further explicated as “developing skills that enable one” (turn 160), and that it is “a creative and inventive feature” (turn 162). Thus, the reasoning ends with an idea of development and adaptation as something one does, as activities.

Geological Time, Difficulties in Understanding, and Meta-Communicative Markers

In discussing the theory of evolution, a metaphor for geological time is introduced (Hom):

- 166 D: You do have to in some way so I agree, now the focus is so short term
167 B: Yes
168 D: Just because one places it in a human perspective
169 A: Mm
170 D: But I mean that we're only a a little, have only been here a little little short short short short short time
171 A: Mm
172 D: I mean, what was it they said about this before, something like the train slowing to a stop, if you start in northern Norway and travelled farthest down in Southern Sweden, then slowing to a stop at the platform was more or less man's time on earth, sort of as if it starts as a journey
173 A: Mm
174 C: Mm
175 D: In Narvik or something
176 A: Ye-es okay
177 C: Well, it's a good simile
178 D: Well, I mean it's sort of like that
179 A: Mm
180 D: It's such a short perspective
181 A: Yes no that's true
182 D: So
183 A: It depends on what perspective you have a little bit really

The students spontaneously introduce a metaphor when accounting for the vast time span of evolution on earth, made explicit as a "simile" (turn 177; note also the markers, "was more or less", whereby this reasoning is performed in turn 172). Time as a distance is also implied in "the focus is so short term" (turn 166) and "little little short short short short short time" (turn 170).

In another group, this issue of how to make sense of geological time is raised as something that is important for their future work as biology teachers:

- 184 B: I guess it might be important and and getting pupils to understand it also that it passes extremely slowly
185 D: Mm
186 A: Mm
187 B: That evolution, so to speak, doesn't have
188 D: Mm, 'cos that's what's difficult to understand, there in some way
189 A: Ye-es, yes but just for that reason I sort of think that example is pretty good when one says that we have lived, that mankind has existed
190 C: Mm
191 D: Mm
192 A: Only sort of for
193 C: Mm
194 A: Like a uh few seconds
195 C: Yes
196 B: Yes

197 A: Of a whole day

198 D: Yes

199 A: It's almost easiest to understand, 'cos, I mean, several billion years, it doesn't mean anything to them, 'cos they

200 C: No

201 A: I mean, they can't imagine how much that is (Bio)

Explaining to pupils the slowness of the evolutionary process is mentioned as an important point in teaching the theory (turn 184), "'cos that's what's difficult to understand" (turn 188). And "just for that reason I sort of think that example is pretty good when one says that we have lived, that mankind has existed" (turn 189) "only sort of for" (turn 192) "like a uh few seconds" (turn 194) "of a whole day" (turn 197). To just state that evolution is a matter of "several billion years, it doesn't mean anything to them" (turn 199). Information of this kind is held to be hard to comprehend for pupils. The conventional metaphor of life on Earth as a day (and its implication of human life as a few seconds) is explicitly pointed to as a resource for making sense of something that is otherwise too abstract (turns 189-197).

The problem of 'seeing' evolution is thematized and emphasized by several groups. For example (Bio):

202 E: It goes fast in some way, you don't have time to actually see, or you

203 A: But

204 E: It goes quickly, this business with evolution, so to speak

205 A: Isn't it the opposite, that we we can't see the changes that

206 E: No

207 A: Evolution works so slowly

208 C: Mm

209 E: Exactly, what I, perhaps I sort of mean the same thing

210 A: Yes

211 E: In that way

212 A: Yes (Bio)

Evolutionary change as a process that is not visible is talked of in terms of it "goes fast in some way, you don't have time to actually see" (turn 202) or, in the opposite direction it is argued that "evolution works so slowly" (turn 207). The invisibility is thus spoken of in terms of the speed whereby it "works" (turn 207).

CONCLUSION

The metaphors that appear in the reasoning of the students are: (a) a steering metaphor (a particular instance of the more encompassing category of anthropomorphic metaphor) to account for human activities but also more generally for change, (b) evolution and change as motion forward, and (c) geological time as spatial and visual (making evolution intelligible and possible to gain some understanding of). In addition, we have seen how these

metaphorical constructions are presented as problematic by the students themselves by using various meta-communicative markers.

As noted in the results section, a certain kind of metaphorical speech, so-called anthropomorphic speech (cf. Halldén, 1998; Thulin & Pramling, 2009), constitutes something of a meta-language in the teacher students' reasoning about evolution. This kind of metaphor is closely related to so-called teleological reasoning, that is, reasoning about non-purposive processes as if they were purposive and goal-oriented (intentional). These metaphors and others, such as the steering metaphor used by the teacher students, may all be seen as constituents of what Bruner (2006) has referred to as a 'narrative mode of reasoning', which he contrasts with a 'paradigmatic' or scientific one. The metaphors of this narrative mode in this case represent evolutionary processes in terms of events and their actors. Hence, the abstract and highly complex process of evolution through these metaphors is grounded in human-like activities. To resort to what Bruner refers to as a narrative mode is frequent in human sense-making in general, not only when it comes to describing matters of science and nature. However, this mode of reasoning is at odds with scientific explanations that tend to avoid human-like intentional actions as basis for explanations. It seems as if it is inherently difficult for us to reason 'in a passive voice', where no-one does anything actively and intentionally (Pramling & Säljö, 2007). Using some form of human agency as a base-line, we make sense of the world in terms of linguistic constructions that invoke agents and their goals as part of the narrative (Lakoff & Johnson, 1980; cf. Al-Zahrani, 2008).

A metaphor does not have one, pre-defined meaning. Rather, it may be 'open' and invite different kinds of interpretations on the part of a listener/reader. We attempted to show this by using the example of the 'steering' metaphor. 'Steering' is used by the students in conversations when distinguishing between teleology and non-purposiveness, on the one hand, but also between contingency and determinism, on the other hand. This openness or multi-functionality of the metaphor makes it a fruitful resource or tool for communicating and understanding. This also illustrates the importance of analysing metaphors in use in conversations and not simply single-out the metaphors as such and try to determine their semantic fields.

The teacher students in the present study may or may not master the theory (in a strict scientific sense – to assess this is not the purpose of this study), but they repeatedly, though not consistently, show by means of various meta-communicative markers (Goatly, 1997) that they do not take or intend their explanations always to be taken literally.

Of course, many metaphors and metaphorical expressions are so to speak already inscribed as conventional (hence, not understood as metaphors) in our language. There is a general metaphorical aspect or quality to our language. Thus, in some cases the students may be seen to be reasoning in terms of the metaphors of everyday language, without seeing these as metaphorical. This may serve as a small reminder of the fundamental difficulty of reasoning contrary to the perspectives 'inscribed' in our everyday language. This realization also testifies to the importance of analysing whether, and if so, how, speakers themselves, individually or collectively, meta-communicate their 'take' on the matter at hand. As seen in this study, the teacher students use many 'markers' to signal a non-literal, communicative intent. Phrased differently, this points to the importance of analysing not only learners reasoning *in* metaphorical terms but also their comments *about* these terms and expressions as elements of their struggles to understand concepts and theories.

In relation to what has been shown in previous analyses of Darwin's own reasoning in the *Origin* (see above; Al-Zahrani, 2008; Campbell, 1997; Pramling, 2009; Young, 1971), the present analysis shows how the teacher students (whether biology teachers or not) face analogous difficulties when communicating about evolutionary processes. Hence, reasoning in terms of metaphors is not a matter of misunderstanding or being misinformed. Rather, to use metaphors is necessary since the teacher students, as did Darwin, are speaking about what cannot in a simple sense be pointed at and observed as such; the phenomenon in question has to be inferred from specific assumptions and a rich array of observations.

The observations made here on how students (and scholars!) observe and struggle with the metaphorical nature of concepts testify to the complexity of appropriating, or interiorizing (Psaltis, Duveen & Perret-Clermont, 2009), scientific principles. Concepts and linguistic resources cannot be taken over through direct definitions only, rather they have to be explored over time and in different communicative activities and projects; in Dewey's (1966) terminology we have to develop new "intellectual habits" to be consistent in our use of such tools. There are deep-seated assumptions in our everyday language which seem to play a dual role in the sense that they are necessary for understanding scientific principles and modes of arguing, while at the same time they make us relapse into anthropomorphism. As we have argued, anthropomorphic or other kinds of metaphors are not problematic in and of themselves. Relating observable and non-observable phenomena to human activities is a basic form of human understanding. It is only when we do not consider the implications of the metaphors, for instance in terms of assumptions of cause and effect, that it becomes problematic.

When scrutinizing how the students struggle with their sense of language and its metaphorical qualities in the quotes above, we can, following Psaltis, Duveen and Perret-Clermont (2009, p. 306) observe changing forms of reflexivity. In several instances, there is a) a non-reflective use of metaphors, b) a becoming-reflective use, where some of the loopholes, as it were, of metaphors are noticed and commented upon, and c) a reflective use where the metaphorical qualities somehow are seen as relevant and valuable approximations of what one wants to say. In the latter case, some of the metaphorical components, metaphorically speaking, are under conscious control by the speaker and provide resources for sense-making.

Scientific theorizing of the kind represented by evolutionary theory thus requires that students learn more than formal definitions of concepts. They also have to be able to put concepts to use in discussions, where they try them out and where they can observe, and learn from, the responses they receive from their interlocutors. Through encountering concepts as parts of various forms of argumentation and different "language games" (Wittgenstein, 1953), students will be able to grasp the tensions between metaphors and what they refer to in context. Such meta-awareness of how concepts and expressions are used in various circumstances is an important resource for instructional work.

Even if not all these teacher students will be teaching evolutionary theory, they will all, as teachers, have to handle and meta-communicate the issue of the 'gap' or 'glitch' between the tools of our knowing (our representations) and what they refer to. This issue is not specific to evolutionary theory or even to science. Rather, it is to varying degrees a feature of all human knowing that is contingent upon symbolic mediation such as language.

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Chapter 8

VARIATIONS ON THE ENIGMA OF SAMENESS

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ABSTRACT

There is something truly paradoxical about the statement that A is the same as B because if that were really the case then why would we still need to say first that A is A, and not B, and that B is B, and not A. In other words, why do we need to first distinguish A from B before we can say that they are the same. I could go back now to centuries of logic and mathematics to see if there is a convenient answer to this inconvenient question but I will not. I will walk my own way, intuitively and without any preconception, and see where I end up. I invite you to come with me.

INTRODUCTION

I will start my adventurous journey in a helicopter, which I often conjure up in my imagination just before falling asleep. At take off, I only see dust and leaves, but as I climb higher, I can suddenly see the big flat rock that I took off from. I see more and more of these flat rocks until suddenly I can't see any more rocks but instead, a complete mountain. Now I can see more mountains like these and then the whole continent then the entire earth, more planets, and galaxies, until finally I can see the entire universe. At least I think it is the entire universe because to see the entire universe, I would need to fly above it and where on earth could that be? I would need to see myself, because if I do not see myself, looking at the entire universe, I cannot see the entire universe. But how is that possible, watching and being watched at the same time. I wonder if Kurt Gödel also had his own helicopter. But the adventure is not over yet. I dispose of a memory, and while flying upward, I can remember all the steps below me, and, thus, fly back, so to speak, in no time, and, with the photoshop of my brain, see rocks and mountains at the same time, or A and B, which, although being different, appear the same, but then from a higher perspective, or one in which I am far and close at the same time. Far and close, however, in this story, is up and down, but if I were sir

Edwin A. Abbott, who lived in a two-dimensional country, called Flatland, where ladies are needles, soldiers are triangles, and professors are squares, far and close would not be up and down, but just the distance on a plane. Getting too close to a lady would either be painful, if you hit her on the point, or sweet, if you hit her on the side.

The helicopter, however, is not my only dream transport. I also have an excavator, you know, that noisy apparatus that is often used in countries like Switzerland to dig tunnels. I imagine it getting smaller while I dig, but never so small that it can no longer contain me as I watch and report what I see. So, I start digging in the rock, and find smaller and smaller rocks until there are no more rocks. Instead there are other 'things' that I cannot call things anymore. They seem like sirens seductively singing, and although I am not sure what they are, there are many of them. Finally I cannot dig any further because each time I want to dig further, the 'thing', or siren, does not allow me to penetrate the rock and backs off. I can feel the bump, hear the scream, but do not see any more movement. What is going on? Would looking at the universe from heaven have the same effect? Are there creatures outside the universe who try to describe us but only feel the bump, or hear the scream, but do not know where we are going? I am puzzled but the thing that counts here is that there is the same movement going on, just in the opposite direction; first the whole and then the plenitude of things within the whole, and because I have photoshop in my brain, I can see them both at the same time: A is not B, and yet they are the same!

Now I would like to take you to Paris, back in time to 1976, to attend the World Congress of Psychology, presided at the time by Jean Piaget. We enter a lecture hall at the Sorbonne, and are greeted by an 'exposé' featuring children and their observations. They do not realize that the same amount of water in two equal glasses, when poured in different glasses, a low broad one, and a tall thin one, is still the same. They typically say that there is more in the tall thin one, even though, when poured back in the original glasses, they can see that it is the same again. But think of this as magic, not as a law of nature, or any other such 'obvious' explanation. It is no problem to make them 'say' it is the same, because if you promise them a good grade for doing so, they immediately do. However, if you ask them which glass they want to drink from, especially when they are thirsty, they may prefer the thin tall one again, or cannot generalize to other domains, in which 'the obvious' can be applied as well. Another example of this is two tennis balls made of clay, which 'obviously' contain the same amount of clay, but which, when 'reformed' into the shape of a sausage and a pancake, do not seem to have the same amount of clay anymore. Instead, there seems to be more clay in one form, say the sausage, than in the other form, but it could just as well be the opposite. I suddenly wonder now, why the Reformation, which is often said to be something entirely different from the past, is not seen as the same in a different form. In the Middle Ages, the word 'reform' simply meant 'to go back to the original'. The stunning point, however, that was made at the exposé at the Sorbonne, was that when children solve the problem of 'conservation' (this is the word that Piaget had coined to describe the ability to see 'the same' in different forms) together, in pairs, there is a good chance that, afterwards, they can also 'do it' themselves, alone. This is not because they simply imitate their collective solution but instead, it is because they 'understand' it (because, indeed, they can generalize to pancakes, or whatever other 'Reformation'-task). I will not go into all of the details of that 'finding' now because, as usual at the Sorbonne, there is a lot more to say about what was found and even about what was said about what was found. However, let me tell you about two things that happened at that moment, which really changed my career and life. Namely first, I met Anne-

Nelly Perret-Clermont because the exposé was largely based on her thesis, and, second, I was suddenly confronted again, in a 'different form', with an issue that had already been bothering me for at least a decade. This issue lies in the social comparison between Self and Other, and unfolds because first we need to declare that Self and Other are not the same because Self is Self and not Other, and Other is Other and not Self, and then suddenly that they are the same anyway, namely People, and not animals, or not rocks.

I need to take a shortcut now because otherwise we will have to travel for too long and the publisher will not invite me to dinner anymore. So, let's do it, and I hope you will follow. There was something that struck me at the exposé, something that was being defended by the protagonists (which was not only Anne-Nelly Perret-Clermont, but also her colleagues at the University of Geneva, such as Gabriel Mugny, and Willem Doise). It was that 'meaning' is not a product of a single individual, a kind of Ego-solo, born and raised in a private operational interaction with the surrounding world (a picture that has long been held in cognitive psychology, where the focus is on studying the brain and how it works), but instead, it is something that is produced together with other 'subjects', other Ego's, which, seen from my own Ego-istic standpoint, I simply call 'Alters' (other subjects, with whom I, as Ego, interact and produce meaning). There is not something that I can 'mean' if I cannot point my finger at something and coordinate my intentions with those of other subjects, Alters, and so, together they form a 'meant' world called 'meaning' (I would like to divert your attention to the fact that the word 'Alter' in German means parent, which, ontogenetically, is obviously the first 'Alter'). Thus, meaning is not a 'thing', with length and time, or weight, but a virtual world, produced by being together at a distance, and yet coming close by pointing a finger at it (or what stands for our finger, such as words, once we learned to codify our finger movements, and the implied pattern of coordination, in lexical codes). It suddenly occurred to me that meaning is like stepping into a helicopter; we cannot mean if we privately stick to the world or in other words, if we do not detach, and do not enter into a collective world, so that, by looking from above (or from far if you wish), we can coordinate what is otherwise totally private, and, thus, not carry any meaning at all. That is (unless we declare that resonance also has meaning. What I mean is the resonance that occurs when one string vibrates with the other or when one stone falls exactly as Newton described it but in both cases, it has no understanding whatsoever of what is going on. It, the string or the stone, has no form to communicate it to fellow strings or fellow stones, or in other words, leave the resonance and talk about it with fellow 'subject-things'.

In the intellectual world in which Anne-Nelly Perret-Clermont later developed these insights further in great detail and in many directions, this is called intersubjectivity. The word intersubjectivity, however, is not new in the world of social psychology but has rarely been understood fully in the way she meant it. In fact, traditional social psychologists, like Festinger, used the word often but used it in what I have called the secondary use of the word intersubjective; namely the way in which individual subjects come first and seem to construct the meaning of the world totally individually but then, when they fail to see everything as it really is, or make errors, they have the need to communicate in order to restore the feeling of objectivity. In this secondary use, the Ego-solo is still the Angelic starting point and 'intersubjective' is something that only happens when the Angelic Ego-solo's are 'en panne', or have become 'fallen Angles'. In the primary social view of meaning, however, the meaning making interaction between subjects happens first, and, then, because of internalization, can reappear as if it were an individual discovery of the surrounding world.

But actually, this reappearance is simply a reflection of the orchestra of people who coordinated their activities first. For example, the fact that the Berliner Philharmonic can be heard on a single hard disc does not establish the fact that it is a single instrument. It is still an orchestra made of many individually instruments playing together. It is my brain, a single machine, just like a hard disc, that can play the orchestra of my social world. Thus, I can reproduce words as concepts and then start a discussion again with other people, who also form sentences and create narratives with their own logic. This is because the narratives follow a certain genre in which the underlying logic, the 'if this, then that' if you like, becomes obvious not because the world dictates it to be like that but because the discourse makes it feel like that. And given these narratives, I can think again with stories in my brain and therefor start a new discussion with endless combinations none of them devoid of their social origin, but hard to trace, just like the Bridge over the River Quai which actually started with the Big Bang, we say, but hard to trace back exactly.

Let me now go back to my own serious problem of saying that Self is not the Other, and Other not Self, but still, that, seen from a certain distance, they can be compared with one another, or, in other words, can be said to be the same. My problem is the following: when flying higher and higher in my helicopter, which has now become the interaction with another subject, or Alter, I cannot distance myself from my Self in the same way that I can distance myself from the Other. This is to say that in the dreamlike language of my adventurous journey, I cannot see Self and Other as two totally equivalent rocks in one mountain because whatever I do, it seems that the rock I took off from needs to be seen as distinct in comparison to the other one, or the one I did not take off from. It seems that there is a rubber link to my original platform, or an umbilical cord connection that, even after cutting it, tells me that this is the place that I took off from making me to name it or think of it as mine. After all, the rock that I took off from, and that I call Self, has to be seen as linked to me as a subject, to Ego, because if it were not so, why would I call it Self, and not Other. And if Other was connected to me as a subject, as a pilot of my observatory helicopter, in the same way as Self, why would I call it Other, and not Self? There is a reason and the reason is simply that of ownership. Self, by definition, is the rock that is linked to or owned by the pilot, or Ego, and Other, by definition, is that rock that is not linked to the pilot in such a way. And in terms of creating meaning, we can only fly in such a helicopter with Alters who share that relationship. Not surprisingly, then, the first Alter with whom such a flight is possible is a parent, a mother., and later on, by people who take a similar stance, or are willing to share ownership with me of the rock, called 'Self'. The unavoidable consequence of this is that comparing Self with Other is by definition a preference (i.e., making a difference with the tendency to appropriate one element, Self, more than the other, Other). Saying that A is not B before saying that they are the same resorts to saying that A is dearer to me than B. We all have two worlds then; the helicopter from which I am observing the world, which, is in fact not a helicopter but the interaction between Ego, the pilot, and the Alters, or the other subjects with whom I coordinated my intentions; and the world that I am observing, which is not rock A and rock B in a mountain, but Self versus Other in a world of comparable people. This latter comparison, however, is a preference. The Alters who share my connected vision on Self, or preference for Self, are my friends, and those who do the opposite, that is prefer the Other instead of Self, are my enemies. Preferring Self above the Other is called competition. Competition is always based on love or friendship. Without Alters who share my preference for Self, there is no helicopter, and comparison, or competition is impossible. Who would

have said this before: Without loving Alters (i.e., one might say: without parents who take my side, if only to let me get born), I would not have a rock that I call my beloved Self, or one I prefer to live with, more than with the Other (I better do, because the latter is by definition impossible, or I would not call it the Other anymore, but Self).

Well, dear reader, if you have gotten dizzy from all of these new words and connections, please take a breath because there is something more to come. The point is that to know Self and Other, we need something in between the helicopter and the rock, something to see, a medium. In the case of Self and Other, the medium is what I call social characteristics, such as the body, the behavior, possessions, or the groups to which people belong and are identified with. Thus, for example, I can see that the rock is mine, is Self, because I can see and feel my own body and see that your body is not mine. One simple difference is that when I leave the room, my own body, or Self, goes with me, and your body, or Other, simply stays where it is. Thus, there is a difference and one that cannot be mistaken. It is the link between Ego and my body that makes it Self, and not the Other. And so is my behaviour, I speak and act and Alters share with me the idea that this tells something about my character and ability while your words and actions tell something about you, not me. The same goes for our individual possessions, the groups we individually belong to. For example, people might call me a man, a professor, Belgian, etc., and perhaps they might call you a woman, a Swiss, a student. With this categorization comes certain implications about me, Self, and about you, Other, as well. And all these inferences, derived from body, behavior, possessions, and categorization, have to end in a preference for Self above the Other. And Alters have to agree with this because if they don't, they must be wrong, and if they do, they must be right. This, in simple words, is what we call social justice (i.e., being right or 'just' about what differentiates Self from Other in a way that I can live with, and this means: in which I can say: OK, I prefer to live with myself, rather than with the Other, because I have no other choice).

I have been writing about this schema of social construction of social comparison in many ways and many places in my life, but probably most of all in texts that are connected to this wonderful place of Neuchatel. I still remember the small office, overlooking the Lac of Neuchatel, from where I could see the Alps, and where I once wrote a paper in one and a half days. After locking the doors of the department (because I was given the key), and walking home well after midnight, I had a good sleep in the hotel nearby. The next morning I told Anne-Nelly, and Michele Grossen, who were both in Neuchatel during that same period as well, that 'it' was finished. If you want to read one of these 'local' products in more detail, I would suggest that you read a paper that was published in the Neuchatel series of the Department, entitled 'The social construction of social comparison. Theory and Empirical Illustrations' (Neuchatel, 2005).

Let me now indulge a little bit more in this wonderful observation that the enigma of sameness of two different things, one Self, and one the Other, is, by definition, a preference. I have played with that idea in what we might call mathematical terms and have come to the conclusion that it can actually serve as the very basis of an idea that was later coined, in behavioural economics, as the idea of 'motivational asymmetry'. This idea is often called 'losses loom larger than gains', and it simply means that the motivational value of outcomes on a balance is not linear and symmetrical, but non-linear and asymmetrical, or an outcome on the loss-side is heavier than the same outcome on the gain-side. Or to say it even more simply: when you lose 1 euro, you feel more unhappy than you feel happy when you gain 1

euro. Well, you may not believe it, but a purely formal treatment of the idea that Self is more own to Ego than the Other, and, therefore, is by definition preferred above the Other, leads to exactly the same conclusion. Let me show you briefly (at the risk of being too sketchy) how this works. As I explained to you, the act of comparison implies that Self and Other are considered totally different and e totally similar at the same time. Having said this, totally different in the case of Self means totally superior because Self is by definition own to Ego, or in other words, difference becomes preference. When you combine these two psychological tendencies, reduction to total equality, and reduction to total superiority, at the same time, you get a tendency toward 'somewhat better than the Other', or say halfway between equal and complete superiority. The further below that point, the more pressure to change upward, and the further above that point, the more pressure to change downward. But since that point is not located in the middle, but somewhat above it, there is obviously more pressure upward on the downward side than on the upward side, and this gives the inequality about which I just spoke. We can make this even more complicated by weighting these pressures with the degree of comparability (which is 100% in the middle, and goes down to 0% at the very end of the scale, namely at very superior and very inferior, for reasons that I have no space to explain here), but that does not really change the conclusion, it makes it only more elegant and intriguing. But the point that needs to be made, namely that the famous dictum 'what is below the standard of comparison, or loss, is motivationally stronger than what is above the standard of comparison, or gain', follows directly from this simple model, namely that comparison is rendering equal and different at the same time, but when different means 'positive' (which is by definition the case for Self relative to Other, but also for present outcome relative to prior outcome, called gain), the outcomes below the middle are 'heavier' (i.e., loom larger) than outcomes above the middle; so simple, so obvious. It simply follows from the very definition of gain or loss, namely an outcome which, in comparison with a previous outcome, is above or below what was, and gain is by definition above, not below. Just repeat what you say in formal language, and the asymmetry pops up, simply and smoothly, as a Phoenix from the clouds.

And let me come home now, back to Neuchatel, and share with you an unresolved enigma, at least unresolved for myself. I once Two children worked on the problem of conservation, which I referred to above. One child, called C, already understood that an amount of water, poured from one glass into a different glass, does not change, whereas, the other child, called NC, had not yet reached this understanding. They were given the task of dividing water equally between themselves, but in one condition, called apparent advantage, the NC child was given the tall thin glass, and the C child the low broad glass, and in another condition, called the apparent disadvantage, just the opposite. Now, you immediately understand why one condition is called 'apparent advantage', and the other 'apparent disadvantage', because it is clear that the C child will propose pouring water to a higher level in the tall thin glass than in the low broad glass, which, when the NC child has the tall thin glass, creates the illusion of having 'more'. But, when the NC child has the low broad glass, creates the illusion of having 'less'. Then, a week after solving this problem to consensus, the NC children are tested again, but with glasses which are said to 'not' belong to anybody, but which are just put in the middle of the table, as neutral devices. The children perform the conservation task better after having participated in the apparent advantage condition than in the apparent disadvantage condition. However, if this test is done in a different way, namely again with glasses which are said to 'belong to somebody', one to the original NC child, and

one to another child, then the result is just the opposite: those who have participated in the apparent disadvantage condition do it better than those who have participated in the apparent advantage condition. This is published in a chapter in a book that was edited by Anne-Nelly Perret-Clermont and Michel Nicolet in 1988, entitled 'Interagir et Connaitre', and which, until today does not have an adequate, at least in my opinion, solution. Children who have learned to coordinate their meaning-making activities with other children in a way that they see that despite a difference in form, they can actually have the same, but have done this in a situation in which they first thought that they had an advantage, but later accepted that they did not, can apply this better afterwards in impersonal circumstances, but when they first had to overcome an apparent disadvantage, by seeing later that, in fact, it was not a disadvantage, can apply this better afterwards in personal circumstances. Overcoming the apparent disadvantage seems to create an advantage when applying logic to the world that teases you to be Self-involved again, but shouldn't. Why? I don't know, yet. One of these teasing variations on the enigma of sameness. I am overlooking the lake of Neuchatel, listening to one of Elgar's Enigma Variations, Nimrod, and musing: *Ou sont les neiges d'antan?*

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**PART IV: THE HISTORICITY OF KNOWING
AND THINKING**

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Chapter 9

**AUTHORITATIVE OR AUTHORITARIAN VOICES
IN TRADITIONAL DYADIC LEARNING
IN JEWISH INSTITUTIONS**

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Yeshivas are the institutions of traditional learning in Jewish education. One of the most common practices in Yeshivas is the *Chavruta* learning – the dyadic learning of Talmudic texts by students with equal status. Talmudic texts are sources that contain highly critical written discussions among Sages (in which agreements are often not reached) and interpretations of these discussions. The discussions are very often about legal issues and have implications on the ways observant Jews should behave in their daily life. Learning in Yeshivas has been targeted in the past to elite adolescents and young students until the fifties of the 20th century. It has become a common practice among young believers of the general population of the orthodox Jewry since then. Rabbis in Yeshivas encourage autonomous Chavruta learning and the co-elaboration of interpretations stemming from dialectical processes through dyadic interactions. Yet control over the overt behaviors is strict. In this complex situation, Chavruta discussions blend dialogic, authoritative and authoritarian voices, and the frontier between monologic and dialogic discourse is difficult to draw. Authority is challenged as well as reinforced by the enactment of this practice. I will review nascent research on Yeshiva learning that shows that although the frames of Yeshiva learning in general are based on coercion, they leave considerable freedom for interpretation in Chavruta-dyadic learning. We also show that Yeshiva students are driven by an immersing motivation of the *sense of the worthy* which leaves to them autonomy in their learning. Relevance of these observations to liberal education is discussed.

I have a continuous dialogue with Anne-Nelly Perret-Clermont for 14 years. The beginning of our friendship was quite random. I had asked Lauren Resnick – my mentor in my post-doctoral studies in Pittsburgh, about a quiet place in Europe for spending a sabbatical with a small but high-quality research team. I was interested in informal interaction with researchers, but above all in tranquility for analyzing data I had already collected. She

immediately indicated the name of Anne-Nelly, and told me that my nascent curiosity for socio-cultural studies of learning and development could be largely satisfied there. Anne-Nelly wonderfully welcomed me in Neuchâtel in the fall of 2000 for a six-month sabbatical. Lauren was right: The place was quiet, and the small research team around Anne-Nelly breathed the Piagetian tradition and the crucial social digressions from it she had initiated with Willem Doise and Gabriel Mugny.

My stay in Neuchâtel was a special experience. My daily promenades around the Lake of Neuchâtel brought me back to the ambiance of Piaget's childhood, and the incessant work done the research team in special settings of Piaget's original tasks gave me the feeling that I was returning to the sources. This had a tremendous impact on my own development since my personal trajectory in developmental and social psychology had been quite erratic up to then. The opportunities were not only intellectual, though. I met very different people from extremely different cultures. This is of course a current characteristic of most Western societies – especially in research teams, but in the research group that Anne-Nelly led, multiculturalism not only characterized the composition of the group, but the object of many of the studies. More importantly, multiculturalism was felt by all as an asset, a richness that enveloped us, that instilled a collective identity to the group. And this multiculturalism did not reflect a comfortable and fashionable attitude but a deep engagement in a moving world. I remember for example Aleksandre (Sacha) Baucal, a young researcher who came from bleeding Serbia. He spoke emotionally about Sarajevo and Belgrade, and shared with us his plans to help organizing a research and pedagogic program in his dismantled country. The dramatic events that happened just then in Israel (the beginning of the insurrection in the Gaza strip that eventually led to Hamas ruling) also became a topic of dialogue. Of course, I was confined to my phone to inquire about my family. People in the group asked me a lot to understand the complexity of the issue. Needless to say, "lonely tranquility" was replaced by friendship and by rich social life. I did not complain!

In this very special context, I also began discussing with Anne-Nelly issues of faith and engagement in the world. She mentioned to me the breathtaking story of one of her friends, the Jesuit Eric de Rosny who decided to go to Douala to help young people in their professional development. She gave me an extraordinary book he wrote, *Les yeux de ma chèvre* (de Rosny, 1981), in which he told the story of a local healer (a *nganga*) who healed people in Cameroun. As a genuine intellectual, the Jesuit documents interactions of patients with the healer, and describes the space he creates for the *désorcellement* of the patient. The climax of the book is the description of the initiation of Eric de Rosny himself which is consecrated by the sacrifice of a goat – consecration which leads to the death of the *nganga*. This step demands from the Jesuit to identify himself with a world one could easily characterize as pagan and animist. His approach was deeply Christian. However, from what I understand from his life, and in spite of the fact that he was a missionary, he interacted with people whose Christianity was not at stake. In *L'espace Thérapeutique*, a book edited by Michele Grossen and Anne-Nelly (Grossen & Perret-Clermont, 1992), the case of a young woman taken care of by a *nganga* is systematically analyzed. Eric de Rosny shows very well that through his interactions with the woman and her family and the use of objects that symbolize their culture, the healer creates a *therapeutic space*. In *Les yeux de ma chèvre*, de Rosny tells the story of his becoming a *nganga* under the initiation of the *nganga* he observed in his activities. This initiation demands from de Rosny an immense intellectual energy. At the same time, it often demands a loss of control that leads the initiated to identify himself

with the to-be-sacrificed goat. This identification eventually consecrates the becoming of de Rosny a healer. For me, the fact that an intellectual could do this leap, which is not only the leap of an anthropologist but of a believer, was important. Hitherto, it had been difficult for me as a modern Jew to identify with texts that dealt with issues of purity and impurity. The scapegoat which was central in Jewish life in ancient times (as a way to realize atonement) by calming Satanic forces, was a topic I had avoided so far. I could not get rid of my incredulity while approaching texts about animal sacrifices. The sincerity of de Rosny contributed to a change in my attitude towards people who identified with the values and practices described in ancient texts.

My on-going dialogue with Anne-Nelly, an *Other* with a very different tradition, brought me to other surprising lands: the understanding of the Swiss versions of the Reformation, the history of the separation between the Church and the State in different cantons, or collective identities in German, French and Italian parts of Switzerland, were among the various topics we discussed. They all echoed our common concerns about present issues in the Middle East. I went outside of my *Self* and felt that our discussions reflected the Hassidic tradition, a tradition which sees in the dialogue an infinity in time and depth. I began then to discuss with Anne-Nelly my first reflections on learning in Yeshivas – the topic of this chapter. Learning in Yeshivas – traditional Jewish institutions for studying religious texts, had been something very intimate for me. I felt that I began unveiling some aspects of my identity that had remained so far out of the academic realm. I had just recorded a series of sessions of Yeshiva learning and brought them to Neuchâtel but the topics discussed, and the texts around which the discussions took place seemed to me so far from Western interest that I did not want a priori to share them with people whose culture was different from mine. I thought that contemplating the breathtaking landscape of the Alpine chains would help in my mediations. Anne-Nelly's breadth of horizons changed my mind. In the dialogues I had with her, I felt what Levinas described as a movement towards an exteriority out of oneself, the fact that she tried to be with me in my aspirations, my hopes, and my intellectual adventures. I understood from her and Eric de Rosny that as a modern Jew, I need to be initiated to practices with which I feel so close and so distant at the same time. This is not only a necessary methodological move but an ontological standpoint. I understood that if my approach is sincere, my experience may turn to highly relevant for many people from different horizons, not only for Jews. And like 14 years ago when I began my dialogue with Anne-Nelly, I would like to invite you, dear reader, to enter into the complex world of traditional learning in Jewish society.

HISTORICAL AND SOCIAL BACKGROUND OF TRADITIONAL LEARNING IN JEWISH SOCIETY

According to Jewish tradition, the Torah was given by God to Moses on Mount Sinai. The Torah includes not only the written law, but also the oral law – the way to interpret the written law in order to act properly in the world. According to the tradition, Moses learned from God the oral law for 40 days and 40 nights, before he descended from the mountain and gave it to his people. Moses' learning became archetypal and turned to one of the central

tenets of the Jewish religion: Learning Torah is a religious commandment to be enacted every day by all.

The Torah includes the written Torah and the oral law. The written Torah consists of the five first books of the Bible, the *Pentateuch*. The oral law consists of the oral traditions transmitted since Moses that interpret the written Torah, or that add new messages that are not alluded to in the written Torah. For many historical and ideological reasons, the oral law is now compiled in a written text, the Talmud. The Talmud includes the Mishna and the Gemara. The Mishna is a very concise text edited at the 3rd century (CE) in the Land of Israel to turn the oral law into a written source, at the time the religious leadership understood the perils of the Exile for Jewish culture. The Gemara was written by the religious leadership in the Babylonian Exile to explain the Mishna. It shows strong features of orality: It mainly includes protocols of discussions around the Mishna among Sages between the 3rd and the 5th century. The discussions include questions, clarifications, agreements, concessions, challenges, refutations and even humorous almost out of topic interjections that characterize informal conversations. The discussions are mostly dialectical as disagreements are frequent and regulated by moves aimed at bridging between conflicting opinions. The protocols of the discussions were edited by Babylonian Academies to serve a legislative goal – to offer decisions about proper conducts in Jewish life, and an educational goal, to provide a model of learning the scriptures. For ultra-orthodox Jews, learning Torah largely means learning the Talmud. Learning the Talmud consists of invoking various conflicting sources claimed by religious authorities, and resolving these divergences as a social activity through argumentative moves. The main characteristics of the Talmudic text are the following:

- Conflicting arguments are attributed to each of the protagonists in the text
- Each protagonist relies on Sages of the Mishna that previously interpreted the text of the Scriptures to infer a law
- Some laws are believed not to have been drawn through interpretations but as Moses' direct legacy received on Mount Sinai
- Protagonists cannot directly oppose Sages of the Mishna but may invoke other Sages of the Mishna with whom they agree to challenge the protagonists that rely on the former Sages
- Discussions in the Talmudic text are dialectical and they often end when one of the parties is no longer capable of countering challenges proposed by his antagonist; Discussions may reveal that disagreements were apparent, as conflicting arguments may refer to different cases

Figure 1 exemplifies a Talmudic source about lost-and-found items. The Torah mandates that one return a lost item to its owner. This obligation is limited to items for which the owner has a chance of recovering, due to some identifying sign. The *Mishna* lists lost items that one may keep, due to their having no identifying sign, and lost items that one must announce, to fulfill the obligation to return the lost item to its owner. The *Mishna* begins with the list of lost items that one may keep: Scattered produce, scattered coins, containers of pressed dried figs, or loaves of bread. Rabbi Yehudah says that any item that is out of the ordinary must be announced. A fundamental concept of returning a lost item is *ye'ush* – the lost item's owner

giving up of retrieving it. When an item has no identifying sign, we assume that the owner gives up.

The *Gemara* cites a dispute between Abaye and Rava – two Sages of the *Gemara*, about whether *ye'ush shelo midaat*, giving up from retrieving the lost item that has not yet occurred but will occur later, is effective. Abaye says that *ye'ush* (giving up) is only effective once the owner realizes he lost his item, and consciously gives up. Rava says that even before the owner realizes he lost an item, his future *ye'ush* is effective once the item is lost. The *Gemara* clarifies that even Rava agrees that if someone found and took an item with an identifying sign – which one would normally not give up from retrieving, the finder may not keep the item, since he took it when it was prohibited. Abaye also agrees that if an item is swept away by the sea or a river, even if it has a sign, the finder may keep it, since it is lost from everyone. The only dispute of Abaye and Rava is a case of an item with no identifying sign, but which the owner hasn't realized he lost.

The *Gemara* cites the cases of the *Mishna* which seem to indicate that *ye'ush* is effective before the owner is aware, and deflects each proof. Then, the *Gemara* brings other sources to try to prove Abaye or Rava's position. We do not describe these sources here in detail. We give one representative source in Figure 1.

This text is complex. It presents first a primary source, a section of the *Mishna*, in which examples of lost items and found items are listed, and then the principle of giving up lost items (*ye'ush*) is enunciated. It presents then a secondary source, a section of the *Gemara* that reports on a dispute between two sages; then, it clarifies on which cases the two Sages disagree. The *Gemara* then lists attempts to challenge one of the two positions, but this challenge is deflected. The *Gemara* then brings additional primary sources that leave the dispute unsolved. Figure 2 displays the arrangement of the sources on the Talmud page.

The *Mishna* says that if one finds dried figs on the road, even adjacent to a field of drying figs, or figs on the road under an overhanging fig tree, they are considered ownerless. He may therefore take them. However, similar situations with olives or carob are not considered ownerless. Abaye can explain that the first two cases are ones where the owner consciously has despaired of his fruit: dried figs are valuable, so one constantly checks them, and one knows that figs constantly fall off a tree, and therefore relinquishes them a priori. However, he does not know about the olives and carob that fell off, and therefore does not consciously relinquish them, and therefore one may not take them. We assume that once the owner discovers any fallen fruit, he will relinquish them, so the end of the *Mishna* therefore seems to disprove Rava. The *Gemara* explains that the owner will not relinquish his olives and carobs, since people can see that the fruit came from the overhanging tree, and will not take them. Figs that fall from a tree get dirty, and therefore the owner will relinquish them.

Figure 1. The adaptation of a text from the *Gemara* (5th century) in a modern wording.

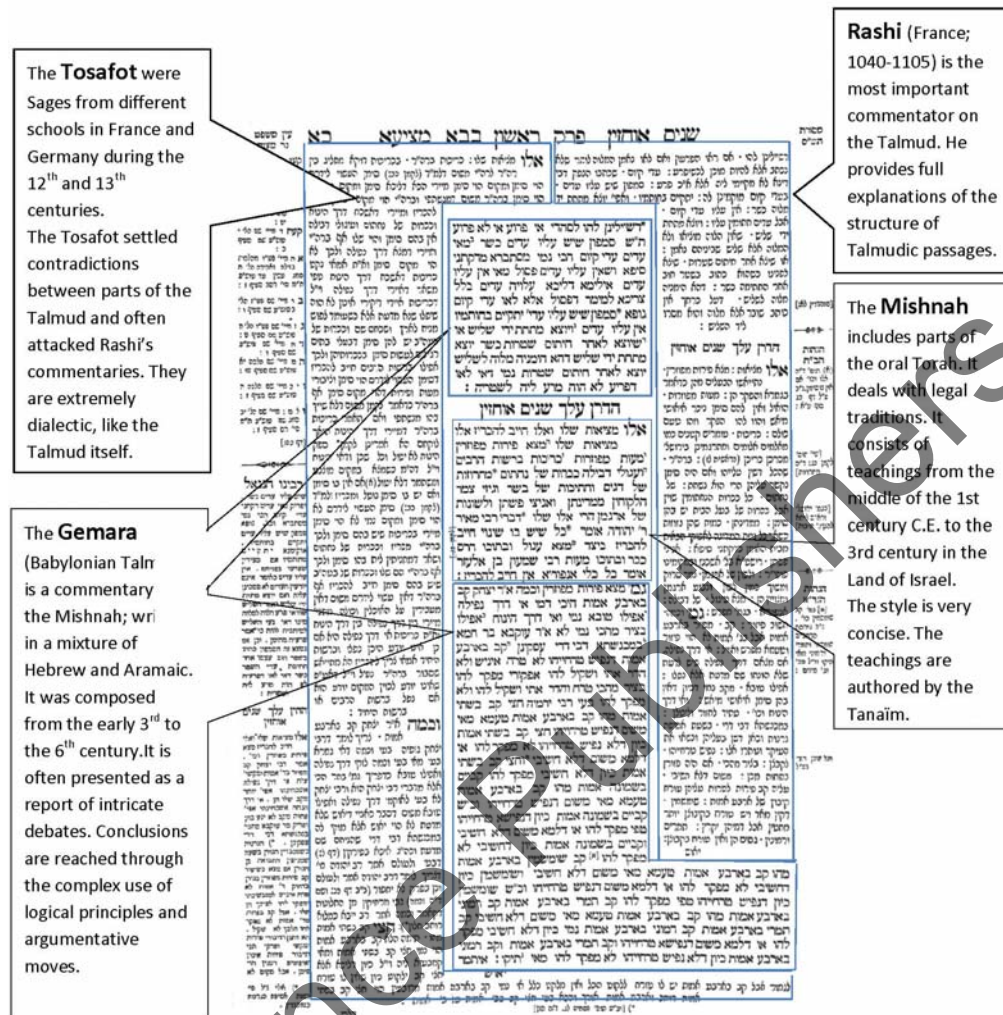


Figure 2. A typical page of the Talmud.

The above example is typical in the Talmud. One may even claim that it is a relatively simple example. This complexity seems to fit very high ability learners. And indeed, until the beginning of the 19th century, the study of Talmudic text was mainly reserved for the intellectual elite. A vast exegetical literature developed to help these elite study the Talmud. The vast exegetical literature added coherence to the Talmudic text but also considerable complexity. A strong educational institution was needed for learning those texts.

The Yeshiva

The most central institution that provided opportunities for people to learn to study Torah has been the *Yeshiva* (for the Hebrew “sitting”). Learning in Yeshivas focuses on the study of traditional texts, primarily the Talmud. There have been many kinds of Yeshivas over 1,500

years, after first Yeshivas have been created in Babylonian Exile (Breuer, 2003). We focus here on what is called now “Lithuanian” Yeshivas to be reminiscent of the Yeshivas first established in the 19th Century in Lithuania and which serve as a prototype for Talmudic study according to harsh critical, dialectical standards (Stampfer, 1995). Most of Yeshivas are now located in Israel, but many can be found elsewhere, mainly in the US, Canada, France and UK. There are separate yeshivas for adolescents students (13-18 yrs), unmarried adult male students (*yeshiva gedola*), and married male students (*kolels*). In the mid 20th century, a controversial agreement between secular and religious leaders in the young State of Israel led to the establishment of Yeshivas for all ultra-orthodox Jews¹. The elite of the traditional yeshivas was replaced by a large *society of learners* in the ultra-orthodox society (Friedman, 1988).

Chavruta: A Central Practice in Yeshivas

Chavruta, also spelled *Chavrusa* (Hebrew: חֲבֵרֻתָּא, from the Aramaic for “friendship”), is a traditional Rabbinic approach to Talmudic study in which a pair of students autonomously learn, discuss, and debate a shared text. It is a primary learning method in yeshivas, where students generally learn Talmudic texts. In many yeshivas, students prepare for and review the *shiur* – a kind of lecture led by a rabbi who asks and is asked harsh questions on a particular issue in the Talmud. Students may also learn Talmudic texts independently from any lecture. For each of these activities, they may choose a different Chavruta peer which remains constant for a period of at least 4 months. Generally, a student has three Chavruta sessions every day, one in the morning, one in the afternoon, and one in the evening. If Chavruta dyads get stuck on a difficult point or needs further clarification, they may turn to a rabbi who is intimately familiar with the Talmudic text and who is available in the study hall – the *Beyt hamidrash*. The Beyt Hamidrash is a very special space. Depending on the size of the yeshiva, dozens or even hundreds of Chavruta dyads can be heard discussing and debating each other's opinions in the Beyt Hamidrash. The chief rabbi typically sits in the back of the Beyt Hamidrash and learns alone. Students sometimes consult him, but Chavruta learning is an autonomous activity for dyads.

Chavruta learning is a unique experience and the term *total institution* adopted by Goffman (1961) seems to perfectly fit the Yeshiva when one spends whole day learning besides hundreds of dyads. Chavruta learning tends to be loud and animated, as the study partners read the Talmudic text and the commentaries aloud to each other and then analyze, question, debate, and defend their points of view to arrive at a mutual understanding of the text. Every two weeks, groups of dyads gather in a *Chabure* to hear about new interpretations they found during their two weeks of study. This auto-organization is very important for appraisal of the quality of the learning of each individual and has social implications. In this chapter we will focus on Chavruta learning, which is as already mentioned, the most common practice in Yeshivas. But before delving in Chavruta learning, it might be advantageous to take a provisional step to understand why such a particular practice can be relevant to modern pedagogies.

¹ Although learning in a Yeshiva is not compulsory in the ultraorthodox society, not learning in a Yeshiva is considered nowadays as non-normative.

The Relevance of Chavruta Learning to Modern Pedagogies

I confess that Chavruta learning was always alluring for me because of the unusual enthusiasm and the tenacity of the learners: How can adolescents or young adults sit together during 8 or even 10 hours per day, six days a week for years? The fact that the content of the Talmudic text is often obsolete augmented for me the magnetic force of this learning setting. The disengagement of students in schools has spread over the entire world. Understanding the motivations of students when learning in Yeshivas, should shed light on ways to increase motivation in learning tasks in schools. However, there are other aspects that point at the high relevance of Chavruta learning to modern pedagogies. First, Chavruta learning is organized around texts that present different and often conflicting viewpoints. Whereas school learning which has traditionally been organized around canonical, monological texts, this may be changing towards the study and discussion of distributed, conflicting texts. For example, in history classes, activities may be designed around the comparison of texts representing different narratives (e.g., Van Drie & Van Boxtel, 2007; Wineburg, 1991). In science education, socio-scientific dilemmas are presented through texts that convey divergences of opinion concerning science-based solutions to socially relevant issues (e.g., Sadler & Zeidler, 2005). The pedagogy to be adopted to lead students to take into consideration the conflicting views has been recognized as argumentative (Simmoneaux & Albe, 2009). But this pedagogy is still embryonic and it seems that the role such as preliminary free questioning which is so common in Yeshiva learning is an important practice to be considered. Another practice – evaluation of sources seems also not taken into consideration in modern pedagogies, while it is central in Chavruta learning. A further possibility of relevance concerns the ways in which these texts are presented and organized: In Chavruta learning, the text shows how different religious authorities have reached their conclusions, including their doubts and the challenges they faced when confronting their views with the views of protagonists, dead ends and rebutted arguments. Some researchers have recently adopted a similar approach in science education: students are presented *Adapted Primary Literature* (APL) texts that report not only on results but also the process through which these results were discovered, including doubts or hypotheses rejected after being tested (e.g., Baram-Tsabari & Yarden, 2005). We are convinced that progressive pedagogies should continue in this direction. But the use of APL texts in science classrooms has been tested with high level students only, and for a short period of time. Can such a practice be democratized and enacted in the long run? Chavruta learning might give us some recommendations on this issue.

Relevance of Yeshiva learning to recent developments in the organization of the social setting of classrooms seems obvious: The popularity of teacher-guided and autonomous group work in classroom is increasing (Webb, 2009). But studies that check effects of long run small group work practices are badly missing. The Yeshiva context is an interesting test-bed for studying the development of knowledge, argumentative skills, autonomy and identity. Since Chavruta learning is enacted from the age of 13, analyzing learning trajectories in Yeshivas in longitudinal studies may shed light on the nature of knowledge among learners, on their autonomy, and on the efficiency of their learning in Chavruta unguided settings in the long run. Such studies may provide insights for educators interested in intensive fostering of small group learning. So far, schools have not experienced long run massive small group learning. Preliminary results in Chavruta learning indicate interesting directions that are different for students according to their competence (Schwarz, 2011).

In this chapter, I will attempt to understand the most notable difference that one can find between traditional Chavruta learning and progressive pedagogies – the issue of motivation. Students in Yeshivas learn very difficult texts in non-guided settings at least 8 hours a day, if not 10 or even 12. They seem highly interested, and highly motivated. Such a drive is unusual in schools. It is truly impressive especially if we remember that the learners do not necessarily belong to elite students. What is the nature of their motivation? In this chapter, we will approach this question. We will first list the desirable goals of Chavruta learning as they appear in books written by rabbis for practicing believers to stipulate *what should be the goals* of Torah learning. We then succinctly review studies on what could be observed in *actual Chavruta learning*. We will then describe how *learners report on their motivation* in Yeshiva learning.

THE DESIRABLE GOALS OF TORAH LEARNING

Rabbinic literature on desirable goals for learning Torah is voluminous. What is salient from this literature is that learning Torah is a commandment. At the same time, rabbis see this commandment as an honor as reflected in the following Talmudic saying: "One who acts because he is commanded to do so is greater than one who acts without being commanded" (Babylonian Talmud, Tractate Kiddushin, 31b). Fulfilling a commandment is a central goal demanded from all (religious) Jews. In other words, the motivation of Torah learning should be total obedience as a way to express one's belief in God. Another leitmotiv in this literature is that the motivation should be intrinsic rather than extrinsic. However, believers are told that even extrinsic motivation to learn Torah eventually leads to an intrinsic one, or in Talmudic words: "Doing it not for its own sake leads to doing it for its own sake." Another leitmotiv of the rabbinic literature on Torah learning is that, in spite of the apparently coercive nature of this practice, it leads to freedom. A Midrashic interpretation of the biblical verse that the word of God "was inscribed (harut) on tablets of stone" (Exodus 32:16): "Do not read it as 'inscribed' (harut) but rather 'freedom' (herut)" (Shmot Raba, 41). Obedience as a way to express one's belief, learning for its own sake, and attaining freedom are three major themes of Rabbinic literature on Torah learning.

REVIEW ON RESEARCH ON YESHIVA LEARNING

Research on Yeshiva learning is still embryonic. Two main directions have been adopted. First, Chavruta learning has been observed in several studies. Observation of Yeshiva learning that involves more than one dyad has not been possible so far, because the access to *shiurim* (lessons) with the rabbi is considered as an intrusion. A second direction focuses on interviews of Yeshiva students on their learning.

Direct Observation of Chavruta Learning

As a special type of collaborative learning, the variety of Chavruta learning is immense: it depends on the age of the learners, on their previous experience, whether they study a text they have already studied several years ago, or on the general level of each of the learners. I have recently initiated the observation of several Chavruta dyads. The dyads were all experienced and studied texts to which they had been acquainted in the past. Also, the learners were considered in their Yeshiva as having a quite high level. These test cases showed the deployment of impressive argumentative practices: the reconstitution of complex arguments agreed upon in a previous session (to initiate a new discussion); critical evaluation of sources; critical discussions governed by high level dialectic rules (Schwarz, 2011; 2013). Observation of Chavruta learning has shown that students often handle disagreements in a style which is quite aggressive² (Blondheim & Blum-Kulka, 2001). However, the complexity of the Talmudic text leads them to adopt collaborative strategies to handle the numerous challenges and refutations (Schwarz, 2011). Although it appeared that Chavruta learners were able to reconstitute extremely compounded arguments. However, when they return year after year to the same canonic texts, they have difficulties to find tangible new insights. An interesting finding is that experienced Yeshiva students try not to approach helpers (rabbis, more able students, or even written material that eases the comprehension of texts) in their Chavruta learning when they encounter difficulties³ (Schwarz, 2011). Finally, among those experienced learners, there is a clear demarcation from the authority of rabbis, or even from recent texts written by contemporary religious leaders (Schwarz, 2013). Some of the moves of the interactions even show a dissident approach as for interpretation of texts (Schwarz, 2011): Students may point out that (some of) the rabbis in their Yeshiva are humans like them who infer their conclusions from texts and they may make mistakes. However, dissidence does not have any impingement on rules of behavior that are decided by the rabbis only. This direction of research is complex as it is based on the analysis of series of protocols of subsequent dyadic interactions. Conclusions drawn so far rely on few cases and the danger of overgeneralization is big. More research is necessary to have a better picture of actual Chavruta learning. A second direction relies on interviews of learners. Some progress has been done on reported motivation of learners in Yeshivas.

² Like Blondheim and Blum-Kulka, we observed that very often disagreements in the Talmudic text and in Chavruta interactions by asserting that the claim contested is not relevant to the issue at hand. Linguistic studies have shown that disagreements on arguments in conversations are of four types: Irrelevancy claims, challenges, contradictions and counterclaims (Muntigl & Turnbull, 1998). Muntigl and Turnbull showed that in countries such as the US, irrelevancy claims are considered as very aggressive in comparison with counterclaims, contradictions or even challenges. Blondheim and Blum-Kulka analyzed conversations among Jews to conclude that Jewish conversational arguing is more antagonistic than in other cultures, and that this difference might be imputed to perennial dialectical practices of Torah study culturally rooted even among secular Jews.

³ Finding interpretations of the Talmudic text without the help of a rabbi is considered as a highly valuable practice. It is considered as one of the highest expressions of "Torah learning". We should admit that we sometimes heard students that pretended having found an interpretation by themselves, although they secretly used sources – such as written notes of rabbis' lessons collected several years before, in order to be considered socially (as reported by interviewed students about other students, Schwarz, 2011). This loafing behavior is not uncommon in modern Yeshivas. But it was also very common to observe Chavruta learners that consulted a rabbi after having remained stuck on an issue during several days.

Reported Motivation of Learners in Yeshivas: A Sense of the Worthy as a Motivation for Learning

In an interesting study, Nisan and Shalif (2006) interviewed Ultra-Orthodox men and boys living in Israel. The students were chosen as those who were considered to have high motivation for studying by their teachers and fellow students. Some of the guiding questions were: Why are you studying Torah? What does this study give you? What is missing for young men who do not study Torah? Is Torah study challenging and, if so, in what way? Are there times when you are not studying Torah? How do you feel then, and why? Is the problem of "what other people think" an important factor in your wish to study Torah? Are there times when studying is difficult? How do you convince yourself to keep on studying? The interviewees explained their motivation to study Torah first and foremost in terms of the religious commandment, their sense of obligation, their notion of what is worthy and what is good. They considered this explanation to be totally obvious. The claim, "We have to study the Torah because God said so, and there is a commandment to study the Torah" is repeated, in various formulations, in answer to the question, "Why do you study the Torah?" This answer does not distinguish between the reason for studying the Torah - why this is a worthy pursuit - and their motivation for doing so. In the interviewees' worldview, perceiving Torah study as a commandment or a "worthy pursuit" is not only the reason but also the explanation for their studying.

Perceiving Torah study as a worthy pursuit motivates the students directly and immediately in the study situation, and at the same time has the status of a meta-conception that determines the value and legitimacy of activities at the yeshiva and the feelings associated with them. This status of the sense of the worthy is manifested in its influence on other motivational factors. The interviewees are aware of these other factors and mention them - considerations of utility and long-term interests (such as obtaining a good teaching position at the yeshiva or being given the opportunity to marry a worthy woman), social pressure and assessment ("During periods when I did not devote myself to my studies all the time I felt lowered on the social scale"), intellectual challenge and interest, and what sounds to the psychologist like a need for self-actualization ("When I achieve a new interpretation of a text, I feel as if I am attaining my purpose in life"). These factors are based on the assessment of yeshiva studies as worthy and good. Without such an assessment all the other considerations lose their power.

What Is the Basis of the Sense That Torah Study Is a Worthy Pursuit?

Most of the men and boys never even asked themselves this question. The commandment and the life style of Torah study have been a basic fact of their lives as long as they can remember. "Why do I study the Torah? Because 'this is our life' (a quotation from the daily prayer service) ... You should ask the fish why they want to be in the water - because that is how they live." Nevertheless, when they are asked to explain the value of Torah study, yeshiva students offered well developed justifications. The answers were categorized into three views: (a) It is a commandment, (b) it is necessary for self-improvement and growth, and (3) it is a fulfillment of the purpose of life. In the first view, obedience to a commandment without any other reason for acting is the greatest manifestation of the worship of God, or the worthy life. Torah study is done purely for its own sake, as opposed to doing it

for the sake of something else, such as some extrinsic reward. In the second view the value of Torah study stems from its contribution to human improvement. It is seen as the natural way to promote human development and perfection - not as an instrument that can be replaced by some other, but as an activity that embodies human development and flourishing. Development is not limited to intellectual achievement, such as understanding the Torah or sharpening the mind, but expands to include the acquisition of virtues and proper ways of behaving towards others. In the third view Torah study is seen as the purpose of human life. The goal is to know the true and the good, and this knowledge is achieved through study of the Torah. Torah study in and of itself constitutes the individual's humanity, the realization of his ultimate purpose and the meaning of life. This view of the motivation for Torah study goes beyond the fulfillment of the commandment and attempts to reach its meaning.

If the view of Torah study as worthy is considered obvious, how is it that there is such a strong awareness of it as a motive? After all, behavior that has become routine tends to be automatic, and the justification for it tends to be forgotten (see Ericsson & Simon, 1984/1993). The answer to this question may be found in the prevalent view at the yeshiva that Torah study must always be accompanied by awareness that it is a divine commandment and consciousness of its worth. Many of the interviewees mentioned the distinction between "studying Torah for its own sake," and "studying Torah not for its own sake," for some extrinsic purpose, such as attaining social esteem. Many of the interviewees quoted the aforementioned Talmudic saying, "Doing it not for its own sake leads to doing it for its own sake." This saying defends studying Torah not for its own sake yet at the same time expresses reservations about this practice. The "sense of the worthy" is thus nourished by the normative expectation of such awareness - an explicit demand that Torah study be based on the sense of the worthy rather than extrinsic reasons.

The Sense of the Worthy and the Sense of Autonomy

The autonomy that was perceived in the observation of dyads in their Chavruta learning is crystal clear in the interviews: the commandment of studying Torah is seen by the students not as lessening their freedom but as enhancing it. The contradiction between the idea that the Torah was forced on the Jewish people (Babylonian Talmud, Tractate Shabbat 88a) and the status of free will in the fulfillment of the commandments is a familiar dilemma among yeshiva students. The commandments do not limit human freedom but make it possible and even enhance it, as they free the individual from coercions that he may not even be aware of and open up new opportunities. Ultra-orthodox Jews feel that, within the "coerced" setting of the commandment to study the Torah, the yeshiva not only allows but even encourages a space for personal expression. In my observations in Yeshivas, I noticed that students chose their Chavruta peers. Also, the aforementioned *Chabure* – the gathering of different dyads every two weeks to report on progressions, was organized by the learners. More importantly, when a reported interpretation was recognized as a novelty, it was disseminated among other *Chabures*.

Satisfaction and Other Emotions in Yeshiva Studies

Yeshiva studies are perceived as yielding both inner satisfaction and material rewards (such as a good job or a proper wife). These rewards may shift the student's focus from study "for its own sake". Nisan and Shalif (Nisan & Shalif, 2006) found that the students deal with this fear by distinguishing among different sorts of satisfaction. Torah study for material

benefit is seen as not for its own sake, but there is extensive agreement that many other sorts of satisfaction do not interfere with studying Torah for its own sake and are even considered praiseworthy. For example, the Yiddish word *geschmack* – meaning a sort of superior flavor, is used to describe the pure pleasure gained from the act of Torah study itself. Some of the types of satisfaction described by the students may appeal to Western psychological theories of motivation, while others are anchored in religious views. Here are some phrases of the first sort (with the accepted terms from motivational research): "The material itself exerts a pull on you" (curiosity and interest); "I want to find out a little more" (discovery); "One feels like a creative person" (creativity); "You discover strengths within yourself, you are renewed and also reveal a new person" (self-discovery and identity creation); "I can express myself ... I can realize myself" (self-actualization). And here are two sentences of the second sort: "You feel closeness to the thing you are studying ... you feel close to the one who gave us the Torah;" "Someone who studies Torah feels that he is holding the world together... I am involved in bringing rain to the world, I am involved in bringing peace to the land." My own working hypothesis is that the feeling of *geschmack* is partly related to the highly dialectical character of Talmudic argumentation. The dynamics of argumentation is based on an alternation between disagreements, challenges, or attempts to rebut, and agreements, explanations and elaborations. This alternation is well known by researchers in argumentation as being accompanied by pleasant emotional states interchanging *tension* and *relaxation* (Andriessen, Baker, & van der Puil, 2010). As I could observe it in Chavruta learning, such upheavals are easily detectable in the varying prosody of Chavruta learners around Talmudic texts.

Nisan and Shalif identified three distinct unpleasant feelings accompanying the neglecting one's Torah studies. One is a sense of impaired self-esteem. The second is a sense of guilt or self-reproach for wasting time and not doing what is worth doing. The third is a feeling of emptiness. Here also, the sense of the worthy and the other motivational factors that affect the interviewees is also valid for the satisfactions they experience. Interest in the text studied, joy in the creativity involved, excitement about shaping the self and their feelings of elation at their self-actualization - as well as the unpleasant feelings caused by neglecting their studies - all stem from the value and meaning of Torah study for them. They are saturated with the sense that their studies have an intrinsic value and are worth pursuing.

Strategies for Self-Regulation

When the sense of the worthy is not enough of a motivation and the student does not feel like studying but is attracted to other activities, he uses various strategies to help him get over his weakness and continue studying. These are strategies of self-regulation (Pintrich & García, 1991) include those that the student uses by himself and those for which he enlists the help of others. The first category contains three main types of strategies. The first is strengthening one's awareness of the importance of Torah study: "[In times of weakness] I think about the duty of Torah study." For this purpose the student may try to recollect the rabbinical sages' statements about the value of Torah study. The second strategy is using one's feelings of shame about neglect of studying: "I personally am disgusted by those who don't study, so I don't want to be one of them." The third strategy is making specific promises to oneself: "He gets himself to go back to his studies by accepting all sorts of obligations on himself.... He decides that from this day on ... he will study at least one session each day." One extreme form of self-obligation we encountered was making an oath that one will not speak to anyone about anything unconnected with Torah study for a specific amount of time.

Interestingly, this and other forms of self-regulation are dialogical: the one who makes an oath to not speak about anything unconnected with Torah creates a web around him in which Torah study is interwoven.

The strategies the student uses to regulate his behavior through the help of others depend on the social setting in the Yeshiva, and especially on Chavruta learning. Students often seek to choose study partners that strengthen them. Their influence is not only direct but also indirect in the sense that the student sees others who have succeeded in devoting themselves to Torah study. Other sources are of course the rabbis and the yeshiva's spiritual advisor. But here more than for Chavruta learning, the influence is generally indirect (Schwarz, 2011). When students ask a rabbi a question it is mostly a harsh challenge that other students cannot answer – a question that honors its authors. What happens if these strategies are unsuccessful? Yeshiva students do not hesitate to recognize human weakness, but see it as temporary and believe that it can be overcome.

CONCLUSIONS: WHAT CAN LIBERAL EDUCATION LEARN FROM YESHIVA LEARNING?

Pleasure, emulation, friendship, inherent dialogism, and pride to be the authors of ideas, are some of the feelings that could be discerned during Chavruta learning. Of course, I did not focus on disengaged students, or on students who have difficulties in following the daily pace imposed by the Yeshiva. But it was flagrant for me that a substantial part of the students in the Yeshivas I visited looked like those I analyzed. The interviews performed by Nisan and Shalif confirmed my overall impression – an overwhelming motivation expressed by Yeshiva students as a *sense of the worthy*. Of course, they are the product of an authoritative society: Toddlers in ultra-orthodox society learn unequivocally what is good and bad; they recite by heart prayers and psalms, and are inculcated to fulfill commandments as ways to obey their creator. Youngsters are initiated to belong to their communities through public ceremonies, and behave in the ways they are told to. Yeshivas are total institutions. They function to strengthen cohesion in communities: learning well in the Yeshiva ensures social recognition, and alliance with good families. In this context, during arduous daily Chavruta learning of 10 or 12 hours a day, the motivation expressed as a sense of worthy remains steady, and authoritative voices are not perceivable. This is a remarkable achievement from which liberal education can learn. On the other hand, some voices in Yeshivas are authoritarian and very far from school learning: Yeshivas isolate students from outside influences. Young adults do not use internet or cell phones, and do not watch television. More seriously, they do not study in universities or in other institutions for higher education. The books they can consult are limited in comparison to the academic world. Students that decide to choose a secular way of life are totally banned from their society. In this sense, Yeshiva learning is not pluralistic, and as such seems totally incompatible with liberal education: pluralism encourages openness to many views and cultures, and recognizes their legitimacy, by such obviating any possibility of adopting an ethical orientation or all-embracing educational approach, since these are based on uncontested goals and consistent views among all participants in educational activities. I claim here the contrary. I argue that a sense of the worthy can and should serve as a motivational factor in liberal, pluralistic schools. I follow Galston (1998) to claim that,

beyond all the controversies about what is good, there is still a considerable set of behaviors that are widely agreed to be worthy and appropriate; that even though liberal thinkers hesitate to impose their ideas on schoolchildren, there is still broad agreement that non-instrumental subjects should be included in the school curriculum; that even if one denies that some texts are sacred, there are nevertheless texts that are valued as prime creative works in a particular culture; and that above and beyond my reservations about character education in schools I would agree that education should aim at developing good traits without being self-righteous or indoctrinating. Pluralism and its apparent ramifications, such as recognizing the legitimacy of other people's values and undermining the authority of the educator, do not eliminate the entire realm of the good and the worthy; rather, they too become values.

Before attempting to delineate what could be accepted as worthy in liberal education, I would like to persuade us that the example of the yeshiva should not repel liberal educators drawing lessons from it. Of course, the yeshiva embodies a number of the defects that such educators find in schooling in general, especially the indoctrination of the students to what liberal educators see as a narrow, closed worldview. Indeed, such educators may even be repelled by the very notion of normative motivation in schools. Normative motivation stems from a view in which it is connected with imposing education on children and with the Freudian conception of moral obligation as rigid and associated with guilt. This sort of motivation leads to social conservatism, and prevents children from enjoying school and the school years in general. It reduces the level of education, which is directed entirely at measurable aspects of the subject matter, while aspects such as depth and innovation are ignored and lowers the children's motivation and spontaneous tendency to acquire knowledge. Such arguments are based on much teaching experience and some of them are supported by systematic research. But one can still ask if all these evils are necessary byproducts of normative motivation. The present chapter suggests that this is not necessarily so. The Yeshiva students observed in their studies and interviewed do not feel any sense of coercion or impairment of their autonomy. They feel good about their studies, which are not focused on measurable aspects of the material to be learned, and their intrinsic motivation is enhanced by their sense of the worthy. The normative motivation in the yeshiva does indeed act in the direction of cultural conservatism, but there is no reason to believe that this direction – which stems from the yeshiva's educational purpose – is a necessary aspect of all forms of normative motivation. The sense of the worthy in one's studies can be realized in different ways, and there can be negotiations and compromises about the degree to which it should be taken into account. It is thus worth investigating whether there can be normative motivation that leaves room for negotiation between the teachers and the students about the sense of the worthy itself, the justifications for it and the ways of realizing it.

My observations and Nisan and Shalif's interviews have shown that behaviors and reported motivations first of all reflect in some way the overall messages that the books of the religious leaders convey. The fact that the observations show a less normative picture than the interviews is natural and somehow a good sign for Yeshivas. But the digressions for example from authority should not blur the fact that there are strong messages that were appropriated by Yeshiva learners. What should be the messages of liberal schools? The first step is to be aware of the fact that liberal educators have a message. A second step would be that they should strive for a greater degree of clarity and consistency in the conceptions of the worthy that constitute school curricula and extracurricular activities. Providing a clear message about the purposes of school studies and the reasons for these purposes is a must, especially those

that are not instrumental. It is necessary to make parents aware of the school's goals and helping them understand their ramifications. It is crucial to get the teachers to be aware of, understand, and agree to these goals, and to secure their commitment to further them. It is also important to institute activities connected with the goals, to coordinate lessons and activities with regard to their ethical significance, and to explain the reasons for these purposes and the studies associated with them.

But what are the master ideas of liberal education in the 21st century? Of course, *pluralism* – the agreement to be open to diverse cultures. Liberal educators are also committed to *dialogism*. Operationally, this means the obligation to express one's own view to the other, to respect the other, to account for the other's view, and to construct over previous contributions. But dialogism is much more than that, of course. Liberal educators have pledged for the importance of *collaboration*, not only as a conduit for better learning but as a goal for its own sake. However, collaboration brings a consensual view of dialogism which constrains liberal education. A dialectic-critical approach to resolve conflicts is also necessary (Perret-Clermont & Schubauer-Leoni, 1981). Accordingly, Anne-Nelly and I developed pedagogies involving different forms of argumentative talk (Muller-Mirza & Perret-Clermont, 2009; Schwarz, 2009; Schwarz & Asterhan, 2010). These four ideas (pluralism, dialogism, collaboration, and dialecticity) have been articulated differently by Michaels, O'Connor and Resnick (2007) as *Accountable Talk*. For them, Accountable Talk means (1) accountability to the learning community, in which participants listen to and build their contributions in response to those of others, (2) accountability to accepted standards of reasoning, talk that emphasizes logical connections and the drawing of reasonable conclusions; and (3) accountability to knowledge, talk that is based explicitly on facts, written texts, or other public information. Accountable Talk is enacted in hundreds of schools in the US and begins to penetrate the US system at a large scale. One of the reasons of this success is the clarity and the assertiveness of its proponents. In one of my common EU projects with Anne-Nelly, the project ESCALATE, several research teams from Greece, Italy, Switzerland, the UK and Israel attempted to implement argumentative and inquiry based practices in science classes through the use of dedicated technologies. Although previous attempts done in laboratory conditions were promising (e.g., Muller Mirza, Tartas, Perret-Clermont & de Pietro, 2007; Schwarz & Glassner, 2007), the scaling-up of these practices was somehow a failure. I would argue that this failure partly originates from our message to schools which we mumbled rather than articulated. Our message was not clear enough; we did not say enough that we pledged for pluralism, collaboration, dialecticity and dialogism and that those ideas are not clichés but are our vision of the ethical principles of daily school life. I plead guilty for not considering our message more seriously. Anne-Nelly and I often discussed those issues and we drew important lessons from this momentary failure. Like in the case of *Accountable Talk*, my team (*the Kishurim group*) develops pedagogies whose practices blend the four ideas aforementioned. In a more pronounced way than *Accountable Talk*, we try to give an ethical orientation to our pedagogy, not as a tool but as a way of life. Anne-Nelly's further engagement in *Argupolis*, a doctoral program for studying argumentation in various contexts was a way to uncover the centrality of argumentative practices in our society. She helped me understand that promoting new argumentative practices in schools is not only a pedagogical issue but involves profound changes in educational *institutions*. I would say changes in the ethical orientation of schools.

Of course, there is no place in a liberal school for a strict ethical orientation in which all lessons and activities are subordinated to a worldview directed at the worthy. But the ethical orientation can be built as a comprehensive whole with pluralism, which should path the way to the importance of each character and personality, collaboration which should be presented to embody for example the value of equity and solidarity and dialecticity to reach reasonability, and rigor. As for dialogism, words are sometimes superfluous, when what we want to express goes beyond reason, avoids sterile critique, and opens the door to endless relationships, to friendship, to the eyes of the other, in Neuchâtel or in Jerusalem.

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Chapter 10

**THE ARGUMENTATIVE COMMITMENT OF LEARNER
AND TEACHER IN DANTE'S VISION**

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ABSTRACT

In this paper I want to show the relevance of argumentation in Dante's poetry considering in particular the strong argumentative commitment informing the dynamics of the educational relationship between pupil and teacher. The whole plot of the poem is constructed around a sort of educational enterprise: it narrates the journey in the Hereafter undertaken by the author in search for salvation, under the guidance of Virgil and Beatrice. The two magisterial figures, which are very realistically represented by human characters, embody philosophy and theology respectively. They are both endowed with an authoritative status as they ground in the two sources of truth available to humans: reason and revelation. One could plausibly expect that such teachers adopt in their educational relationship an authoritative habit in which the transmitted knowledge and values do not need to be justified, but are simply proclaimed and defined. Instead, the whole text is swarming with argumentative moves by which the wayfarers confront each other and the immense number of characters occurring to them throughout the long journey in the three realms of the Hereafter. Particularly interesting are the argumentative interactions between the pupil, Dante, and his teacher Virgil in the first two Cantiche (Inferno and Purgatorio). I will focus on the debate in which Dante and Virgil engage in Inferno's second canto as it stages in an exemplary manner the argumentative commitment pervading their educational relationship. In particular, the argumentation structure and the inferential configuration of Dante's argument will be systematically reconstructed. Knowledge and values are not transmitted from teacher to learner: they are co-constructed by them in an argumentative way. I am confident that Anne-Nelly Perret Clermont, the highly esteemed colleague and dear friend who is celebrated by this volume, will appreciate discovering that one of the pillars of the Italian and universal culture shares with her a passionate interest in education and in its argumentative substance.

Keywords: Educational interaction, argument, argumentation structure, inferential configuration

1. INTRODUCTION: DANTE'S STRONG LOGICAL AND ARGUMENTATIVE COMMITMENT

In many passages of his works¹ Dante's knowledge of ancient and contemporary logicians, language philosophers, rhetoricians and argumentation theorists is wholly evident.

Particularly significant is the poet's familiarity with scholastic *quaestio*², an inherently argumentative activity type, in the sense of van Eemeren (2010: 145), which is recurrent in Paradise. In the 24th canto of Paradise he compares himself to a bachelor³ who, while waiting for the teacher to enounce the issue, silently prepares his argument.

In the second book of *De vulgari eloquentia* (ch. 6) Priscian's notion of *constructio congrua* is adopted and the competence in congruity is established as a non-negotiable requirement for people wanting to engage in literary activity.

In several of Dante's works, there are many clues of his interest in argumentation and logic. The word *argomento*, which he frequently uses, is exclusively reserved to the meaning of argumentative procedure, while it is never used with the meaning of theme or topic, which is decidedly more widespread in today's Italian use. Not by chance, a peculiar chapter of the logical tradition, namely topics, which handles with the inferential configuration of arguments, comes to the fore in the *Monarchia*, which is a declaredly argumentative work, where the whole plan of the text reminds of the structure of an explicit analytical overview⁴.

¹ For all passages of Dante's works that are considered in this paper, I refer to the digitized edition set up by Robert Hollander for the Princeton Dante Project (PDP) <http://etcweb.princeton.edu/dante/pdp/>. This edition has been preferred especially because of some of the advantages it secures: the Petrocchi edition of the original text of the Divine Comedy (the *Divina Commedia* edited by Giorgio Petrocchi and first published by Mondadori, Milan, 1966-67); a new verse translation of the poem realized by Robert Hollander and the poetess Jean Hollander; the availability in relation to the passages of the text of numerous commentaries ranging from the 14th century to our times; the availability of the Minor Works (with English translations).

² The *disputatio* was a fundamental exercise of the Scholastic pedagogy (see Chenu, M.-D. (1954). *Introduction à l'étude de Saint Thomas D'Aquin*. Paris: Librairie Philosophique J. Vrin.). It consisted of two parts: in the first, named *approbatio*, a bachelor was tasked by the master to present an issue, named *quaestio*, –chosen by the master himself- before an academic audience. The bachelor had to declare the alternative theses and the possible arguments both in favor and against each of them, and to respond to the audience's objections. The *quaestio* was generally introduced by the particle "*utrum*" (recalling the Aristotelian *póteron* as a particle identifying "*problemata*" in the first book of *Topica*), which introduces two alternative standpoints. The following day the master "determined" the issue (*determinatio*), that is, presented a synthesis of the previous day's discussion and exposed his personal view.

³ Just as the bachelor arms himself and does not speak for discussion, not for final disposition -- while the master is setting forth the question -- so I armed myself with all my arguments (46-49)

⁴ Particularly interesting in this relation is the second chapter of the first book, where the three main issues of the treatise (*tria dubitata*) are enounced and the pragmatic nature of the required argumentation is lucidly explained and justified: "... the present subject is not directed primarily towards theoretical understanding but towards action. Again, since in actions it is the final objective which sets in motion and causes everything - for that is what first moves a person who acts - it follows that the whole basis of the means for attaining an end is derived from the end itself. For there will be one way of cutting wood to build a house, and another to build a ship".

Even technical terms of topics are repeatedly used⁵ in the *Monarchia*. In the *Divine Comedy*⁶ the author shows a not weaker argumentative commitment. An intriguing signal is the "salvation" of the renowned medieval logician Peter of Spain in the Paradise; in mentioning his work as a reason of merit, the number of the books of his *Tractatus* is specified (*dodici libelli*)⁷ (see Bochensky 1947), thus clearly signaling the author's familiarity with this logical treatise. A sort of joy of reasoning pervades the whole poem: an endless number of arguments accompany the wayfarers in their journey. Even more significantly, the whole enterprise is argumentative in nature: the author's extreme experience is there to prove for the reader many things: the dramatic challenge of human existence, the reasonableness of the poet's religious, moral, political design, as well as the unrepeatable, unfathomable destiny of every human⁸.

Often arguments are almost disguised in the narrative web of the poem and an argumentative reading allows to recover unexplored paths of the poet's vision⁹. In other passages the commitment to logic is proclaimed like in *Inferno*'s 27th canto where the devil himself mockingly parades his mastering of logic: "You didn't reckon I'd be versed in logic." (XXVII, v. 123). Figure 1 reconstructs the argumentation structure¹⁰ of the devil's reasoning

He must come down to serve among my minions
because he gave that fraudulent advice.
From then till now I've dogged his footsteps.

One may not be absolved without repentance,
nor repent and wish to sin concurrently --
a simple contradiction not allowed.
(because of the contradiction which does not allow it)¹¹ (vv. 115-120)

⁵ Two typical passages deserve to be reported: "This prosyllogism is of the second figure with intrinsic negation, and it takes this form: all B is A; only C is A; therefore only C is B. That is: all B is A; nothing except C is A; therefore nothing except C is B" (I, xi, 9).

"Hence their argument is 'from the whole to the part', in affirmative form like this: 'man can see and hear; therefore the eye can see and hear'. And this is not valid; it would be valid if put into negative form like this: 'man cannot fly; therefore man's arms cannot fly'" (III, vi, 7). The two passages are quoted from the English translation of Prue Shaw reported in PDP.

⁶ A new insightful reading of Dante's poem is offered by Carlo Ossola (2012) who underlines the relevance of this text for the present day culture and also shows that in the last century the topicality of the message of the *Divine Comedy* was better understood by authors like Pound, Eliot, Mandel'stam, Beckett and Borges than by specialists of Dantesque philology.

⁷ Cf. Par XII 133-135: -- "Pietro Spano, lo qual giù luce in dodici libelli" ("Peter the Spaniard, who casts light from his twelve books below").

⁸ See in this relation the chapter "Everyman" in Ossola (2012: 31-34).

⁹ It is the case of an argument, as quick as lightning, by which Beatrice indeed refutes Virgil's wondering why she was not afraid to enter the hell: "Temer si dee di sole quelle cose c'hanno potenza di fare altrui male ... I' son fatta da Dio, sua mercé, tale, che la vostra miseria non mi tange" (We should fear those things alone that have the power to harm ... I am made such by God's grace that your affliction does not touch ...). (vv. 85-92). The maxim that is invoked by Beatrice (We should fear those things alone that have the power to harm) remounts to the third book of Aristotle's *Nicomachean Ethics*; it has a peculiar argumentative relevance since it does not support the reasonableness of a statement or a prescription, but justifies the reasonableness of an emotion (for the relevant role of emotion in current argumentation theory, see Plantin 2004). Very interesting are in relation to this passage the old commentaries of Guglielmo Maramauro (1369-73) and Giovanni Boccaccio (1373-75).

¹⁰ For the concept of argumentation structure and the procedures for its reconstruction see Snoeck Henkemans (1992) and Snoeck Henkemans (2000).

¹¹ Here and in the argumentation structure of figure 1 we report at 1.1b.1.1 in brackets, beside the translation proposed by PDP, a translation closer to the original (per la contradizion che nol consente), which exactly

which shows a quasi-geometrical style in which almost all passages are made explicit (only two passages are left implicit as the brackets signal, but they are immediately recoverable).

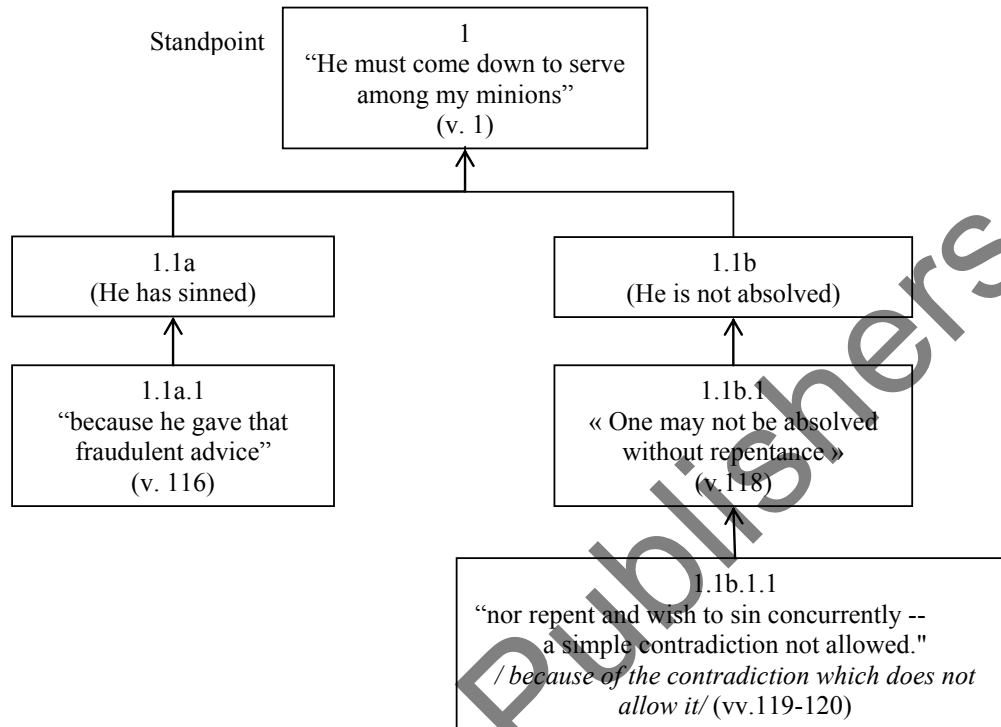


Figure 1. Argumentation structure of the devil's argument.

2. STAGING A LEARNER-TO-TEACHER RELATIONSHIP

The first canto of Dante's *Divine Comedy* constitutes the general introduction to the poem. In it the dramatic dismay of the poet is staged and his rescue by Virgil is narrated.

While I was fleeing to a lower place,
before my eyes a figure showed faint,
in the wide silence. (vv. 61-63)

The poet is renouncing to mount the sunny hill which could save him from the dark wood, but...

When I saw him in that vast desert,
'Have mercy on me, whatever you are,'
I cried, 'whether shade or living man!' (vv. 64-66)

mirrors Aristotle's definition of refutation (see *Sophistical refutations* 165a, 2-3), thus proving the refutational nature of the concerned argumentative passage.

The long experience of pupillary relationship as well as the awareness of personal growth and development bound to it enhance Dante's confidence in Virgil ('*You are my teacher and my author*'), who advises him to escape his ruin by starting another journey under his guidance. Virgil advises Dante to change his path:

'It is another path that you must follow', (v. 91)

arguing that this is the only alternative allowing him to save himself:

'For the beast that moves you to cry out
lets no man pass her way,
but so besets him that she slays him. (vv. 94-96)

The only reasonable alternative is to follow Virgil:

'Therefore, for your sake, I think it wise
you follow me'

a proposal which is accompanied by an authoritative commitment, which, as we shall see in short, in turn represents an argumentative move:

I will be your guide (v.112-113).

Virgil's basic argument is strong in itself as it relies on cogent reasoning based on a proper inferential procedure: the solution he is ready to offer deserves to be accepted because the way-out so far pursued by Dante shows to be impracticable. Adopting the *Argumentum Model of Topics*¹² the whole reasoning can be synthesized through the following diagram:

¹² Argumentum Model of Topics (AMT) is a theoretical and methodological approach to the study of inferences in arguments which has been designed and is still being further developed by IALS (Institute of Argumentation, Linguistics and Semiotics of the Università della Svizzera italiana). It is significantly inspired by the tradition of topics started by Aristotle in *Topica* (Ross, 1958), *Sophistical Refutations* (Ross, 1958) and *Rhetoric* (Ross, 1959), and then continued and integrated by Roman and medieval scholars. Among the Romans the contributions of Cicero and Boethius are very important (see Reinhardt 2003 and Stump 1978 respectively). Among the very numerous medieval scholars I limit myself to signaling Abelard (De Rijk 1970), Peter of Spain (Bochensky 1947), Williams of Sherwood (Brands and Kann 1995), Boethius of Dacia (Green-Perdersen and Pinborg 1976 and Stump, 1988) and Buridan (Klima, 2001). For the development of topics by the humanist Rodolphus Agricola see Rigotti (2013). The collaboration with Anne-Nelly Perret Clermont and other colleagues was decisive for the construction of the AMT at three different times, corresponding to three research and teaching projects elaborated in tight collaboration: Argumentum – E-course of Argumentation theory for the human and social sciences (www.argumentum.ch) funded by the Swiss Virtual Campus in the years 2004 - 2005; Argupolis and Argupolis II, two doctoral schools focusing on the study of argumentation in contexts, both funded by the Swiss National Science Foundation in the years 2009 - present. For the essentials of AMT see Rigotti 2006, Rigotti and Rocci 2005, Rigotti, Rocci and Greco 2006, Rigotti 2008, Rigotti 2009, Rigotti and Greco-Morasso 2009, Rigotti and Greco-Morasso 2010. Among the numerous contributions using AMT for the study of argumentation in contexts I signal Rocci 2006, Christopher Guerra 2008, Palmieri 2008, Palmieri 2009, Greco-Morasso 2011, Bova 2011, Rigotti and Rocci in preparation.

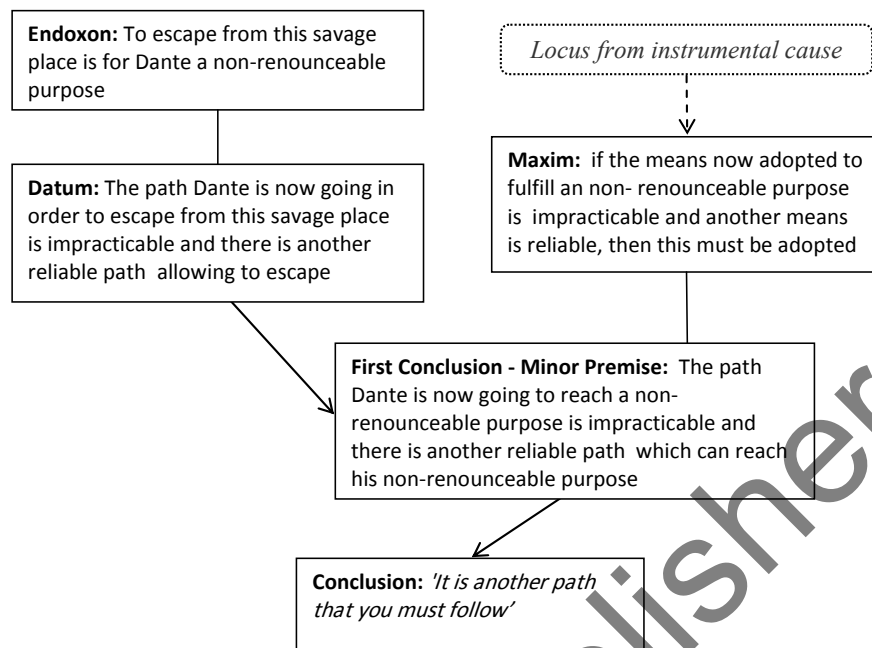


Figure 2. inferential configuration of Virgil's advice.

The endoxon reminds us that, in Dante's cultural perspective the purpose of retrieving the right way, which has been lost, is a non-renounceable one, while the datum announced by Virgil remarks that the path Dante is now walking in proves to be hopeless and announces that another reliable path is at hand. The first conclusion that is entailed by the conjunction of the two statements (The path Dante is now going to reach a non-renounceable purpose is impracticable and there is another reliable path which can reach his non-renounceable purpose) represents an instance verifying the condition envisaged by the *if*-part of the maxim, thus releasing the ultimate conclusion of the argument according to the *then*-part of the maxim.

Dante is eventually persuaded and accepts Virgil's guidance:

'lead me to the realms you've just described
that I may see Saint Peter's gate
and those you tell me are so sorrowful'¹³.

And fully convinced by Virgil's advice, Dante behaves consequently:

Then he set out and I came on behind him. (vv. 133-136)

We also have just hinted at another, concomitant, argumentative move ("*I will be your guide*", I, 112-113), which is at work in encouraging Dante's conviction: an argument from

¹³ The renowned commentator of the Divine Comedy Benvenuto of Imola (1375-80), justifies at Inferno 1.91 the necessity of visiting the sorrowful realms quia cognitio peccati initium est poenitentiae, et malum nisi cognitum vitari non potest (because knowing sin is the beginning of one's repentance and evil cannot be avoided but it is known).

promise founded in Virgil's ethos (authority). Virgil commits himself to be his guide. Indeed, the character of Virgil revives in Dante - both in the literal interpretation, as an outstanding Roman poet to whom the tradition ascribes the gift of prophecy, and in the allegorical interpretation, as figure of human reason and philosophy - a sentiment of trust and gratitude¹⁴.

The hopeful and, serene atmosphere characterizing the closure of the first canto, indeed responding to the recovery of a trustful and reliable pupil-to-teacher relationship, vanishes rather swiftly in the first tercet of the second canto. This latter stresses that the fall of night, by which all creatures of the earth are released from their fatiguing works, saw him alone starting the tiring and painful journey:

Day was departing and the darkened air
released the creatures of the earth
from their labor, and I, alone,

prepared to face the struggle –
of the way and of the pity of it – (vv. 1-5)

The burden of such enterprise is heavy and the supreme intellectual faculties serving the enterprise which is being undertaken of poetry, understanding and memory¹⁵ are invoked and their aid is begged. Here the urgency of reconsidering one's resources and readiness naturally emerges; such urgency puts the pupil's confidence in the teacher in question. The adequacy of the protagonist to the enterprise he is about to start (his virtue) is questioned along a vivid dispute confronting pupil and teacher.

It clearly emerges, already from the few excerpts we have been considering, that Dante's adventure is not a solitary one and his steps are not only guided by his master Virgil but also discussed with him. We are not surprised to learn that social relationships, like the one between Dante and Virgil, are part and parcel of the development of knowledge and experience, as this has been proved thanks to Anne-Nelly Perret-Clermont's contribution (Perret-Clermont 1979; Perret-Clermont, Carugati and Oates 2004). In more recent works, she

¹⁴ Encountering Virgil, Dante addressed him by "You are my teacher and my author" (*Inf.* I, 86). Carlo Ossola remarked during a private conversation that such attitude of trust and gratitude is confirmed and emphasized after the dispute, at the end of the second canto (*Inf.* II, 140): "Tu duca, tu signore, tu maestro" ("You are my leader, you my lord and master") and in other passages of the first fifteen *Inferno's* canti. The respectful and friendly relationship of Dante and Virgil becomes, gradually, an affectionate complicity. Thus, by the end of *Inferno* "Maestro" is replaced by the fonder form "Maestro mio": "*disse 'l maestro mio*." – ('my master said', *XXXII*, 3), and, at the beginning of *Purgatorio* a sort of parity is suggested: "Lo mio maestro e io e quella gente ..." "My master and I and all those standing ..." (*II*, 115). Clearly, as Dante walks with Virgil, he 'grows up' until Virgil takes leave of him acknowledging his full mastership: "No longer wait for word or sign from me. Your will is free, upright, and sound ... over yourself I crown and miter you." (*Purgatorio* XXVII, 139 - 142).

¹⁵ *O Muses, O lofty genius, aid me now!
O memory, that set down what I saw,
here shall your worth be shown.*

I adopt here the interpretation suggested by Benvenuto of Imola who understands the figures invoked as the three forces which are mostly necessary to the achievement of the poet's work: firstly the poetic science, providing a profound and universal meaning of knowledge ("primum est scientiae profunditas vel universitas"), secondly an insightful and penetrating understanding ("secundum, intellectus perspicacitas"), thirdly a vivid memory ("tertium, memoriae vivacitas"). See Benvenuto's comment to the considered verses of the second canto.

As mentioned by Chiavacci Leonardi in her comment to the same verses, Latin noun *ingenium* is interpreted by the ancient commentator Pietro Alighieri as the extension of human understanding which aims at discovering new unknown things ("ingenium est extensio intellectus ad incognitorum cognitionem": Pietro Alighieri).

has also shown that argumentation is at the basis of this kind of developmental relationships (see for example Muller Mirza et al. 2009, Perret-Clermont 2012).

3. A CRITICAL DISCUSSION CHALLENGING THE CONFIDENCE OF THE PUPIL IN THE TEACHER

I began: 'Poet, you who guide me, consider if my powers will suffice before you trust me to this arduous passage. 'You tell of the father of Sylvius that he, still subject to corruption, went to the eternal world while in the flesh. 'But that the adversary of all evil showed such favor to him, considering who and what he was and the high sequel that would spring from him, 'seems not unfitting to a man who understands. For in the Empyrean he was chosen to father holy Rome and her dominion, 'both of these established -- if we would speak the truth -- to be the sacred precinct where successors of great Peter have their throne. 'On this journey, for which you grant him glory, he heard the words that prompted him to victory and prepared the Papal mantle. 'Later, the Chosen Vessel went there to bring back confirmation of our faith, the first step in our journey to salvation. 'But why should I go there? who allows it? I am not Aeneas, nor am I Paul. Neither I nor any think me fit for this. 'And so, if I commit myself to come, I fear it may be madness. You are wise, you understand what I cannot express.'	Io cominciai: «Poeta che mi guidi, guarda la mia virtù s'ell' è possente, prima ch'a l'alto passo tu mi fidi. Tu dici che di Silvïo il parente, corruttibile ancora, ad immortale secolo andò, e fu sensibilmente. Però, se l'avversario d'ogne male cortese i fu, pensando l'alto effetto ch'uscir dovea di lui, e 'l chi e 'l quale non pare indegno ad omo d'intelletto; ch'e' fu de l'alma Roma e di suo impero ne l'empireo ciel per padre eletto: la quale e 'l quale, a voler dir lo vero, fu stabilita per lo loco santo u' siede il successor del maggior Piero. Per quest' andata onde li dai tu vanto, intese cose che furon cagione di sua vittoria e del papale ammanto. Andovvi poi lo Vas d'elezione, per recarne conforto a quella fede ch'è principio a la via di salvazione. Ma io, perché venirvi? o chi 'l concede? Io non Enëa, io non Paulo sono; me degno a ciò né io né altri 'l crede. Per che, se del venire io m'abbandono, temo che la venuta non sia folle. Se' savio; intendi me' ch'i' non ragiono» (Inf. Canto II, vv. 10-36)
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The rather complex argumentation structure of Dante's reasoning contesting the reasonableness of the undertaken journey is outlined by Figure 3, representing the connection of the numerous argumentative knots of Dante's entire argument. The standpoint (1), clearly expressed in the last tercet (*if I commit myself to come, I fear it may be madness*), is justified in (1.1) by the lack of adequate virtue or powers, which in turn is founded on a compound argument: (1.1.1a) One possesses the adequate virtue only as grace received from God + (1.1.1b) God did not give me the adequate grace, where the second argument is justified by another compound argument: (1.1.1b.1a) Only if it serves a great mission it is reasonable that God concedes grants the virtue adequate to an extraordinary enterprise + (1.1.1b.1b) I have no great mission to which this enterprise might serve. The former of the last two, (1.1b.1a), is eventually confirmed by (1.1.1b.1a.1): In all previous cases God conceded granted the virtue adequate to this enterprise only to people having a great mission.

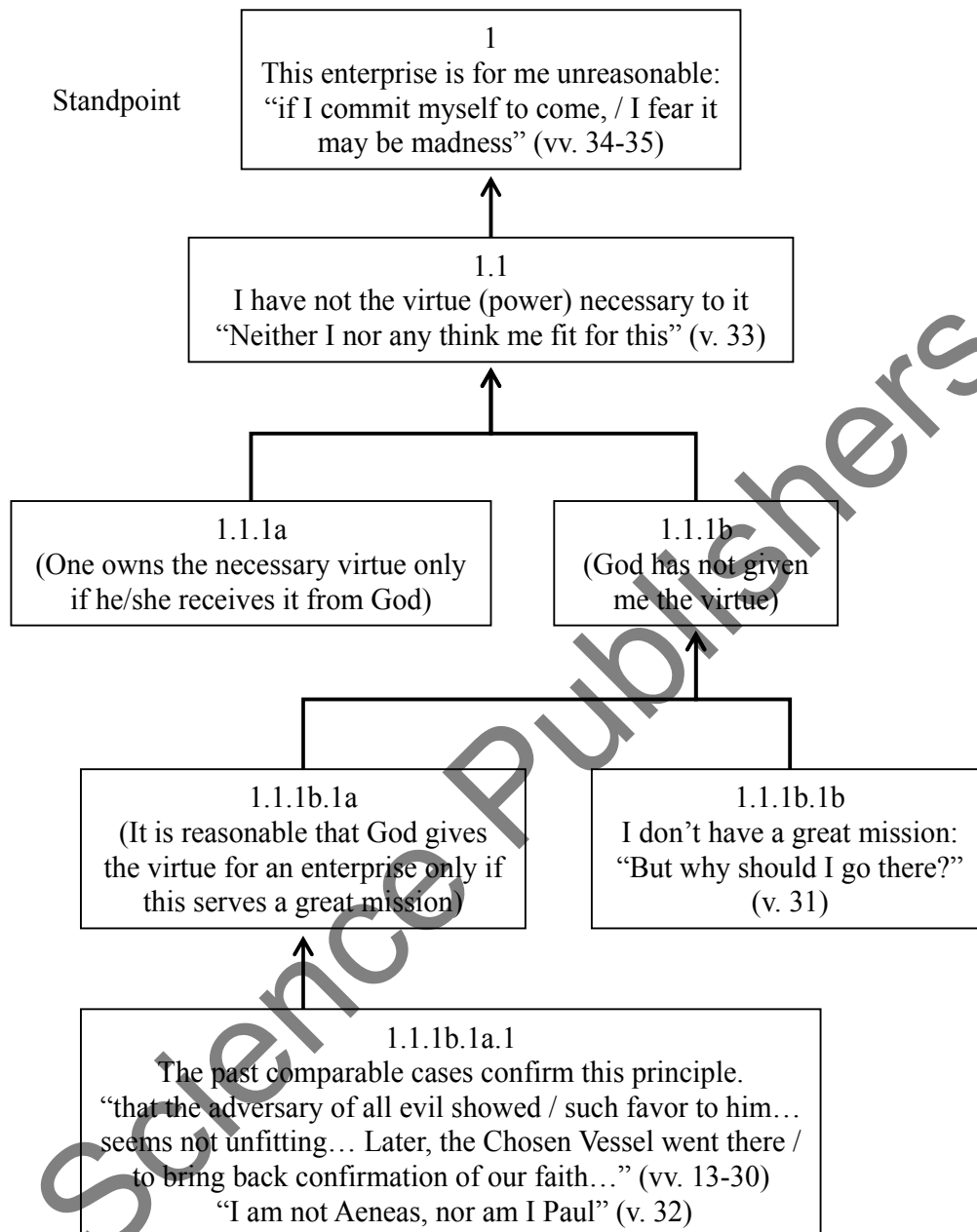


Figure 3. argumentation structure of Dante’s objection.

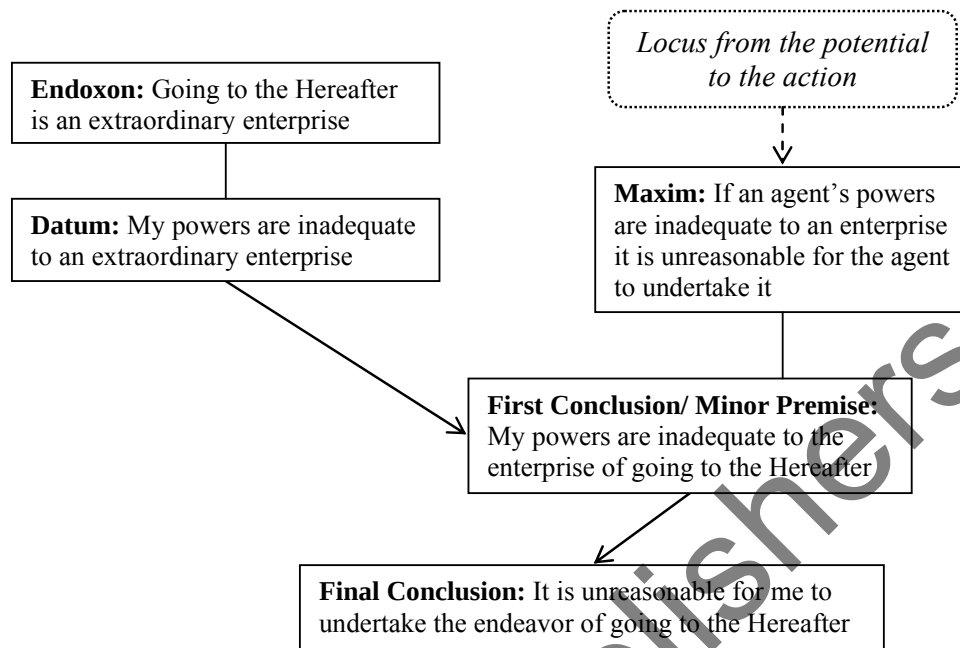


Figure 4. inferential configuration of Dante's criticism against the reasonableness of the journey.

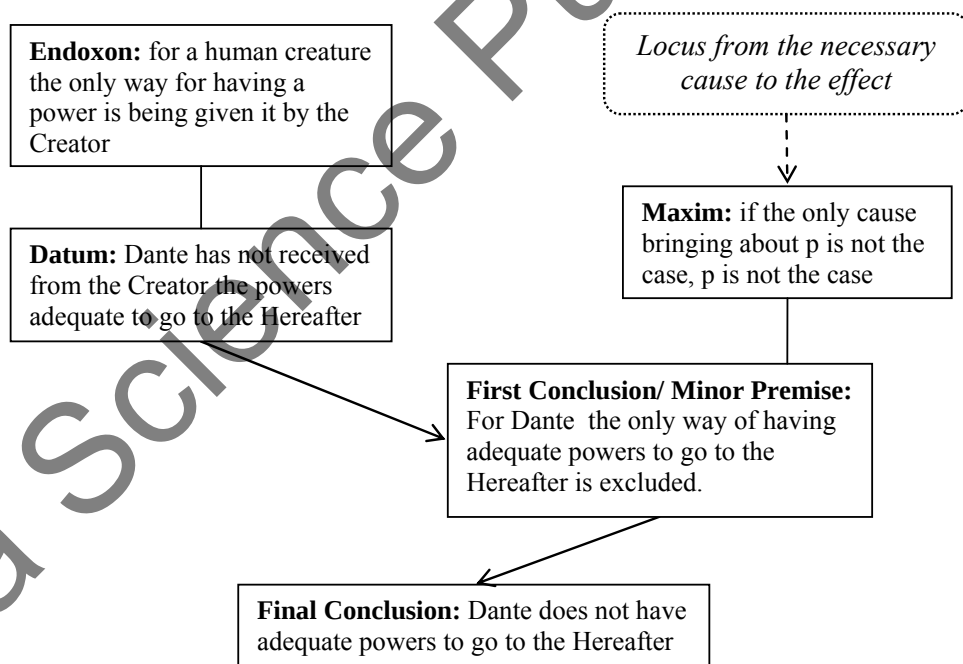


Figure 5. Inferential configuration of the argument denying the adequacy of Dante's powers to the journey.

In order to highlight the four argumentative knots singled out by the argumentation structure, I propose the inferential configuration elaborated on in the Argumentum Model of Topics (AMT). Knot (1.1) is next to the standpoint and, by reasoning from means to action excludes the reasonableness of an action because of inadequacy of means.

Knot (1.1.1), which is developed in figure 5, justifies the lack of powers, assumed as datum in figure 4, on the basis of two premises: (1.1.1a) man humans have only what he/she/they has have been given by God and (1.1.1b) God did not give adequate powers to go to the Hereafter to Dante. The first premise figures as the endoxon, and is a natural corollary of a vision in which man is God's creature. The second premise is again a datum, which is expected to be justified by some further argument.

The knot that is analyzed in Figure 6 proves that it would be unreasonable for God (and therefore could not be the case) that Dante be provided with powers adequate to go to the Hereafter. The argument is based on a maxim relating the amount of the resources released to a subordinate agent to the importance of his mission and on a datum ("I have no great mission") which excludes that Dante has the mandate for a great mission.

The argumentative move outlined in figure 7 is not strictly required from a dialectical viewpoint, because the reasonableness of Dante's journey has already been excluded by the consideration that, for God, it would be unreasonable to provide adequate powers for a purposeless enterprise. The argumentative move of figure 7 is there to stress, by empirical (historical) evidence, the principle stating that the journey is allowed only if it is ordered to a great mission that the condition finalizing the concession of this journey to a great mission was verified in both previously occurred cases, while it is falsified in the current case was not comparable. The consciousness of Dante that he does not have a great mission is expressively rendered by a disconsolate acknowledgement: "I am not Aeneas, nor am I Paul".

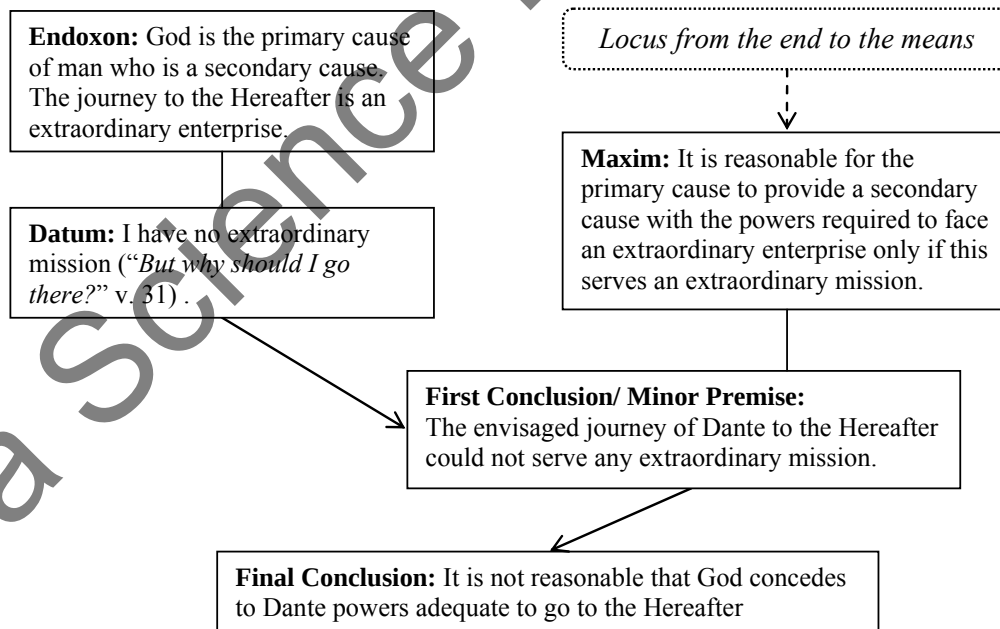


Figure 6. inferential configuration of Dante's argument against the reasonableness for God to provide Dante's with adequate powers to go to the Hereafter.

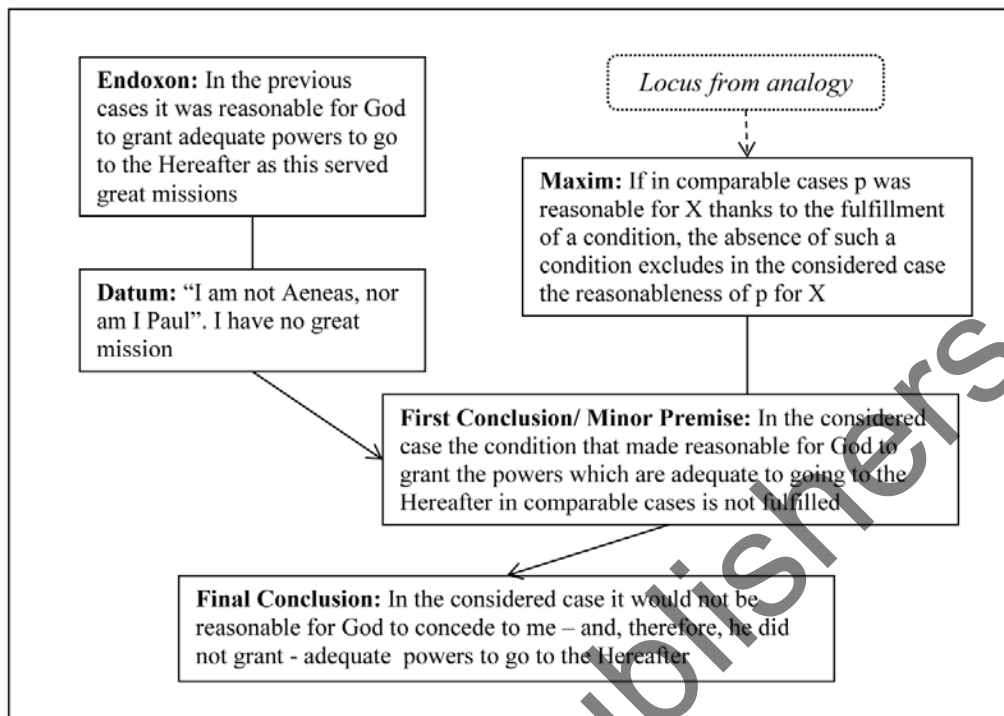


Figure 7. inferential configuration of the argument by analogy moving from previous cases to prove the unreasonableness of conceding granting the adequate virtue.

4. VIRGIL'S REPLY

In his reply Virgil seriously assumes the burden of responding to Dante's argument by narrating by whom and for what reason he has been sent to Dante (*I'll tell you why I came and what I heard / when first I felt compassion for you* - vv. 50-51). He explains that he was "among the ones who are suspended" [that is, the Limbo] when Beatrice called him, "a lady... so blessed and so fair / that I implored her to command me" - vv. 53-54". Beatrice, descended in the Inferno "from where ... she ... most desires to return", that is from Paradise, to meet Virgil, asking the Roman poet to hasten in aid of Dante. She narrated how she herself was prompted to "arise to help him" by the incitement and the concern of another woman, Saint Lucy, whom Dante was particularly devoted to. Lucy "arose and came to where I [Beatrice] sat", exhorting Beatrice to provide aid to the man who, for sake of her "left the vulgar herd". But Lucy, in turn, had been summoned and "moved" by a third woman, the Virgin Mary, "a gracious lady in Heaven so moved" at Dante's peril, that she "breaks stern judgment ..." So that Virgil is sent to Dante's care.

Virgil's narration is there to prove that Dante's journey is wholly legitimated by a divine initiative. At this point Dante's reluctance to undertake his journey can no longer be considered as a sign of prudence, but only as the effect of unreasonable cowardice.

What then? Why, why do you delay?
 Why do you let such cowardice rule your heart?
 Why are you not more spirited and sure,

when three such blessed ladies
 care for you in Heaven's court
 and my words promise so much good? (vv. 123-126)

However, Virgil's response does not dismantle the entire argumentation of Dante: now he knows that his journey to the Hereafter is legitimated and that he has received the adequate powers, but he also knows (see above Dante's argument) that God does not legitimate an enterprise which does not serve a great mission. Therefore, he is certain that he must have a mission, although he ignores what it is. In this regard, this argumentative interaction remains open.

5. SOME NOTES ON RHETORICAL STRATEGIES

Highlighting the argumentation structure and the inferential configuration in the presentation of Dante's dispute has put the dialectical perspective in the foreground while leaving rhetorical strategies in the background. We cannot comprehensively consider here the variety of rhetorical resources exploited by Dante, ranging from the four interpretative layers of the text¹⁶ as well as the rhetorical effects in prosody, wording and phrasing to the different arrangements of *partes orationis*, sentence constituents and arguments. I will only consider those rhetorical strategies that are the closest to the argumentative organization of text: namely the choice of arguments and their arrangement¹⁷.

As for the choice of arguments, I signal that, at the beginning of Dante's "attack" to Virgil, the Roman poet is directly called into question as the source of Aeneas' journey to *Inferi* (6th book of Aeneid).

You tell of the father of Sylvius
 that he, still subject to corruption... (v. 13-14)

In this way the whole chain of arguments is personalized and somehow warranted by the counterparty. Moreover the inductive nature of this argument is fitting for a not-sophisticated

¹⁶ In Dante's letter to Cangrande (20-21) the four meanings (see Ossola 2012: 29-30), in relation to which his work, just as the sacred texts, should be read, are reminded and concisely characterized: "*sciendum est quod istius operis non est simplex sensus, ymo dici potest polysemos, hoc est plurium sensuum; nam primus sensus est qui habetur per litteram, alius est qui habetur per significata per litteram. Et primus dicitur litteralis, secundus vero allegoricus, sive moralis, sive anagogicus*". The poet is aware that the meaning of this work is not of one kind only, as it is 'polysemous': e.g., using Dante's example, in the literal meaning the biblical verses: '*When Israel went out of Egypt, the house of Jacob from a people of strange language; Judah was his sanctuary, and Israel his dominion*' simply signify the going out of the children of Israel from Egypt; if, beyond the letter, the other three meanings are considered, in the allegorical meaning, our redemption by Christ is intended; at the moral level, the conversion of the soul from the misery of sin to a state of grace is signified and, eventually, the anagogical meaning refers to the transition of the sanctified soul to "the liberty of everlasting glory".

¹⁷ See in this regard also van Rees and Rigotti (2011).

audience (Aristotle's *Topica*, book 8th). Not by chance it covers more than half of the entire text.

As for the arrangement of arguments, it is interesting to compare the arrangement resulting in the argumentation structure (see figure 3) to the order of the standpoint and the arguments in the text we are considering. Being a permutation of the propositions of the text in which the inferred proposition precedes (is followed by) the inferring proposition (building its justification), the argumentation structure duly starts with the immediate declaration of the standpoint. On the opposite, in Dante's text the standpoint only appears as conclusion in the last tercet: "*if I commit myself to come, I fear it may be madness*". In the first tercet the standpoint is very indirectly alluded to: an issue is set (*'Poet, you who guide me, consider if my powers will suffice*) which comprises, as its negative alternative (*my powers will not suffice*) a premise building, together with other premises remaining for the moment in shadow, an argument concluding with the intended standpoint. Not less significantly, the first argumentative move appearing in the text exactly coincides with the last argumentative move presented in the argumentation structure.

In the perspective suggested by argumentation structure the discourse is mainly managed by the antagonist who obliges the protagonist to give reasons for the standpoint and, if the premises used as reasons prove not to be shared, to give further reasons backing the reasons just given and so on, until the premises which are used are also shared by the antagonist too. At each passage, the protagonist's intervention answers an argumentative "why?", which is implicitly or explicitly asked by the antagonist. The argumentative discourse is concluded when the justification by the protagonist shows to be based on propositions which are shared by the antagonist who, thus, cannot request further justification. The process ends when the argumentative commitment required by the antagonist is somehow exhausted and the difference of opinion is thus resolved.

In the rhetorical arrangement that is here chosen by Dante a different perspective is adopted: like a mathematician building up his/her theorem, the protagonist constructs himself the whole justification of the standpoint (or thesis); then he submits the whole to the antagonist's critical scrutiny, at which point, following the inferential chain, the antagonist should feel obliged to accept the standpoint. At each passage, the intervention by the protagonist introduces a consequence of the preceding statement: thus the inferring proposition precedes the inferred one. All ends when the inferred consequence coincides with the intended standpoint.

It is important to remark that, from a logical point of view, the two argumentative paths described above are equivalent because the move '*p* is justified by *q*' is logically equivalent to the move '*q* justifies *p*'. . The rhetorical effects are, however, different. In the second path (the one chosen by Dante), the confrontation stage remains implicit and the inferential path is emphasized.

CONCLUSIVE REMARKS

Dante's dispute with Virgil significantly characterizes education in the poet's vision. First, in Dante's vision education is an interaction, what is not at all trivial if we consider how frequently the theoretical positions and, even more, educational practices understand and plan

teaching as a one-way transfer - from teacher to learner - of knowledge, beliefs and values. The solution proposed by Dante is not merely a matter of alternating learner and teacher's communicative roles. In reality, listening itself can represent a fully active and essential communicative role and alternating roles does not always free learners of a passive, subordinate attitude. Nonetheless, in education, dialogical exchange is indispensable at least in order to equip the learner with an adequate competence responding to all his/her communicative needs. However, the main reason why it is necessary to adopt a dialogical approach is that education cannot be reduced to training or drilling. Knowledge and decision making require an aware and critical attitude. Argumentation, in which both the interactional and the critical dimensions are at work, is thus constitutive of a properly human education¹⁸.

By adopting an argumentative approach, teaching is no longer a repetition of contents that have been acquired once for all, but becomes a process of critical reacquisition and development of knowledge and values shared with the learner. Learning regains interest and attractiveness for the learner because she/he becomes an active protagonist of her/his development.

For these and other reasons, I believe that the consideration which is reserved by Anne-Nelly Perret-Clermont to argumentation in the study of learning processes¹⁹ opened a new fertile vein in the field of human and social sciences. Learning emerges as dialogical and critical – and therefore argumentative - co-construction of knowledge (and values). I feel personally engaged in the interdisciplinary research space opened by Anne-Nelly and perhaps Dante may facilitate our dialogue.

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¹⁸ In argumentation social and cognitive asymmetries are somehow suspended. However, argumentative parity does not impose a leveling of roles and stories. What matters is that in an argumentatively informed education authority does not work as a point of reference exonerating learners from reasoning and researching, but it keeps its importance in another sense, namely as a reliable guide in argumentation (see, in this connection, Perret-Clermont 2005 for the notion of a "thinking space" that adults/teachers are in charge of providing). The teaching-learning process can thus count on a relevant relationship, which is nourished in both directions by esteem and affection (on the affective dimension of argumentation see Muller Mirza et al., 2009). Virgil shows a benevolent interest in Dante's salvation. Dante feels encouraged in meeting him and greets him with affection and gratitude (see also above note 3). Moreover, Virgil is seriously engaged in the critical discussion initiated by Dante.

¹⁹ Particularly significant in this relation is the following statement: "Argumentation has an increasing importance in education not only because it is an important competence that has to be learned, but also because argumentation can be used to foster learning in philosophy, history, science and mathematics, and in many other domains." (Mirza and Perret-Clermont, 2009:3)

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Chapter 11

**INTER- AND INTRA-EMPOWERMENT MECHANISMS:
CONTRIBUTIONS TO MATHEMATICAL
THINKING AND ACHIEVEMENT**

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ABSTRACT

A brief account illuminates the influences of Anne-Nelly Perret-Clermont's studies in our research and how we expanded some concepts through the triangulation of some theories: Piaget, Bakhtin, Vygotsky, situated learning and dialogical self. A research (César, 1994) is connected to Perret-Clermont's work and the *Interaction and Knowledge* (IK) project (César, 2009, 2013a, 2013b) is used as an example on how we put into practice its ultimate goal. Two new constructs coined by César (2013a) are explored: inter- and intra-empowerment mechanisms. The IK project lasted 12 years and included a 10-year follow up. Its main goal was to study and promote social interactions, particularly among peers, in formal educational scenarios. It also aimed to contribute to an inclusive and intercultural education. We focus on data from action-research projects and we assume a socio-critical paradigm. The main participants were the students from around 600 mathematics classes and their teacher/researchers. As main data collecting instruments we used observation, questionnaires, interviews, informal conversations, documents, and students' protocols. Data were treated through a narrative content analysis. The results illuminate the importance of collaborative work in order to promote students' mathematical performances and their positive self-esteem. We explore examples regarding blind students and those whose socio-cognitive and emotional development is affected, shaping their school achievement.

INTRODUCTION

I was interested in Anne-Nelly Perret-Clermont's works since the 1970s. The first inspiring works were two introductory papers and her doctoral thesis as they illuminated the importance of social interactions in cognitive development. They also gave a much clearer

social dimension to Piagetian theory, particularly to its clinical method (Doise, Mugny, & Perret-Clermont, 1975, 1976; Perret-Clermont, 1978). These works, along with my own life trajectory of participation (César, 2013a), were responsible for my two main research interests: (1) social interactions, participation, and school achievement; and (2) inclusive and intercultural education. Thus, when I began my doctoral thesis (César, 1994), I aimed at developing a research in an interface between developmental psychology, educational psychology, and mathematics education. I was interested, as many other researchers, in understanding the role of social interactions, particularly dyad work, in mathematics performances in a school context (César, Perret-Clermont, & Benavente, 2000). By then, the main theoretical and methodological questions regarded the role of social interactions in cognitive and/or socio-cognitive development (Carugati & Gilly, 1993; Perret-Clermont & Nicolet, 1988/2001) and their impacts in learning (Perret-Clermont, 1980, 1992; Perret-Clermont, Brun, Saada, & Schubauer-Leoni, 1984; Rogoff & Wertsch, 1984), particularly in mathematics (Schubauer-Leoni & Perret-Clermont, 1980, 1985).

In César (1994), the role played by social interactions, the nature of the mathematics tasks and the working instructions in students' engagement and performances were explored. This study was shaped by many of Perret-Clermont's works. But it expressed an ultimate goal, to be achieved in the future, trying to go a step further: to conceive and put into practice a research project in which researchers/academics and school teachers would work collaboratively in the project team, and study the impacts of students' collaborative work in their performances and achievement. *Interaction and Knowledge* (IK) was the project that corresponded to this ultimate goal. It lasted 12 years, from 1994/95 until 2005/06, including a 10-year follow up (for more details see César, 2009, 2013a, 2013b; Ventura, 2012). Its data are so rich and challenging that the analysis of its theoretical, methodological and empirical transitions was the focus of a doctoral thesis (Ventura, 2012). The instrument that the IK team elaborated in order to evaluate students' abilities and competencies (IACC), and the impacts of its analysis on collaborative work in mathematics classes, are also addressed in another doctoral thesis (Machado, 20143).

In the IK project, the challenges and theoretical support provided by the historical-cultural perspective (Bakhtin, 1929/1981; Vygotsky, 1934/1962), the dialogical self (Hermans, 1996, 2001, 2003), situated learning (Lave & Wenger, 1991; Wenger, 1998) and the issues regarding power and participation (Apple, 1995; César, 2013a; Kumpulainen & Lipponen, 2010) became visible in our analysis and writings (Ventura, 2012). Triangulating these theories was one of the innovative features of this project. Collaborative work played a main role in the IK team, and in its theoretical background, method and data analysis. But the main points that led me to my doctoral work remained the same and our research work is still developed in interface domains as they allow for a better understanding of complex, dynamic, dialogical and multi-determined phenomena, like the ones regarding development and education. We are still concerned with students' engagement in school tasks, performances, achievement, and subtle forms of exclusion particularly experienced by vulnerable cultural minorities, including students who need special educational support (César, 2012; César & Santos, 2006). Thus, the new constructs discussed in this chapter are closely linked to my first studies in the domain of social genetic psychology (César, 1994; César et al., 2000). But they are also shaped by the growing relevance of new theories and concepts, like inclusive education, that we connected to our empirical work while interpreting IK empirical evidences (César, 2009, 2013a, 2013b; César & Santos, 2006).

The IK was the most challenging research project in which I participated. It was developed all over Portugal, and even if we focus on just in its mathematics studies, we studied around 600 mathematics classes taught by 69 mathematics teacher/researchers who participated in its central team. Although the IK project officially ended in 2005/06, its principles and practices are still used in many Portuguese classes and schools. Moreover, future teachers and teachers still ask for pre- and in-service teacher education workshops in order to learn how to develop these types of practices. This illuminates how unique this project was and how heuristic was the knowledge appropriated by those who participated in it. The IK impacts go far beyond the year in which it officially ended (for more details, see César, 2009, 2013a, 2013b; Hamido & César, 2009; Machado, 20143; Ventura, 2012). Its features also included a 10-year follow up for some selected participants and the data we collected provided some of the richest empirical evidences, as illustrated in this chapter. This project was conceived and lived as a joint enterprise. This is why the designations “we” and “our” are used even in single-authored papers. In this chapter we focus on two new constructs coined by César (2013a): inter- and intra-empowerment mechanisms. These constructs emerged from data analysis. We illuminate their impacts in classes that included students who needed special educational supports (César, 2012), such as blind students and those experiencing a slower socio-cognitive and emotional development.

THEORETICAL BACKGROUND

Conflicts as Turning Points for Learning

Different types of conflicts have been addressed when studying the learning processes. Two of them were particularly important for our theoretical background: (1) socio-cognitive conflicts (Perret-Clermont, 1978; Perret-Clermont & Nicolet, 1988/2001; Schubauer-Leoni, 1989); and (2) conflicts among the different I-positions (César, 2013a; Hermans, 1996, 2001, 2003). Although coming from different theories, which conceive the human mind in different ways, we triangulated these theories in order to get a better understanding of educational phenomena. Piaget (1936, 1947) aimed at creating a model for cognitive development, which was based on an epistemic subject. But despite that, he also developed a particular methodology to study children’s development, based on direct observation and conversation. Thus, the construct of cognitive conflict was shaped by those interactions, that is, it was elaborated in an inductive way, based on what emerged from the analysis of those protocols. This is an interesting issue – he conceived cognitive conflict as something happening in each child’s mind, but this conflict was originated by a situation and a conversation, although he did not analyse them as such. He was still conceiving development without giving a central role to social interactions, although his methodology was based on conversations between a researcher and a child, mediated by some cultural artefacts (glasses, water, among others). But this mediation role was not made explicit.

Perret-Clermont (1978), expanding the construct of cognitive conflict used by Piaget (1936, 1947), refers to the construct of socio-cognitive conflict. She was already putting social interactions in a central place regarding children’s development. But the influence of Vygotsky’s theory became clearer in her works as time went by. She contributed to connect

these two theories, like other authors (Tryphon & Vonèche, 1996). Perret-Clermont (1978) states:

That is why we formulate the following thesis – that our researches aim at illustrating, even at demonstrating: in particular phases of development, the joint action of several individuals, demanding the resolution of a conflict between their different positions, allows for the construction of new co-ordinations. (p. 47, my translation)

In this excerpt, although not naming this process as a socio-cognitive conflict, she states that her doctoral thesis is based on its existence and her empirical work aims at demonstrating its impacts in children's development. We may assume that the socio-cognitive conflict played a main role in her first works and that, even nowadays, she remains interested in studying it.

In Perret-Clermont and Nicolet (1988/2001) they underline that

However, among that complexity, a certain amount of facts seem to happen again and again: we observe in all researches that some states of limited comprehension can be improved by the confrontation of the subject to references which contradict his/her own way of resolution (people, norms, action procedures). These socio-cognitive conflicts proved themselves to be able to bring the individual to a relatively in-depth restructuring of his/her way of thinking. (p. 15, my translation)

This last excerpt illuminates the central role played by socio-cognitive conflict in children's development and in their thinking, but it also illuminates the importance of inductive conceptualization, that is, the one that emerges from the analysis of empirical data. Moreover, this restructuration of children's ways of thinking shows the prospective dimension of this construct. It also stresses other important points, such as the need for a double management of the contradictory characteristics of a socio-cognitive conflict: cognitive contradictions that the person needs to overcome, leading him/her to more complex ways of thinking; gathered to the necessity of deciding social aspects such as when s/he agrees, disagrees, makes concessions, or gives up trying. These last issues correspond to the different social aspects involved in any social interaction in which partners do not share the same solving strategy and are not immediately convinced that his/her partners' solving strategy fits better the situation in which they are acting and the problem they are solving.

Later on, the role played by socio-cognitive conflicts was also visible in the learning processes, particularly when it occurred in a formal educational context (César, 1994), and in scenarios like a school class. Thus, the role of the socio-cognitive conflict was not only important in some testing conditions, that is, within an experimental contract (Schubauer-Leoni & Grossen, 1993), but also in schooling and within a didactic contract (Brousseau, 1988; Schubauer-Leoni, 1986). This proved its heuristic value and allowed researchers to go beyond the way they conceived it. As illustrated in some previous analysis of IK empirical evidences, socio-cognitive conflicts associated to adequate nature of the tasks and a coherent didactic contract allowed students to appropriate mathematics knowledge, and also to develop social competencies (César, 2003, 2009).

We first expanded the construct of socio-cognitive conflict when we connected it to the concept of zone of proximal development (ZPD), coined by Vygotsky (1934/1962), and to the importance of mediation, particularly the one played by teachers, the nature of the tasks,

working instructions, and didactic contract. ZPD is also a prospective concept. It allowed us to give a cultural dimension to the socio-cognitive conflict construct, as some of the conflicts were not only social but also cultural, as illustrated in César (2009, 2013a, 2013b). While working in students' ZPD, we also underlined the need to exchange the student who acted as the most competent peer in different mathematics tasks, avoiding the traps of dependence, which we usually observe in the less competent peers when students are working in dyads and/or small groups for a whole school year and it is always the same student who acts as the most competent. This also allowed us to promote students' autonomy. Thus, we elaborated mathematics tasks that facilitated this exchange, that were adequate to students' abilities and competencies, particularly for those abilities and competencies they still needed to develop, that is, the ones they use while working in their ZPD.

We conceive of the self as dialogical (Hermans, 2001). There are two main dimensions that must be considered regarding the dialogical self: time and space. The dialogical self relates the past with the present and also allows certain expectations (future). Hermans (1996, 2001, 2003) distinguishes between the I-self (I as a knower) and the Me-self (I as known). Each person assumes different I-positions (e.g., as a wife, a daughter, a mother, a teacher, among others). In different moments (times) and situations (spaces) these I-positions are organised in different architectures, and some of them are dominant at a particular time and space, while others become dominant in other moments and situations. Sometimes, there are conflicts between these I-positions, as César (2009, 2013a) illustrated. Hermans (2001, 2003) states that internal voices of the different I-positions can be in conflict. This therefore is also a way of expanding the notion of socio-cognitive conflict. This means that this conflict is no longer possible only when we participate in a social interaction that is taking place between us and another person, they are also part of each one's identity, as the others are constitutive of the self. Thus, our internal voices are also capable of provoking socio-cognitive conflicts. But it can also go the other way: socio-cognitive conflicts sometimes emerge from conflicts between I-positions, or the external voices that make these I-positions visible to others, as we observe in some analysis of interactive processes (César, 2009, 2013a, 2013b).

The conflicts between different I-positions (Hermans, 2001), or voices which expressed them (César, 2013a), were more often observed among students participating in cultures that were quite different from the mainstream culture and also from the school culture (César, 2009, 2013a, 2013b). The concept of culture is used in two different ways. In a large sense, we conceive culture as defined by

the ever-changing values, traditions, social and political relationships, and worldview created and shared by a group of people bound together by a combination of factors (which can include a common history, geographic location, language, social class, and/or religion), and how these are transformed by those who share them. (Nieto, 1996, p. 390)

This is the definition behind the designation mainstream culture, Cape Verde culture, or Deaf culture. In this large sense the existence of a particular language is an essential feature in order to identify a particular culture. But we also use the concept of culture in a strict sense, such as when we mention the school culture. Remedios and Clarke (2009) give a definition of culture in this strict sense: "We view culture as less about a rigid categorization between groups and more about shared patterns of understandings that individuals (teachers and students) use to develop their personal codes for interpreting what is occurring around them"

(p. 302). The language of instruction is not what allows us to identify a particular school culture. Many schools using the same language of instruction have different school cultures. But the shared patterns of understanding, the codes that allow students and teachers from that particular school to interpret what happens, are also constitutive of a culture, in a strict sense.

Hermans (1991) refers to another important issue: “any *unit of meaning* has a positive (pleasant), negative (unpleasant), or ambivalent (both pleasant and unpleasant) value in the eyes of the self-reflecting individual” (p. 220, *italic in the original*). As illustrated by César (2009, 2013a), for students participating in minority cultures, which are socially undervalued, achieving at school was not always experienced as having a positive (pleasant) value. Quite often it had an ambivalent value (pleasant/ unpleasant, at the same time), as when they felt more appreciated at school they also experienced more difficulties in their family interactive interplays or with friends from their neighbourhood. Thus, empowering these students whose cultures were usually less respected at school, whose teachers’ expectancies used to be lower, were very important regulatory dynamics in order to facilitate their access to school achievement (César, 2013b). These regulatory dynamics also allowed them to keep I-position conflicts within levels that did not mean an amount of suffering they did not know how to handle. Thus, connecting the construct of socio-cognitive conflict with the one of I-positions and Me-positions, and to their conflicts, facilitated teachers’ work as mediators in students’ access to school and social inclusion. It also allowed them to define life trajectories of participation in which school played a major role (César, 2013a, 2013b).

Didactic Contract: Implicit, Power and Participation

We became more aware of the importance of the implicit in school knowledge when we worked with João dos Santos (Santos, 1990). He was concerned with children who experienced learning difficulties related to their emotional development and that could not be explained by their cognitive development. Later on we were confronted with the concept of didactic contract and both theorizations expanded each other in order to understand the learning processes. What made us use the concept of didactic contract, instead of sociomathematical norms (Yackel & Cobb, 1996), was that the norms can be imposed without negotiation – for instance, the norms that ruled slavery were clearly decided by just one group – while underlying the concept of contract there is a negotiation and all parts need to sign it in order to make it valid. The authors who coined the concept of didactic contract emphasized that many of its rules were implicit (Brousseau, 1988; Schubauer-Leoni, 1986), and they went further, as they distinguished between didactic contract and experimental contract (Schubauer-Leoni & Grossen, 1993), underlining the role played by the meta-didactic contract, particularly in mathematics learning (Schubauer-Leoni & Perret-Clermont, 1997).

We observed the importance of the implicit when we were developing the IK project and analysing its data, as stated by César (2009, 2013a, 2013b) or by César and Santos (2006). The implicit shapes students’ school performances, their own expectancies but also those of their families and teachers, and their forms of participation, including their life trajectories of participation (César, 2013a). It is also – but not only – through implicit ways of acting and reacting that teachers empower students, allowing them to become legitimate participants in that learning community (César, 2007, 2009; Lave & Wenger, 1991). Through the implicit

they may also prevent students from being empowered and create barriers that keep them as peripheral participants who have no voice(s), or whose voice(s) are silenced (César, 2013a, 2013b). Implicit ways of acting and reacting are closely linked to power issues, to how those who have power distribute it or concentrate it in their own hands.

Hermans (1996, 2001) conceived of the dialogical self as multi-voiced and culturally situated. These voices are internal but they also express themselves externally, while interacting with others (César, 2013a). In that sense, only those who are not silenced, who are socially valued, are able to express their voices (Apple, 1995; Wertsch, 1991). When dyads and/or small groups included students from different cultural backgrounds and some of them participated in vulnerable and socially undervalued cultures, power issues and the implicit played a much more important role in their learning processes, as claimed by César (2009, 2013b). Quite often students whose mother language was Creole preferred geometrical solving strategies and global ways of approaching problems, which are less often explored and accepted in Portuguese schooling (César, 2009, 2013a). In these cases, creating thinking spaces (Perret-Clermont, 2004), in which students feel safe enough to express their reasoning, diverse solving strategies, argumentations and cultural examples is a way of promoting their participation as legitimate participants and avoiding low expectancies towards their performances. When this happens, power is distributed and thinking spaces – that we prefer to designate as thinking spaces and times – become one of the inter-empowerment mechanisms that teachers use (César, 2013a). They become dialogical spaces and times, promoting thinking. As Santos (1990) underlined, “thinking is a way of talking” (p. 44), stressing that thinking is a social practice, as Resnick (1991) also illuminated through the concept of shared cognition.

In a similar way to what happens to knowledge (Vygostky, 1934/1962), empowerment mechanisms exist first at a social level (inter-empowerment mechanisms) and only after that are subjects able to internalize them and to transform them into intra-empowerment mechanisms, which are used at a personal level (César, 2013a). For students who participate in vulnerable minorities, whose cultures are quite far away from the school culture, whose teachers’ expectancies are usually low and who experience various forms of social and school exclusion, including underachievement and risks of early school dropouts, promoting inter-empowerment mechanisms is particularly important. The same applies to students who need special educational supports, such as blind students.

Teachers’ practices, when based on dialogical interactions and on collaborative work facilitate the internalization of inter-empowerment mechanisms, allowing students to use them as intra-empowerment resources when they act and react on their own, in an autonomous way, in other contexts, scenarios and/or situations. Thus, using inter-empowerment mechanisms is an essential step to promote equity and students’ access to mathematics cultural tools (César, 2013a, 2013b). Their conceptualization expands the notion of teaching and learning mathematics based on a cultural-historical perspective, addressed by Roth and Radford (2011). It allows teachers to be more aware of the impacts of their practices and also to have more effective means to promote students’ performances, knowledge appropriation and also their abilities and competencies.

METHOD

The *Interaction and Knowledge* (IK) project assumed research as a joint enterprise and valued legitimate participation. We assumed an interpretative paradigm (Denzin, 1998) and our interpretations were shown to the participants. They were able to criticize, complete and/or reject them. Thus, the interpretations we present in papers were also produced collaboratively. This project used three research designs: (1) *quasi-experimental* studies; (2) action-research projects; and (3) case studies. These designs shared knowledge and some of the research questions that came from one of them were later explored in the others, so that the answers could be more complete. This meant there were in-depth connections between practice and theory, as referred by Perret-Clermont (1992), who inspired us. Some of the constructs we coined were inductively produced, as they came from the analysis of empirical evidences (for more details on the IK see also César, 2009, 2013a; Hamido & César, 2009; Ventura, 2012). This paper is focused on the action-research projects and on mathematics classes, that is, in the design that assumed a clear intervention scope (Mason, 2002), allowing us to develop inter- and intra-empowerment mechanisms, as discussed in the results.

The main participants we consider in this chapter were the 69 teacher/researchers who taught mathematics classes and their students (around 600 classes). But participants also included psychologists, families and other educational agents. The main collecting data instruments were observation, questionnaires, interviews, informal conversations, documents and students' protocols. All classes were studied for at least one school year, but some of them were followed during three or more school years. This depended on the teachers' contracts: some were from the school board and remained in the same school for several years. Others changed every year. The data treatment and analysis is based on a narrative content analysis (Clandinin & Connelly, 2000).

RESULTS

Previously we illuminated the role played by inter- and intra-empowerment mechanisms in two students' life trajectories of participation (César, 2013a), and in families' empowerment (César, 2013b). These two students were chosen as paradigmatic examples and allowed us to illustrate the role played by these mechanisms in a student participating in minority and socially undervalued cultures (e.g. Cape Verde; poor slum neighbourhood) and in another one connected to the mainstream culture (César, 2013a). Families from a poor background and participating in vulnerable minorities were also used to illustrate the importance of regulatory dynamics between schools and families (César, 2013b). Thus, these chapters were particularly focused on cultural differences and their impacts in voices and power issues. In this study we now focus on another type of student: (1) those who need special educational support and who have access to different symbolic systems, like blind students who use mathematical Braille, that is, a specific Braille code for mathematical notation they use when they are writing; and (2) students who present a slower socio-cognitive and emotional development that shapes their thinking in particular ways.

Blind Students Learning Mathematics

In Portugal the majority of blind students read and write mathematical Braille. This symbolic system has some particular features, due to the characteristics of the Braille cell that only allows for 63 combinations, and also to the Braille printing. For instance, *l* and *a* use the same points in the Braille cell. Thus, in order to know that we mean *l* we use the sign of number before the cell. But in Portugal the majority of the mathematics teachers do not know Braille. Thus, when they teach blind students they are not aware of the specificities of their learning resources. This lack of awareness creates barriers to learning instead of promoting inter-empowerment mechanisms. In many cases, such as the one we report, we could also see that this lack of knowledge prevented this student from using the intra-empowerment mechanisms she had already internalized as she felt confused and insecure when she listened to her teacher's comments on her work and doubts. Another example is that for a non-blind student who is writing with a pencil, erasing is a very simple act. S/he can write and erase several times, without any difficulties. But for blind students erasing means using their nails to erase the small points that constitute the Braille writing. This means that once erased, the Braille cell cannot be written again, unless they use another sheet of paper and start again from the beginning, which is not possible in class (See Appendix 1).

Teachers are not always sensitive to these differences in the procedures. Teacher/researchers who participated in the IK team assumed an inclusive education type of practice, based on collaborative work. They adapted and/or elaborated mathematics tasks that allowed blind students to perform similar school mathematics activities as the ones performed by their schoolmates – and this constitutes a first inter-empowerment mechanism with a powerful implicit: they believe blind students are able to do the same activities as their schoolmates. Their expectancies towards these students are high. They all learned Braille when they taught blind students or even before that when they aimed at teaching them in the future.

The first excerpt is from an 8th grade class and a task called Sieve of Eratosthenes (see Appendix 1). This is a common task to explore the prime numbers. The blind student (X) was working in a dyad with a non-blind student (Y). This interaction was taped at the beginning of the school year and X was not confident, as in previous school years he was not used to doing all the mathematics activities his colleagues were solving. As this particular task had the erasing difficulties mentioned above, he was always asking for Y's confirmation before erasing a number. She began answering him but instead of putting into practice inter-empowering mechanisms her way of acting just fed his dependence on her. She understood that when they were approaching number 10:

Y – I don't know, what do you think?

[Student X goes on thinking]

Y – Can you divide 10 by more than two numbers?

X – [After thinking for a while] Yes, by 1, 10... and 2.

Y – Is number 10 a prime number, or not?

X – It's not a prime [number]. (Audio taped, observation, dyad, 8th grade)

The way Y questioned X empowered him and after this interaction he was able to go on without asking for confirmations all the time. When he had a doubt he questioned: "You're

also going to eliminate number 25, aren't you?'. They also discussed about some prime numbers like 29 that presents a higher degree of challenge to students. Thus, collaborative work allowed this blind student to internalize some intra-empowerment mechanisms and to act in a more confident and autonomous way. Some of his competencies were worked in his ZPD and later became part of his actual development (Vygotsky, 1934/1962), as he was able to use them in the individual written test. Their dialogical interactions allowed X and Y to use more adequate solving strategies, like erasing all the even numbers after 2, as none of them is a prime number. Thus, working collaboratively allowed X to develop his academic self-esteem and to improve his performance in the mathematics class. But it also allowed his colleague to discover more efficient solving strategies she would not use if working individually. She gave time to X to work in his own rhythm – using Braille takes more time than using a pencil – she avoided answering too quickly, but she soon discovered that he had an interesting mathematical thinking and that she could learn from him.

Another example involving blind students is related to equations. In Braille there is no possibility of writing using two lines, like we usually do in equations with fractions. Thus, if we use mathematical Braille to write such an equation we need auxiliary brackets that indicate the denominators. If a teacher is not aware of this characteristic of mathematical Braille, s/he might explain out loud to the class: "First you get rid of the brackets and then you go on solving". We observed this way of acting quite often, outside the IK team. But for a blind student who is using Braille this instruction makes no sense. In Braille, "Getting rid of the brackets" means having no longer fractions. Thus, teachers who know mathematical Braille are able to put into action inter-empowerment mechanisms and facilitate blind students' access to mathematics tools. But those who ignore Braille quite often create confusions and even prevent students from using their intra-empowerment mechanisms. A female student who was a top achiever in mathematics while she participated in the IK project reported this experience during the follow up:

It's so frustrating! I keep trying to explain to my maths teacher that fractions, for me, use extra brackets and she doesn't care. She confuses me so much, that this year I am experiencing difficulties and I even had a negative mark when I went to the blackboard. It was like if we're speaking different languages. Just a mess! I feel unable to use even what I already knew... or to calm down and think... She keeps telling me that I do not make any effort, that I do not care or pay attention. It's so unfair and the worse is that I'm unable to calm down and prove her I know [mathematics]. (S., interview, 10th grade, 3rd year of follow up).

This student reports this teacher is creating more barriers than the ones she experienced before. When she states that she is unable to calm down and solve the tasks properly, she shows that the lack of effective communicative competencies exercised by her teacher regarding mathematical Braille prevent her from using some of the intra-empowerment mechanisms she was able to use until the 9th grade. When students use symbolic systems that are different from those used by the mainstream culture there is a need for adequate teachers' practices and interactive patterns. This student feels confused, frustrated, without a voice, acting as a peripheral participant, and she was accustomed to being a legitimate participant. This change and lack of empowerment originated underachievement, even when the mathematics performances in previous school years were superlative.

Slower Socio-cognitive and Emotional Development

We reported another analysis of this student and his group in a previous paper (César & Santos, 2006). This four-student group was working together for the first time in this class and they were in the 2nd term of the 9th grade. This class participated in the IK since their 8th grade. Thus, as usual, in the 9th grade the students chose the dyads but they had to justify their decisions and to discuss them with their teacher (for more details about dyads, see César, 2003, 2009, 2013a; Ventura, 2012). We only use the first letter of each student's first name in order to keep them anonymous: J, T, N, and A. Before, they had worked in two dyads. This is still visible in the way they interact, as T is more concerned with J and she knows better his way of reasoning, or his usual difficulties.

Although this is not visible any longer, J used to be victim of bullying, violence and rejection. The most striking episode was at the end of the 7th grade. Leaving for a visit to a museum and a park, his classmates told their teachers they would not go if J went with them because they were ashamed of him. After some minutes of discussion, the teachers decided to leave J at school. It was this episode that made the directive board of the school ask the IK team to work with this class. Thus, although this teacher usually taught students from 7th until the 9th grade, in this class she only began teaching them in the 8th grade.

Until the 7th grade, J performed different tasks and he was often just doing some drawings during the mathematics classes. He, his teachers, and his colleagues were mainly convinced that he was unable to learn any mathematics and even to express himself, in oral or written Portuguese language. Teacher and doctor's reports stated that. Thus, there were no inter-empowerment mechanisms being used and he was not able to mobilise any intra-empowerment mechanisms in classes. But the analysis of his group's interactions, while performing school mathematics activities during the 9th grade, show that these four students were able to use inter-empowerment and intra-empowerment mechanisms. Their interviews illuminate how they internalised them and some excerpts from an audio taped group interaction illustrate some inter-empowerment mechanisms used by T and regarding J:

11. T — Are you getting this, J.?
12. J — I think so...
13. T — So do you know how to go on? [Silence] Can you tell us what to write now?
14. J — It's like we did with Ricardo... I mean... from Pedro's circle there are 3 lines, one for each drink: orange juice, Coke or pineapple, and we can also just put the first letter, so as to have a neater scheme!
15. N — Hey T., what a great teacher you are!?! [Laughter]
16. A — I also know how to continue. Now we do the same for João. [Grabs the pencil and continues the scheme on the sheet] (Audio taped, observation, 4-students group, 9th grade)

In Turn 11, T's question is a form of inter-empowerment mechanism. It allows J, who is slower, to participate in the interaction, providing him with a voice. It also implicitly tells him that he cannot remain silent and that they want him to participate. Turn 13 continues to put into practice inter-empowerment mechanisms, particularly those regarding the different timings each student needs to answer. T is using ways of acting she observed several times in her teacher: rephrasing the question and giving J the implicit message that "No one is going to

give the answer for you". These are very powerful means of inter-empowerment and we observed them in many other classes. Students also mentioned them quite often in the questionnaires, interviews and informal conversations.

Turn 15 was a comment to T's way of acting. But J also felt it as an inter-empowerment mechanism. He reported that in many informal conversations we registered in the teacher/researcher and researcher's diary. Another very interesting point is observed in Turn 16: A., who was not such a top achieving student as T and N, feels the need to have a voice and uses some of her intra-empowerment mechanisms to express that she also knows how to solve this mathematics task. This student was still trying to figure out how to act in this group. She was used to work in dyad with N, a very fast and high achieving student. Thus, up to now, she had to try to be quicker and was never worried about answering too soon. Now, with J participating in her group, she knew he needed more time. But sometimes she just acted as she was used to act before, as in the next excerpt:

45. N – And to know the probability of all of them drinking orange juice, what do we have to do with those numbers?
46. A – Multiply them!
47. T – Well done, A.! This one was for you! Just to see if you were paying attention!
48. A – Hey, I'm sorry. I didn't remember I wasn't supposed to answer first.
49. J – Forget it, I realized that. If I go to the blackboard, I can explain everything well: I do the scheme and explain what each thing represents. Then, under each name I write $1/2$, $1/3$ and $1/3$ and at the end I show the calculation for finding the probability: $1/2 \times 1/3 \times 1/3 = 1/18$. So, there's one favourable case, which is all of them drinking orange juice, but there are 18 possible cases.
50. N – Great! You're becoming real clever! (Audio taped, observation, 4-students group, 9th grade)

N asks the question to see if J knew the answer. But as A was used to work with him before and his questions were supposed to be answered by her, she just answers immediately. T, who was particularly concerned with J, implicitly criticizes her in Turn 47 for answering so quickly. This illustrates another important issue: when a student who needs special educational support works in a group the management of the dialogical interactions is more complex and needs time to fit the needs of all members. But as the teacher and his classmates were using inter-empowerment mechanisms since the 8th grade, we observe that although these students were studying probabilities for the first time in the 9th grade, J felt confident and secure, and he was able to show some intra-empowerment mechanisms in Turn 49. Thus, for this group, this interactive process constitutes a thinking space and time (César, 2013a; Perret-Clermont, 2004). J knew he could represent his group in the general discussion that took place after group work. He also knew that T, N and A wanted to be sure he would represent them well. Thus, he just gives a complete answer, as if he was already at the blackboard.

In the interviews J mentions the importance of these inter-empowerment mechanisms:

Now I know there are good and bad scars. All of them hurt. And they made me angry, and want to hit someone. Scars mean there were wounds, right? And a wound

hurts. You can pretend it doesn't hurt... act like a hero. But it does. Only some scars are good because they make us stronger. Less angry. Like the scars I cured in the 9th grade, when people started liking me... and I... too... and I too liked myself more. (...) Before the 8th grade I thought I was a hopeless case. [That I was] Unable to learn anything, to answer anything right. No one ever gave me a chance. I still remember the first time I did something right in a maths class: it was in the second week of the 8th grade and M., who was working with me, was telling me the numbers I had to put in the calculator. She thought I could only do that, and I was happy to do something with her. Then, she made a mistake. She told me the wrong number. I was afraid, but I dared to say very quietly: "It is 39, not 29". She looked at the exercise book, and just screamed: "And he also thinks!". That was the first time I felt I was going to be able to learn and that my colleagues would act differently. (J, Interview, 11th grade, 2nd year of follow up)

This excerpt clearly states when he began experiencing inter-empowerment mechanisms: during the 8th grade. First they were put into practice by his teacher, who told M, his classmate in the first dyads, when she complained that he did not know how to do anything in maths: "Do you mean that you told him the numbers and he could not introduce them in the calculator?". As M looked astonished and answered she did not try to tell him any numbers, the teacher suggested: "You should try!". Their teacher knew she would not be able to empower J if his classmates did not collaborate. Thus, she just tried to find out easy (mathematics) activities he was able to do so that he could begin to participate and step-by-step, quite slowly, could become a legitimate member of that learning community. By the end of that class M told her that she was right: J could help with the calculator. The next move was a chance: M made a mistake. J was paying attention – he wanted so badly to participate! – and he was brave enough to correct her, in a whisper. When she screamed: "And he also thinks!" their teacher immediately turned to see what was happening. But J looked so happy and M was so enthusiastic that she just decided to ask J to go to the blackboard during the general discussion. These were the very first inter-empowerment mechanisms. So strong and important for him that he mentions them three years later.

For a student whose reports (doctors, psychologists, teachers until the 7th grade) mention that he was unable of any mathematical reasoning and of expressing feelings, in oral and written language, the excerpt of this interview illuminates how careful we need to be in our evaluations until we developed adequate practices that fit students' characteristics, interests and needs. J ended up completing the 9th grade. But the most important was that since his mid-8th grade he participated in the same tasks and evaluations used for his classmates. He was slower, but able to perform them and his socialization clearly improved. Afterwards, he was able to accomplish a professional course and he is working since then, despite of the unemployment due to the Portuguese economical crisis. Thus, using inter-empowerment mechanisms, mediating the process of internalization and of transformation of these mechanisms into intra-empowerment mechanisms, was an essential step in these students' life trajectory of participation (César, 2013a), particularly within school.

FINAL REMARKS

We illuminated how starting from concepts studied or coined by Anne-Nelly Perret-Clermont, such as socio-cognitive conflict (Perret-Clermont, 1978; Perret-Clermont &

Nicolet, 1988/2001), social interactions and their role in mathematics learning (Schubauer-Leoni & Perret-Clermont, 1980, 1985, 1997), or thinking spaces (Perret-Clermont, 2004) we used them in a Portuguese school context and expanded them. Expanding the construct of socio-cognitive conflict, we connected it to the concept of ZPD (Vygotsky, 1934/1962), illuminating that in an interactive process it is not only the less competent peer that has an opportunity to develop his/her abilities and competencies, but also the more competent peer, as illustrated by César (1994, 2009, 2013a). Thus, we also illustrated how powerful social interactions were both for development and learning. But the in-depth analysis of interactive processes made us realize how important voices were, and power issues, leading us to coin new constructs, like the ones we addressed in this paper: inter- and intra-empowerment mechanisms (César, 2013a). The concept of thinking spaces also allowed us to understand the importance of empowerment mechanisms, that are implicit in Perret-Clermont's conceptualization, but are not explicit and, above all, the difference between the social level (inter-) and the internalized level (intra-) of empowerment, that is not considered by her.

Inter- and intra-empowerment mechanisms are useful constructs when we study activities of thinking in social spaces and times, particularly regarding school mathematics and its learning processes. The analysis of a paradigmatic group including a student who needed special educational support, and examples of some barriers experienced by blind students while solving mathematics tasks, illuminate the potentialities of the inter- and intra-empowerment mechanisms in the promotion of students' mathematics performances, and in their process of school and social inclusion. This analysis also stresses that these empowerment mechanisms are important for all students, but particularly essential for students who need specialised educational support. In these cases, some inter-empowerment mechanisms need to assume specific features, like the ones used when dealing with mathematical Braille.

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Life trajectories of participation, including research, are social enterprises. This chapter was mainly shaped by Anne-Nelly Perret-Clermont's works and the scientific debates we had since then, and by my participation in the *Interaction and Knowledge* (IK) team. Both experiences were challenging and allowed me to expand my analysis. The IK project was partially supported by Instituto de Inovação Educacional, SIQE 2 measure (project n.º 7/96) in 1996/97 and 1997/98, and by Centro de Investigação em Educação da Faculdade de Ciências da Universidade de Lisboa, from 1996 onwards. My gratitude goes to Ricardo Machado and Cláudia Ventura for reviewing draft versions of this chapter, and to Joseph Conboy for editing it. It goes also to Tania Zittoun and Antonio Iannaccone for allowing me to have a voice to express my gratitude to Anne-Nelly, from whom I learnt so much.

APPENDIX 1.



Figure 1. List of numbers in Braille.

3. Um método muito prático de arranjar números primos foi idealizado pelo sábio grego Eratóstenes (275-195 A.C.). O seu método é chamado Crivo de Eratóstenes. Agora vão construir o crivo de Eratóstenes para saber todos os números primos até 50.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

O procedimento consiste em eliminar todos os números que não sejam primos.

Figure 2. Ink printed list of numbers.

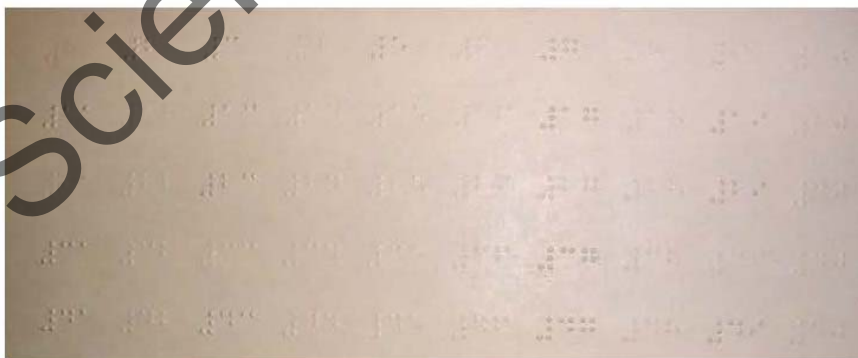


Figure 3. List of prime numbers in Braille.

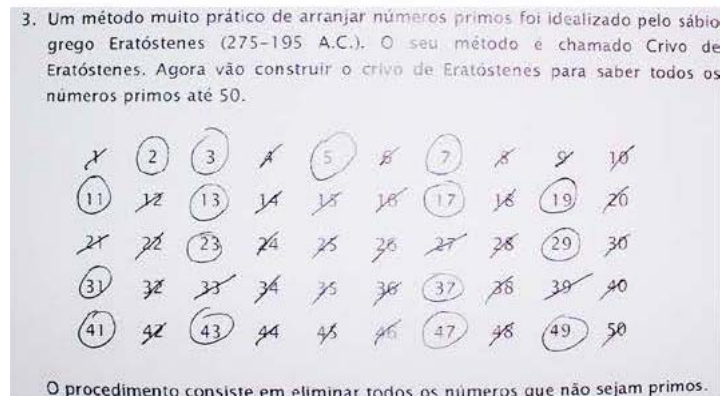


Figure 4. Ink printed list of prime numbers.

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Chapter 12

**TALKING TO LEARN...AND LEARN...AND LEARN:
A CONVERSATION**

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With Faith Schantz

ABSTRACT

Under certain conditions, student learning in one domain can *transfer*—produce greater understanding in a domain that was not directly taught. An emerging body of research relates this phenomenon to the nature and quality of classroom talk. This paper cites examples of mathematics classrooms in the US, science classrooms in England, and humanities classrooms in Scotland, where students not only retained important knowledge in the areas that were taught, they made gains in unrelated domains. The paper also looks at the question of who has access to dialogue-rich classrooms by considering a large-scale study of mathematics teaching in Germany and Switzerland, which showed that students in non-academic tracks had fewer opportunities for dialogue compared to those in the academic track. Given that evidence of transfer has converged only recently and theoretical frameworks are not fully developed, the paper is structured as a conversation with Anne-Nelly Perret-Clermont, to which the reader is invited to join.

INTRODUCTION

I write this chapter to share with my esteemed colleague and friend—Anne-Nelly Perret-Clermont—some scientific puzzles that are now occupying my thoughts. In the past several years, I have worked with two brilliant co-editors, Christa Asterhan and Sherice Clark, along with about three dozen contributors to a conference and edited volume, to assemble evidence that under certain circumstances students learn *a great deal more* than we have explicitly taught them in school. The central feature that unites this body of research is talk in the classroom—its nature; its quality; how teachers organize it; and how they invite students to

participate, guide, and shape it. In science, mathematics, and language arts, students not only retain important knowledge for a considerable period of time (up to three years at present reckoning), but their taught knowledge can *transfer* to rather distant domains. These retention and transfer (or more generalized learning) effects have long been the goals of education. They are goals that have rarely been realized. However, in the space of about three decades—decades that have been tumultuous ones for our science—retention and transfer of important knowledge seem to be attainable. We have a pretty good idea of how to increase such outcomes, and of where the difficulties will lie. But many of us, including myself, are puzzled. Why are we now able to “teach for retention and transfer” after decades of mostly failed effort in that direction? And if it is as easy to do as I will propose in this chapter, why are schools not doing more of it?

Difficult as it may be across barriers of time, space, and publishers’ protective rules, I plan to organize this essay as something approaching a conversation with the individual whom this volume honors: Anne-Nelly Perret-Clermont. This is not just a convenient literary device, but an actual attempt to reconstruct the conversations Anne-Nelly and I have had over several decades of professional friendship. I believe that with her broad training in both psychology and social science, her deep engagement with the theories and research methods of Jean Piaget (whose chair at the University of Neuchâtel she now holds), and her ever inventive and open-to-surprise spirit, she may be able to provide some answers (or at least some relevant new questions) that escape me.

In this chapter, I present a series of *episodes*, occasions when an individual scholar or a group, often working with gifted teachers of elementary and secondary school, documents learning events that are surprising to me and to many other scholars of learning and teaching. After each relatively short episode, including one or more figures that show graphically the surprising result, I will “open the floor,” inviting Anne-Nelly’s commentary. It will be open, too, to any readers who might want to question and/or explain the reported findings. Thus, this paper is meant to be “alive.” And perhaps unfinishable, since there are new questions (and of course answers) that we don’t know about yet. In keeping with this format, I will address Anne-Nelly directly, in a conversational style.

FIRST EPISODE: COCONUT MATH

In the early 1980s I was working with Victoria Bill, a brilliant and dedicated elementary school teacher. *Anne-Nelly, I’m sure you’ve known many teachers like her.* At the end of the school year, as we were closing down our computers and tallying the paper records of an intervention that had had disappointing results, Vic asked if we could help her figure out how to teach math more successfully. As the school’s math specialist, she knew she was a capable teacher—her instruction had been effective with the mostly Caucasian children from middle-class families who had attended her school in the past. Since then, the neighborhoods around her school had changed, and its students were now mainly from low-income, African American families. Vic’s techniques weren’t working with them. Still, she never doubted that she could teach them—or that they could learn. I invited her to spend the summer at the University of Pittsburgh’s Learning Research and Development Center, where, as it

happened, she would be exposed to an international group of researchers, and she would learn about “coconut math.”

At the time, in Brazil, a small group of psychologists and anthropologists were studying children who sold coconuts on the street (Carragher, Carragher, & Schliemann, 1985). To help support their families, children (under age 12) bought coconuts in bunches of three, priced them for individual sale, and sold them in a competitive market where inflation drove up prices daily. How could these children, with little or no schooling, figure out what to pay for a bunch that would give them a profit on the sale of each one, factoring in inflation, and a decimal money system based on ten, not three? When they were interviewed, many of the children could explain their pricing—they knew exactly what they were doing with their “street math.” Vic mulled this over. If young, unschooled children in Brazil could handle such complex arithmetic, she thought, her Pittsburgh children could do it too.

Gradually, she developed story problems with the potential to draw her students into a process of shared mathematical reasoning, using situations that were familiar to American children. The lessons began with whole-class discussion, followed by team work and more discussion as each team reported out. Vic taught one of these lessons during part of almost every math class. The remainder of the math program was traditional, with activities such as timed drills and worksheets.

As one example of a lesson, a second-grade story problem replaced coconuts with cupcakes. Vic brought in a tray of cupcakes, and asked students to consider whether the cupcakes were arranged in three rows of seven or seven rows of three. Rather than wanting them to find the total, she asked them to determine if they had enough for everyone in the class. A tangible problem, a real question. And students literally jumped out of their seats to solve it, running back and forth to view the tray from all sides. They were working with the commutative property of multiplication ($3 \text{ rows of } 7 = 7 \text{ rows of } 3$), the relationship between repeated addition and multiplication, and the distributive property—all key mathematical concepts. They were also being socialized into a kind of mathematical thinking that goes beyond a simple route to a solution, and even the finality of a solution.

If you had been there that day, Anne-Nelly, what else might you have seen?

The small group of researchers who regularly visited Vic’s classroom documented dramatic change, even during the two-year intervention’s first year. For example, at the beginning of the school year, only about one-third of first graders could count orally to 100, or solve small-number addition problems. By December, most could perform multi-digit addition and subtraction problems successfully, and at least half were using invented procedures that showed they understood the underlying math.

The school gave the California Achievement Test (CAT) in the beginning of the school year (new second graders took the first grade test, new third graders took the second grade test, and so on). Figure 1 shows the results for Cohort A, who started the intervention in first grade; Cohort B, who started the program in second grade; and a control cohort consisting of Vic’s students prior to the intervention (Bill, Leer, Reams, & Resnick, 1992).

As the figure illustrates, cohorts A and B performed near the top of the scale in mathematics after Vic’s cupcake-style teaching. Perhaps this isn’t so surprising, given the energy and excitement in her classroom day after day. But both cohorts’ reading scores rose also—and Cohort B’s reading scores kept rising—although Vic did not teach reading (the

school was “departmentalized”), and the intervention involved little written work. What happened? Learning gains this large are not supposed to be possible.

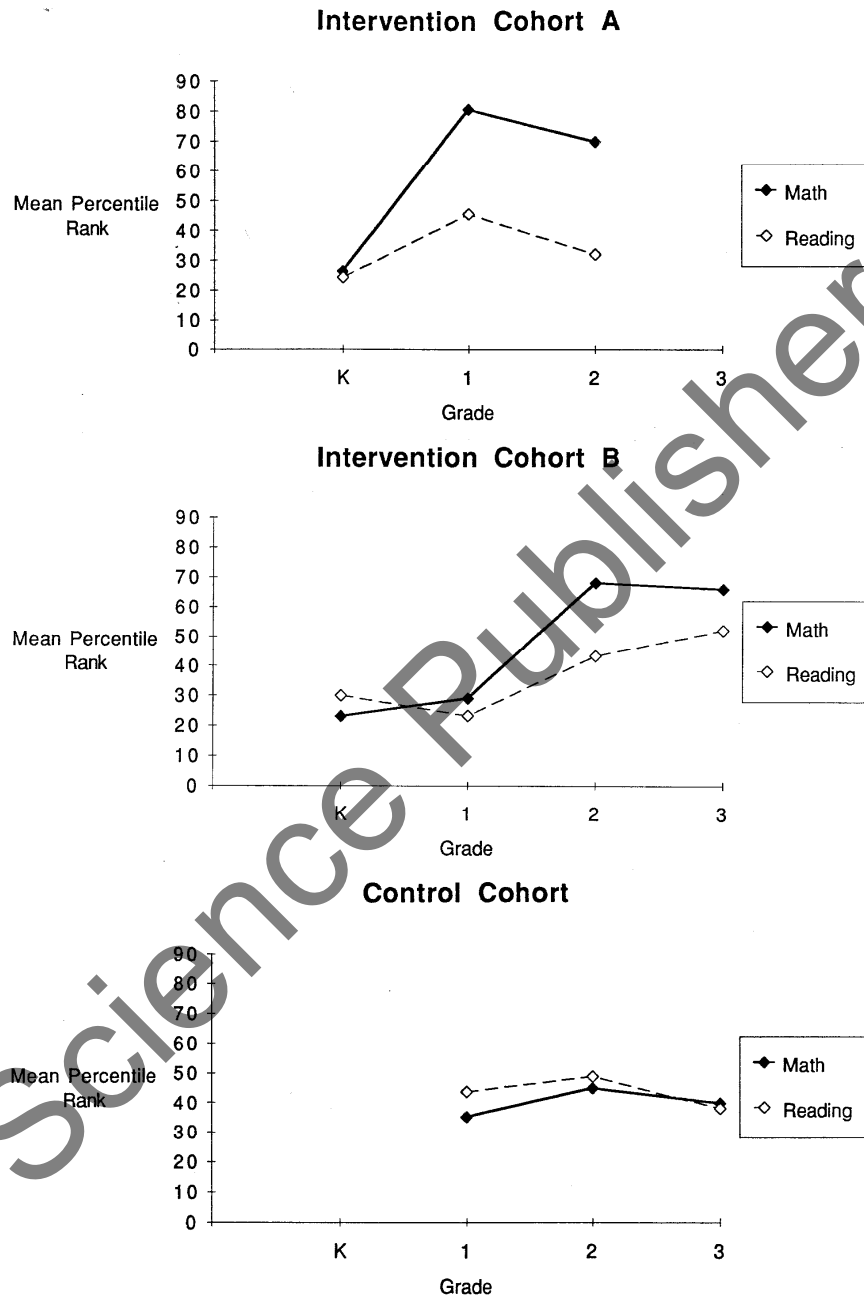


Figure 1. California Achievement Test scores for three cohorts of Victoria Bill's students. Cohort A began the intervention in first grade, Cohort B began in second grade, and the Control Cohort consisted of students taught by the same teacher pre-intervention. From "Thinking in Arithmetic Class," by L.B. Resnick, V.L. Bill, S.B. Lesgold, and M.N. Leer, 1991, in *Teaching Advanced Skills to At-risk Students*, edited by B. Means, C. Chelemer, and M.S. Knapp.

And “transfer”—learning gains in a domain that hadn’t been directly taught—from math to reading?¹ No theory of the day could account for it. One time could be chance, but these data show two cohorts of students over multiple years. Moreover, the means represented on the graphs don’t tell the whole story. In Cohort A, the lowest score on the first-grade test was in the 66th percentile.

What would you have said at the time, Anne-Nelly? I can’t remember whether I ever asked you. I can tell you now, though, that we came to doubt that we had a (socially/scientifically) important finding—because the school changed, the teacher moved on, and we were unable to replicate the results.

We reported the results at a couple of conferences focused on how to improve the school learning of poor and minority children. And then we waited for other, similar results to appear. You can’t build a science of learning on one study, no matter how remarkable its results. So after a couple of years, we began to assume there had been some personal magic in Vic Bill’s teaching, but nothing on which we could build a science of learning. We moved on to other questions. Still, we never set aside the possibility that someone else could work the same kind of magic.

SECOND EPISODE: PROJECT CHALLENGE

And then it happened again. This time, not down the street from my office, but hundreds of miles away. This episode also involves an exceptional elementary math teacher, Nancy Anderson, who taught in one of the lowest-scoring districts in Massachusetts, in the town of Chelsea. Working with Suzanne Chapin of Boston University, Nancy was the lead teacher in an intervention for fourth and fifth graders, some of whom had been identified as having potential talent in mathematics, and some of whom were average achievers. The intervention drew from TERC *Investigations* and *Connected Mathematics*² (Pearson/Scott Foresman, 2008; Lappan, Fey, Fitzgerald, Friel, & Phillips, 2003) to provide students with complex problems, projects, and arithmetic learning through games—a kind of “gifted” curriculum in a district that didn’t offer one. It was not intended to focus on classroom talk. However, Suzanne had a connection with a sociolinguist, Cathy O’Connor. For years, Cathy and Sarah Michaels had worked with individual teachers on “talk moves” that support academically productive talk, such as “press for reasoning” moves, and “re-voicing” students’ statements to clarify and verify their meanings. They saw Project Challenge as an opportunity to put their ideas into wider practice.

Project Challenge students’ results on the state assessment, the Massachusetts Comprehensive Assessment System (MCAS), were impressive. Over the first four years of the program (1999-2003), an average of 57% of each fourth grade Project Challenge class scored in the “Advanced” or “Proficient” ranges on the math test, though they had only been

¹ The search for transfer was associated with the development of educational psychology in the early part of the twentieth century. By and large, researchers didn’t find it, and by the 1980s, the question had changed to whether or not thinking skills could be taught in the abstract (Resnick, 1987). Now that evidence of transfer has been uncovered, the question has resurfaced, and we must grapple with it. We still have no theory to explain it.

² *Investigations in Number, Data, and Space* and *Connected Mathematics* are reform programs that focus on the big ideas of mathematics and emphasize the development of mathematical thinking.

in Project Challenge for seven months when they took the test. Over the same time period, fourth graders in Massachusetts as a whole achieved Proficient or higher scores at a rate of only 38%. Sixth grade results (at the time, the math test was not given in fifth grade), averaged over four years, were stunning. After three years in Project Challenge, an average of 82% of Project Challenge students scored in the “Advanced” or “Proficient” ranges, compared to only 40% for Massachusetts sixth graders overall.

Because some Project Challenge students had been identified as potentially gifted, critics claimed that all the Project Challenge students must be gifted, and that explained the scores. In response, the researchers constructed a post-hoc comparison with students who had received regular instruction. A test to determine potential giftedness (the Naglieri Non-Verbal Abilities Test, or NNAT) had been administered to all Chelsea third graders, so “average” scorers in Project Challenge classrooms could be compared to average scorers who had not been assigned to the intervention. And this time, the researchers looked at English Language Arts as well as math.

Figure³ 2 shows the two groups’ performance on the fourth grade MCAS. The Project Challenge “average” students significantly outperformed the regular instruction “average” group in mathematics. Surprisingly, the intervention group’s English Language Arts scores were also much higher (Chapin & O’Connor, 2007, 2012), showing transfer from math to ELA.

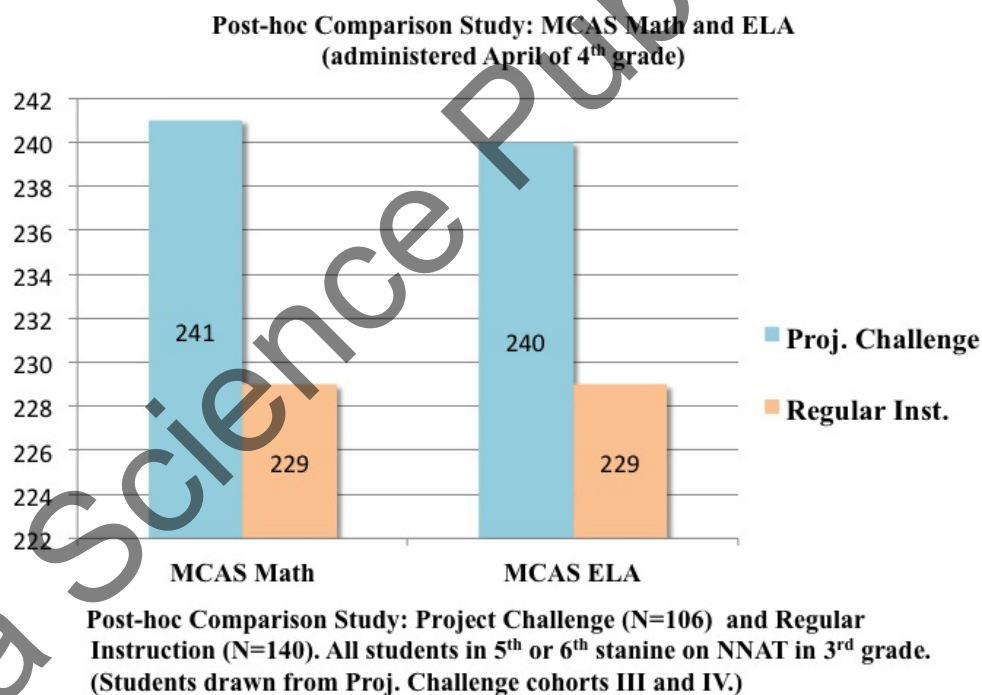


Figure 2. Post-hoc comparison study of Project Challenge (N=106) and regular instruction (N=140) students’ raw scores on MCAS (Massachusetts Comprehensive Assessment System) tests in Math and English Language Arts. All students were in the 5th or 6th stanine (considered “average”) on the Naglieri Non-Verbal Abilities Test in 3rd grade.

³ Figures 2, 4, and 5 are drawn from Resnick, Clarke, and Asterhan, in press.

Cathy, as a sociolinguist, understood that something more than arithmetic was being learned in these classrooms. And interestingly, the teachers agreed (Chapin & O'Connor, 2012). They believed their students had become better at listening to others and building on one another's ideas. Students could explain their thinking and use appropriate mathematical vocabulary. They engaged in mathematical argument and discussed complex ideas. And these new skills were not limited to a few students—they extended across the class.

Anne-Nelly, am I getting any closer to a phenomenon that you have the tools to explain?

THIRD EPISODE: COGNITIVE ACCELERATION THROUGH SCIENCE EDUCATION

Thus far, we have looked at evidence of long-term retention and transfer in situations that involved one teacher in one school, and a small group of teachers in one district. We turn now to an intervention that was mounted in multiple schools, with many teachers who were guided by a university group.

The place is England. The theory one that *you*, Anne-Nelly, may be better-placed than anyone in the world to appreciate. It is Jean Piaget's theory that children develop intellectually by mentally reworking core schemata (Piaget & Inhelder, 1969). That theory led Philip Adey and Michael Shayer of King's College London to propose that science class was a place in which the schemata should actually be *taught*. The irony, it seems to me, is that if Adey and Shayer had asked for Piaget's approval of the research plan, it is highly likely that Piaget would have refused. He called all attempts to "speed up" the acquisition of basic schemata misguided. But apparently they did not ask.

Adey and Shayer developed an intervention based on three core principles, or pillars. The first was *cognitive conflict*: Piaget's idea that the mind develops in response to stimuli that disrupt existing structures and cause new structures to form (Piaget & Inhelder, 1969). The second was *social construction*, from Vygotsky (1978): individual knowledge develops through contact with others' ideas, other minds. And the third was *metacognition*: how reflecting on one's own thinking and learning processes not only consolidates what has been learned, but shapes what is learned.

Their intervention, for students aged 11 to 14 (Years 7 and 8 in the UK), was called Cognitive Acceleration through Science Education (CASE). Based on Piaget's schemata of formal operations, the CASE curriculum included 30 lessons designed around practical problems, to be taught in science class every other week for two years. Through discussing the problems and working to solve them, Adey and Shayer believed, students would construct the schemata themselves.

CASE began in 1985 with seven schools of different types, ranging from the Northwest to the Southeast of England. In each school, two or three classes were assigned to the intervention and an equal number of matched classes were assigned to serve as controls. As a pre-test, all of the students took the Piagetian Reasoning Task (PRT) "Volume & Heaviness;" as a post-test, they took the PRT "Pendulum" (National Foundation for Educational Research, 1979). The researchers also looked at the results of students' school science exams at the end

of Year 9, and their national General Certificate of Secondary Education (GCSE) exams at age 16.

To calculate effect sizes, they used the control group's pre- and post-test scores to determine what scores students might have achieved without intervention. For each student in the experimental group, they predicted a post-test score based on such "normal" growth, and computed a gain score (the difference between predicted and actual scores). The most significant results were concentrated among the Year 8 boys and the Year 7 girls. On the school science exam, Y7 girls showed an effect size of 0.6. When they took the GCSEs, they showed similar or greater effect sizes in English (0.69) and Maths (0.72), and an even greater effect size in Science (0.87). These are retention and transfer effects of surprising magnitude. The Y8 boys performed well on the school science exam (0.72), and on the GCSE in Science (0.96). But they showed less evidence of transfer (0.32 in the GCSE in English, 0.5 on the GCSE in Math).

Other schools signed on to the program, and after five years of implementation, Adey and Shayer looked again at how CASE students fared on their GCSEs. For controls, they used schools that had not received the CASE intervention but had indicated interest. Overall, the schools represented a wide range in terms of demographics, students' achievement, and whether the school was comprehensive or selective.

The researchers looked at the control schools' "intake"—the students' level of achievement when they entered secondary school at age 11 or 12—plotted them against GCSE exam results three and five years later, and found that results were closely related. This gave them a regression line from which they could predict a probable exam grade for any school from its mean intake.

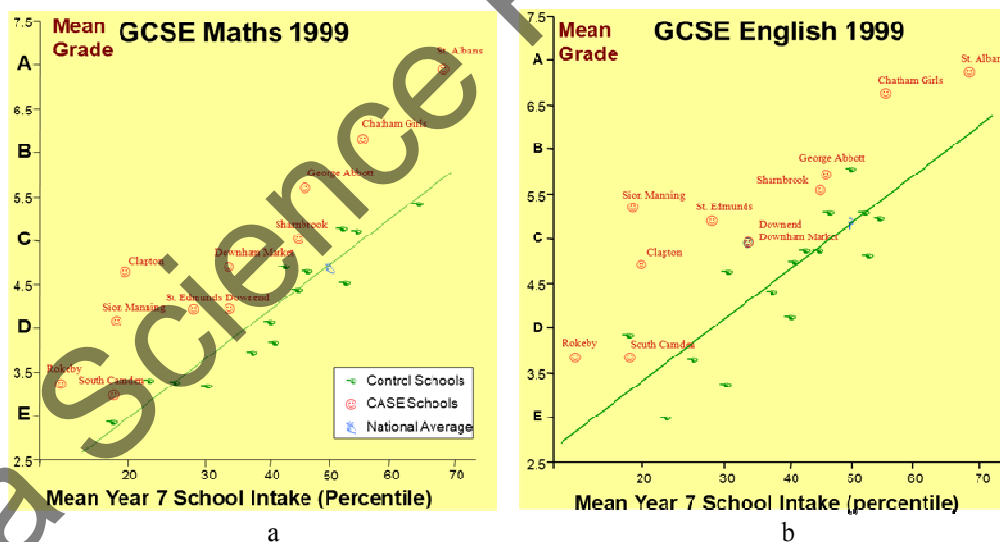


Figure 3. Effect of CASE (Cognitive Acceleration through Science Education) on GCSE (General Certificate of Secondary Education) mean Math grades and English grades in 1999, for control schools and CASE schools. The GCSEs are scored as grades from A to F; A to C are considered "good." From "Cognitive acceleration through science education II: its effects and scope," by Michael Shayer, 1999, *International Journal of Science Education*, 21, (8).

Figures 3a and 3b show that years after the treatment, all of the CASE schools fall above the regression line in English and Math, subjects that were not part of the intervention.

So Adey, Shayer, and their colleagues proved that one could not only *teach* the core “Piagetian schemata,” but doing so would have long-term results.

Anne-Nelly, what sense do you make of this? Maybe you have ideas about why the pattern was different for girls and boys. In any case, with the Adey/Shayer data in hand, the picture seems to become clearer. A thinking- and discussion-based intervention may produce its biggest effects two or three years out. This is an important educational result, but one that still surprises me. I have no simple explanation for it yet.

FOURTH EPISODE: “PHILOSOPHY FOR CHILDREN”

We have looked at the phenomenon of transfer in the contexts of math and science. Could humanities teaching transfer to science or math? Among the many discussion-based programs in English Language Arts, we found only one that shows evidence of retention and transfer: the body of instruction gathered under the name of “Philosophy for Children” (Lipman, 1981, 2003; Lipman & Sharp, 1978; Lipman, Sharp, & Oscanyon, 1980).

The goal of the program is to develop students’ critical reasoning skills through a process that researchers Keith Topping and Steve Trickey refer to as a community approach to inquiry. Using a text or another stimulus, the teacher guides students through dialogue and questioning in which multiple answers are possible. The basis of the program is not so far from the Adey and Shayer work, although it starts with radically different content. Topping and Trickey specifically mention that the process encourages cognitive conflict, involves a “heightened awareness of thinking and learning processes” that promotes metacognitive development, and relies on the social construction of knowledge (Resnick, Clarke, & Asterhan, in press; Carnell & Lodge, 2002; Fisher, 2007).

Topping and Trickey studied a variant of this program, “Thinking through Philosophy” (Cleghorn, 2002), that was implemented in a school district in Scotland. Their questions were, could a program of philosophical inquiry in the classroom have a measurable effect on children’s cognitive reasoning ability? Would it transfer to other domains? Would it last?

What do you think, Anne-Nelly?

In one of the lessons they describe, the teacher reads out loud “Mercury and the Axe,” from Aesop’s Fables, and asks students to ponder certain questions (taken from Fisher, 1999, p. 45). “Do you think this is a true story? Why? What do we mean when we say something is true?... Is it ever right to tell a lie? Is it ever wrong to tell the truth?” Teachers were trained in the techniques of scaffolded dialogue—helping children to reason and support their own views, listen respectfully and question others’ views, offer alternative views, make connections, and build on other children’s ideas. In the weekly one-hour lessons, the teacher’s aim was for the class to construct deeper knowledge or a better solution than any one child could develop alone.

Six classrooms participated in the Topping and Trickey study, four as part of the intervention and two as controls. The control classes were presented with the same initial

story or other stimulus, followed by a discussion, but did not experience weekly inquiry lessons. At the end of six months, the researchers analyzed the percentage of time that children in both the intervention and the control classes talked compared to the percentage of time their teacher talked. In the intervention classes, student talk increased from 41% of total classroom talk at the start of the intervention to 66% at the end. Over the same time period, the control students actually talked less.

The Cognitive Abilities Test (CAT) was administered before the intervention, and again after 16 months and 43 months. As Figure 4 illustrates, the experimental group showed significant gains between the pre-test and the first post-test, in verbal, nonverbal, and quantitative reasoning abilities, while the control group showed none. And despite no further intervention, the experimental group maintained these gains for two more years, while the control group's scores went down.

How could discussions of “what is truth” or “what is happiness” increase children’s *nonverbal* and *quantitative* reasoning abilities? *Anne-Nelly, can you explain?*

And if one-hour-a-week discussions can produce such results, why isn’t everyone teaching this way? This appears to be one of the rare instances in education where there is nothing to lose. It’s true that studies are just beginning to be assembled, but scholars have known about this work for 30 years. Where we would expect a wave, we don’t even see ripples—in fact, in some cases, the work has been started, and then suppressed. What’s happening here?

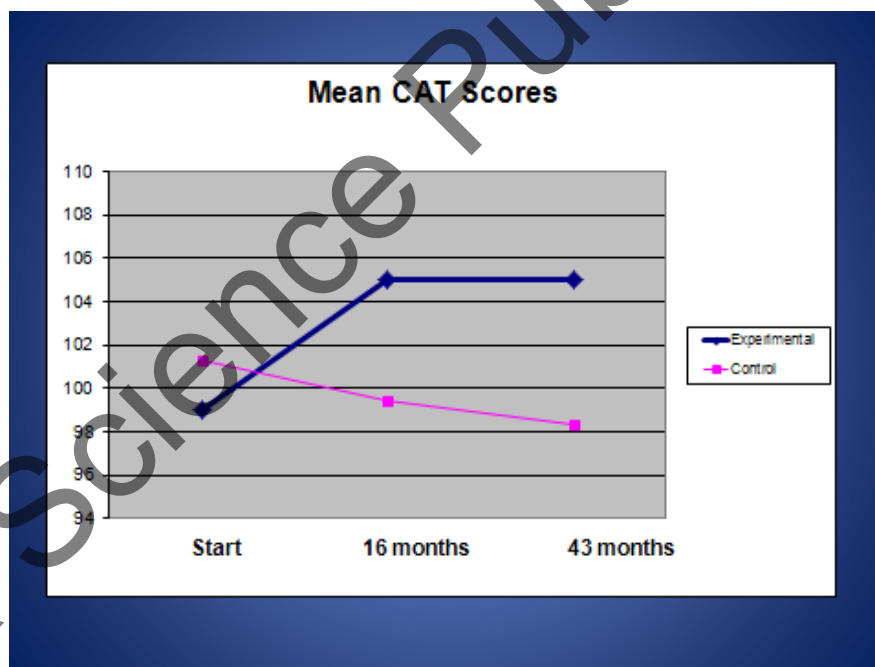


Figure 4. Mean Cognitive Abilities Test (CAT) scores for “Thinking through Philosophy” intervention group and control group, at start of intervention, 16 months post-intervention, and 43 months post-intervention. The post-test at 16 months included 105 intervention students, 72 control students. The post-test at 43 months included 96 intervention students, 52 control students. Source: Keith Topping and Steve Trickey, presented at the conference “Socializing Intelligence through Academic Talk and Dialogue,” University of Pittsburgh, 2011.

FIFTH SECTION: THE QUESTION OF ACCESS

We have evidence that the kinds of classroom discourse we are talking about can benefit all students. We also know that these opportunities are not randomly distributed. Who has access to this kind of learning? One way into this question is through the work of Swiss researchers Christine Pauli and Kurt Reusser. Pauli and Reusser did not begin by raising the question of access; their larger goal was to examine how classroom discussion might be related to students' conceptual learning. Nevertheless, their analysis turned up an answer that should disturb us.

Pauli and Reusser worked with a large data set from two connected studies, the Pythagoras study and the DIDKOM⁴ study. In German and Swiss secondary schools, students are divided into three tracks: the academic track (*Gymnasium*), the intermediate track (*Realschule/Sekundarschule*), and the lowest track. The Pythagoras study was based on 20 math classrooms in Germany and 20 in Switzerland (over 1,000 students), of both the academic and the intermediate school types. It included videotapes of a three-lesson unit that introduced the Pythagorean Theorem, as well as pre- and post-tests, students' previous math achievement, questionnaires, and interviews (see Klieme et al., 2009). The DIDKOM study was designed as a continuation of the Pythagoras study. The researchers wanted to look more closely at the relationship between classroom discourse and certain teaching practices the earlier study had found to be significant for students' learning outcomes.

Not surprisingly, Pauli and Reusser found that most classroom dialogue was characterized by simple teacher questions, short student responses, and short teacher evaluations. However, some lessons included discussions with challenging mathematical content, where students made substantial contributions. They called this category of teacher/student dialogue "co-constructive talk." Co-constructive talk consists of teacher questions that asked for higher-level mathematical thinking or explanations/justifications of mathematical ideas, and student statements that included a justification and/or were made with the student in the role of an equal conversational partner. When they looked at students' pre- and post- tests, they found that a higher proportion of co-constructive talk was associated with higher scores on the post-test.

One of the teaching practices the Pythagoras study had found to be significant was the coherence and clarity of the teacher's presentation of content (Drollinger-Vetter, 2011). "Coherence and clarity of presentation of content" refers to the parts of the unit in which concepts were introduced and elaborated, theorems were stated, or proofs given. So the researchers had two predictors of students' learning success: the teacher's clarity and coherence in presenting the content, and challenging mathematical discussions in which students were cognitively engaged.

Pauli and Reusser looked further, and found there were "optimal classrooms," in which both aspects were present. Figure 5 shows how each of 38 classrooms⁵ rated on scales they had created. The figure also shows that high ratings on both features were associated with school type. Each black dot represents a class in the intermediate school type, and each white diamond represents a class in the academic school type.

⁴ DIDKOM stands for *didaktische Kommunikation* (teaching and learning-related communication).

⁵ Two of the original 40 classrooms were excluded from the analyses for technical reasons.

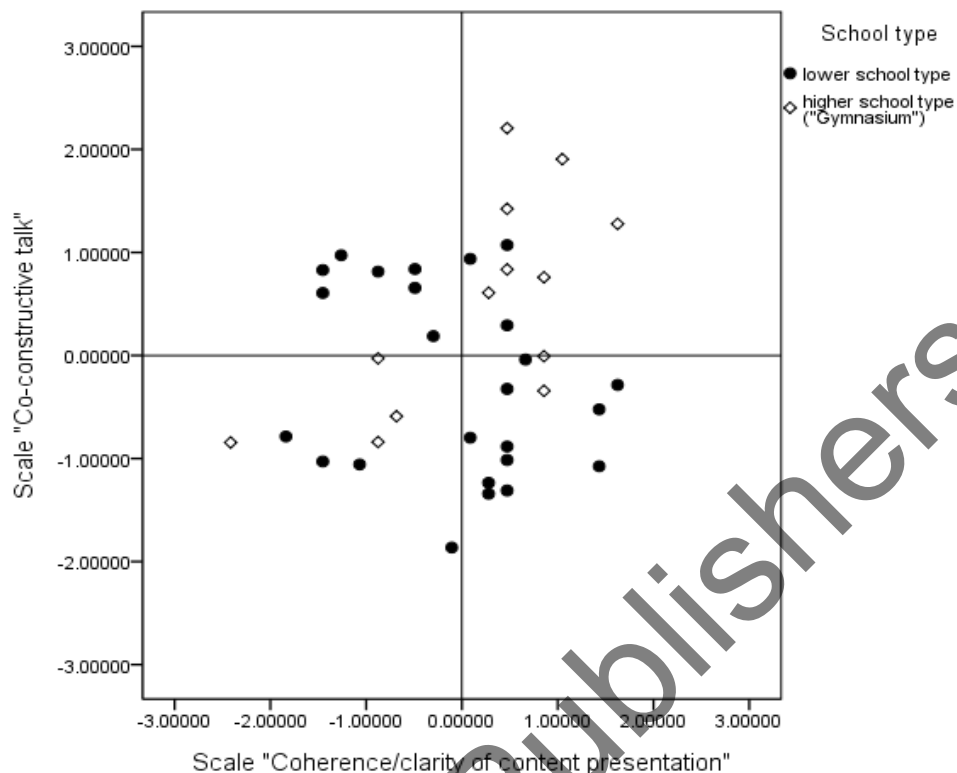


Figure 5. Scatterplot of the scale values of “co-constructive talk” and “coherence and clarity of content” in 38 classrooms, in two different school types in Germany and Switzerland.

As the figure shows, while there were relatively few optimal classrooms, most are from the academic school type. The researchers note the school types’ “differential instructional and developmental milieus,” in particular the “compositional features of the classes, behavioral and achievement-related expectations, specific teaching-learning cultures, and the quality of teacher education (e.g., Kunter et al., 2007; Pauli & Reusser, 2011; Pauli, Reusser, & Grob, 2007)” (Resnick, Clarke, & Asterhan, in press).

In other words, the students who faced lower expectations from their less well-trained teachers received less coherent lessons, and were deprived of the opportunity to debate and build their ideas in a community of peers—an opportunity that has been shown to increase learning success.

Anne-Nelly, I believe this troubles you as it troubles me. We both know this happens in places other than Germany and Switzerland.

CONCLUSION

Over the past several decades, psychologists all but gave up on finding evidence that learning could transfer from one domain to another. By and large, the conventional wisdom—especially among cognitive psychologists—was *what you teach is what you get*; nothing comes for “free.” This widely accepted view was backed by many findings that direct

instruction of various kinds is more effective than forms of instruction that are more open-ended.

Now, however, we have a small body of evidence showing that transfer is indeed possible. The evidence is still nascent, still able to be steamrolled by the sheer number of studies that support direct instruction. But there seem to be reasons to take it seriously. The phenomenon isn't random. We're beginning to have a sense of the conditions that produce it. Some new theoretical starting points have begun to be articulated, and we're seeing a convergence of ideas from unlikely places. Explanations may ultimately be drawn from cognitive, social, and developmental psychology, and even the latest brain research that shows the brain is constantly working and creating new clusters of knowledge.

Reactions to these findings are likely to fall into two camps: 1) we knew it all along, the human mind has infinite possibilities, and 2) don't get too excited, it's only a few studies, don't jump to wishful conclusions. We would be wise to choose a middle ground: to keep looking for evidence, to be highly critical of the findings that do emerge, and to try to document and describe details of the processes that might be producing this desirable phenomenon.

As we pursue these tantalizing and potentially revolutionary findings, the question of who gets which kind of education will be raised from different quarters. For some, the temptation may be to replace all forms of direct instruction with various forms of dialogue in classrooms for children who have been underserved. However, children in these classrooms need both basic, skills-based learning *and* rich opportunities to build meaning through classroom dialogue. In other words, such classrooms will require double the resources, in terms of time, teacher capacity, parent capacity, and school system support. Historically, societies have not been willing to meet these needs. As this work continues, however, and opens into new studies and findings we haven't yet dreamed of, the issue of access must be kept at the fore, because we're talking about nothing less than awakening human capacity—an opportunity that belongs to us all.

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**PART V: FRAMES OF FRAMES
IN LEARNING-TEACHING**

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Chapter 13

**BECOMING AWARE PERSONS,
THANKS TO SCHOOL (AS WELL)**

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ABSTRACT

This paper aims to show how a didactic project (the study of access conditions to cultural works) and a psychological project (a study of people becoming empowered) can only be connected. In order to carry out both of these studies, that come from the disciplines of humanities and social sciences, the intra-subject dimensions must not only be overcome but also given space in order to compare what happens in the classroom in which the subjects are supposed to be taught. Without a sociological and philosophical reading of the society of which both the institutions and the actors are part, it is difficult to develop any form of work that may be considered useful in creating a fairer collective future.

**1. THE EMERGENCE OF EMPOWERED PEOPLE AND THE
ISSUE OF «EQUAL OPPORTUNITIES» IN A FAIRER SOCIETY**

In the educational work I have carried out, I have always focussed on the problem of the future of Man in a fairer society. In this perspective, the institutional challenges of teaching and education cannot be analysed without a theory of the subjects who give life to the institutions and are supposed to benefit from the collective work. The didactic question of «equality of opportunities» – I would rather call it equal opportunities – thus remains essential when considering the future of empowered people¹.

¹ An empowered person can play with the various institutions under the guise of subjection which he operates and is in. Risking an oxymoron, I would say that in *looking for* the multiple institutional subjections the person acquires, in interaction with other institutions, the keys to interpretation, analysis and action that will make him a free and empowered agent. Only the empowered person can then be and consciously say *I* in the social game.

However, many people (including policymakers) believe that, given the diversity of individuals and social inequalities in society, the school can only rely on a purely individualistic and meritocratic equal opportunities of ability².

My scientific work is largely influenced by this path, while following its own in the field of education. In other works (Schubauer-Leoni, 2000 and 2002), I have developed several common elements between educational and psychological input. However, in this work, I will purposefully consider didactic input while showing how, in my opinion, it is linked to the debates that have animated the work in social psychology on knowledge transmission.

Through echoes of the analyses carried out by Anne-Nelly and her School, that define different levels of analysis in order to understand human development (Perret-Clermont, 2011), I will outline the relationship between the levels of analysis in order to suggest an evolutionary dynamic of social issues in an egalitarian sense as well as ensure the primacy attributed to the collective in the emergence of people and works. Starting from the inherent educational issues of the *conditions of access* to cultural works for students, I will try to explain the interest of working the articulation on three levels of analysis:

- i) the academic debates are set within two spheres:
 - economic and political logics and especially the debates in the field of philosophical theories of justice,
 - theories of development and learning.
- ii) forms for determining the educational act in terms of beliefs and practices of other practical theory systems and professional actors;
- iii) the educational act in ordinary practices.

Nevertheless, this contribution will outline several ways to examine the conditions for the majority of students to maintain *a satisfactory relationship with taught knowledge*³ and subsequently contribute to the creation of empowered people.

Within an educational perspective, is it worth taking such a gamble? Or can we (should we) «make do» with a diffusion of knowledge that skilfully manipulates the situation in order to obtain the expected performance from a sufficient number of students? A possible answer is that «it is not so bad» to achieve such a feat considering that many students do not want to be taught. In addition, teaching which deals with the appropriateness/adequacy of subjects to teach in relation to reference procedures (academic, expert, etc.), without considering, at the same time, the ways in which teaching actions resonate with the actions of collective learning and different students, seriously risks missing out on the dissemination issues of the culture and, therefore, the interactive construction of people. In turn, this results in the issue of the emergence of people and status of cultural works within a construction process of the project of society towards sustainable forms of equality and justice.

² I do not think I am right in saying that all of the work of Anne-Nelly Perret-Clermont is against such a premise. In fact, since her thesis in 1976, she has constantly questioned issues of knowledge sharing between peers and the links between psychology and education for the emergence of areas of thought beneficial to everyone. Her tireless efforts to study and highlight the interdependence between the individual and society demonstrates its position against what others see as insurmountable determinism (intra-subject as well as social). Her work is thus characterised by opening up to brighter possibilities, the discovery of new carriers of interpersonal dynamics and rationales highlighted by a consistent interpretation and attribution of meaning by individuals.

³ Satisfactory to them and therefore useful in confronting the world, but also satisfying because recognised by the institution to be compatible with the culture of reference that the teacher must teach.

The challenge is ambitious, but I think it is useful to go in this direction so that the researchers in a given field do not lock themselves within their specific theoretical models, consequently losing sight of broader cultural horizons and issues, or the concrete relationships that drive social organisations as well as political projects that are (often) undertaken.

I will begin by briefly placing the different levels of analysis in context.

Ethics is the desire for a good life with and for others in just institutions.

Paul Ricoeur

2. ACADEMIC DEBATES ON «EQUAL OPPORTUNITIES» AND THE CONCEPTS OF DEVELOPMENT AND LEARNING: IMPLICATIONS FOR EDUCATIONAL ISSUES

The issue of equal opportunities distinguishes between the equalizing of *opportunities* and *results*. It is in the attempt to avoid separating these two ways of highlighting the «problem» that the concept of *equality* is promoted. However, a certain idea of equality adapts well to a concept capability of equality that influences radical individualism on the basis of which can only reinforce social hierarchies. By slightly blurring the positions that convene the inequalities of birth (both biological and sociological), the principle of *personal merit* tends to become a pillar of institutions including educational ones. In this context, the characteristics of every place take into consideration the differences in «respect» (some say) of «individual preferences»!

Upon browsing through the literature on political philosophy, the question relating to what would be a «just society», that animates the debate and famous work by J. Rawls (1971/1997), therefore seems inevitable. This is no lack of criticism of this *theory of justice* (see in particular: Sen, 2009). Savidan (2007), raising the need for «sustainable» equal opportunities, tries to avoid the pitfalls of *individualistic meritocracy* while avoiding *restorative justice*. It is, therefore, worth highlighting an *institutional conception of merit*. The subject, while «owner of his abilities» would somehow become «the contingent custodian» of «commons goods». The variety of talents, their complementarity, are then exerted within a community. Savidan precises: «ability is perceived as such because the product of it being exercised is worthy of particular interest. This less moralistic conception of merit allows to «consider the subject in the interaction network by means of which he can realise himself as the subject» (p. 274). It is in this context that the concept of «legitimate expectations» reworks the idea of merit, with it becoming part of an institutional issue of collective work. Savidan therefore considers that with the *sustainability* of equal opportunities in relation to the educational issue, there is the question of *social integration*. However, education and integration cannot be discussed without considering the *just* nature of the society of which everyone is part. Nevertheless, I must add that if this nature of justice had been *previously* provided, it would be possible to doubt the impact of any educational project in today's societies, often overdue in the democratic debate worthy of the name.

The issue of equal opportunities and the relationship between *effectiveness/efficiency* and *equality* cannot therefore be limited to a statement of principle, with the definition of these

concepts being nothing more than technical. In fact, according to which social institutions are involved in the defining of what is socially «just», the institutional goals will be different.

Nevertheless, given the difficulties faced by educational institutions in allowing *all* the students to make progress in accordance with the curricula objectives, an official egalitarian discourse that is individualistic, meritocratic and skills-based may well accommodate work on effectiveness/equality that highlights how the most effective teachers are more equitable due to them allowing the weak students to make progress, or put more precisely, they promote *less* dispersion of the class results (Sensevy, 2011).

Consequently, it seems that the most effective teacher is one who “resists” the phenomenon of “passive learning differentiation”⁴. However, this assumes, as the author points out, that the interactions relate to issues of conceptually intense knowledge and not of rules whose main purpose is for the student to “succeed” and complete the task as quickly as possible at the expense of a true understanding of the activity.

Such relationships with knowledge, if produced in and through relationships with others, once appropriated by everyone, should be activated and adjusted to new situations with people who have not participated in the initial experience as well as anyone from other institutional and life paths.

What are the underlying assumptions in terms of theories of learning and teaching? The question is difficult and deserves specific divergences. Different educational approaches have been considered various learning concepts. There are approaches (in particular, in teaching French) that without doubt belong to social interactionism (Bronckart, 2007) in line with Vygotsky as well as others based on various forms of Piagetian constructivism (mathematics education, for example). Brousseau’s (1997) Theory of Didactic Situations has, in my opinion (Schubauer-Leoni et al., 2007a) a form of social constructivism.

In this world of academic references, the social constructivism of the Geneva School of genetic social psychology (Doise and Mugny 1981; Perret-Clermont, 1979) was the first to experimentally show (in a laboratory) the beneficial effects of peer interactions in the case of psychological test situations. Under the leadership of Anne-Nelly Perret-Clermont, who never stopped considering psychological and education sciences as a *whole*⁵, other studies followed (including Perret-Clermont 1992; Perret-Clermont, Schubauer-Leoni and Grossen, 1996, Perret and Perret-Clermont, 2001; Perret-Clermont et al. 2004, Zittoun 2011) highlighting the role of the adult (researcher or teacher) in the cognitive progress of the subjects.

In studies carried out by the comparative didactics team of Geneva, we tried to discuss the connection between academic conceptions of learning and modes of articulation between the individual and the collective (see in particular, Leutenegger, 2009; Ligozat, 2008; Schubauer-Leoni et al., 2007b, Forget-Schubauer and Leoni, 2008). Whereas, I insist on the one aspect that seems important from an epistemological point of view.

⁴ The “passive” nature of this differentiation is the nature of the educational process and not the result of conscious action of teachers.

⁵ Anne-Nelly Perret-Clermont initially refused an application relationship of psychology to education (1980). With G. Mugny (1985), she wrote: “Apply” (thus) a genetic social psychology to education is an approach that ignores the particular social conditions that characterise the development of communications, interactions and cognitive structures of a classroom”. (P. 260). Education becomes, in her writings, a research issue: “*how to create purpose, explicitly, of “educational” situations which are such that when the child tries to understand what is expected of him, he tries to answer by himself or with others, who are already, doing the same activity, led by the development of cognitive instruments that proposes acquiring the view, and this point, so as to internalise skills acquired in other circumstances?*” (P. 261).

The hypothesis that I defend is *without a collective point of the individual*, it is not related to the institutional conditions for the organisation of teaching in the classroom. It is not the structure of the school that is the basis of the primacy of the collective. The reason is to be found in the fundamentally social nature of knowledge and *collective thoughts*⁶ that make it possible. Thus, the function and nature of signs – and particularly linguistic signs (Bronckart, 2003) – is to question in order to understand the primacy of the collective in the emergence of personal knowledge.

In my own work on the articulation of the individual and the collective in the emergence of knowledge, I have introduced the concept of a *differential teaching contract* (Schubauer-Leoni 1991 and 1996). Starting from a social and psychological approach to teaching and learning phenomena, I have tried to draw the attention of education researchers, studying mathematics, adopters of the Brousseau contractarian approach (1997), on the need to distinguish the *positions* of the students at the moment of teaching. I began by highlighting the sensitivity of the teaching contract to the sociological affiliations of students and the impact on teachers' marks in terms of "good", "medium" and "low" in mathematics. I presented the differentiating detail of the expectations of a teacher – also seriously involved in school projects – as he anticipated the types of things produced by students who he considered to be "good" or "in difficulty" and according to the task assigned to the students, whether it was more or less internal to the practical logic of the current teaching contract. It was found that, to the astonishment of the teacher, the "good students" (also from privileged social groups) proved especially in line with the expected answers of the typical tasks of the current teaching contract, while the so-called "in difficulty" students (from disadvantaged backgrounds) and for which the teacher showed significantly less optimistic expectations, managed to cope better than expected and sometimes better than some "good" students when the tasks were outside of the teaching contract. I was pretentious enough to think that these results were not significant. However, it is interesting to note that this notion of a *differential teaching contract* stagnated for years in the studies of didactic approaches concerned with the objects of knowledge and their epistemic status. There are also social psychologists (Carugati and Perret-Clermont, 1999 Schubauer-Leoni and Grossen, 1993) who are so concerned with the meaning subjects attribute to interactive situations that they have given this concept a place within their theoretical analysis tools. In education, the concept of a differential teaching contract has only relatively recently been revived (Leutenegger, 2003; Leutenegger and Schubauer-Leoni, 2002; Ligozat and Leutenegger, 2008 Sensevy, 2011) with the emergence of comparative works in education and especially with the recent theories of the *joint action* of the teacher and students (Sensevy and Mercier, 2007; Schubauer-Leoni et al., 2007b). In this model, the evolutionary dynamics of the teaching system cannot be defined without highlighting the role of the respective responsibilities of the teacher and *different* students. Nevertheless, interest has now been given to the evolving space of students as well as measuring the progress of the learning objects, with it not having sufficiently re-integrated the role, in the didactic game, of the students' group affiliations outside of school (socio-cultural backgrounds, geographical origin, gender,...). The reader will understand how such research inevitably deals with highlighting how education without psychological foundations can be not only inefficient but also loses its roots in effective educational practices.

⁶ I would rather say "collective interpretations" in order to emphasise the fundamentally linguistic and communicative nature of forms of thought.

Didactics without the study of specific subjects in educational institutions tends to focus on the inherent nature of epistemological knowledge studies.

From a psychological perspective, the interest in the interactions that characterise school learning as well as training throughout life also provides a basis in the meanings that specific individuals co-attribute to the cultural objects that they are supposed to share in the various educational institutions. Anne-Nelly Perret-Clermont and Jean-François Perret masterfully develop this issue in the book “Learning a trade in a context of technological change” (2001/2004).

The next level of analysis (§3.) highlights, once again, the issues of convergence between some didactic and psycho-social approaches.

3. PROFESSIONAL THEORIES, VALUES AND MANAGEMENT RESPONSIBILITIES

At a level of common sense theories, the subtle effects of institutional work (and the processes of hetero/self-assignment that accompany them) still provide, in my opinion, a certain life expectancy of capability and individualising concepts. Not to mention that the institutional constraints of lesson management and evaluation certification that mark the orientation of students in school courses, tend to give emphasis to behavioural approaches, and this in conjunction with the constructivist or socio-constructivist education approaches reflect the official orientations.

At this level of analysis, taking into account a series of institutional texts and discourses makes it possible to access information in which professional theories are structured and the values of the agents of the educational institution sustained. This *corpus* is enriched by the results of studies of teachers’ discourses through questionnaires or interviews. Among those that contribute to professional theories, there is the trace of academic debates, in particular, in official teaching texts and textbooks.

A comparative study (Schubauer-Leoni and Leutenegger, 2009), carried out on the teaching of French and mathematics, of the official texts for primary education in the canton of Geneva, as well as various documents available to teachers to set their teaching in the all years of primary school (ages 4-7 years) identified some specific features of the two subjects taught. The documentary evidence was analysed starting from the following criteria:

- the *system of objects* (physical, oral, scriptural,...) that convene the tasks or learning situations;
- the *relation to the objects* (role of intra-and inter-personal contradictions, error status);
- the *space and responsibility of the teacher* in the different phases of the teaching/learning process;
- the *space attributed to the collective* and, respectively, *the individual* in the production of knowledge;
- the *responsibilities assigned to the individual student* (means control of the action, marking indices at the end of the task, contribution to the progressing of teaching time);

- the *space attributed to peers* (purpose of working in small groups or pairs, definition with individual and collective work).

Without going into the details of the data, it is interesting to note that in the official text there are clearly two conceptions of access to knowledge, with this due to being in the fields of mathematics and French. Thus, having stated that “the child constructs his knowledge” and “students have an adaptive nature”, knowledge is classified into “two major groups” corresponding respectively to the fields of language teaching and that of teaching of mathematics and science, in other words, “knowledge built during social interactions and communications” on the one hand, and “knowledge built by the subject through his own actions” on the other. A declaration of a higher order tops the “two groups of knowledge” stating that the approach is socio-constructivist! Consequently, the teacher reassures that he will not be making any big differences but will vary the way of managing the classroom. Thus, the study of all the official texts clearly shows that in the teaching of French, the teacher seems to be the manager of the first moment that is the collective. The didactic sequences begin with collective work and then gives students an opportunity to practice individually or in small groups. The reverse movement is outlined in mathematics, where the student is first asked to confront the problem alone (possibly in pairs or small groups) and without the teacher’s help. Only in a second moment, is there a “pooling” of the individual productions. If this is the principle, the inventory of the various forms of the official handbook shows that there are relatively few (21%) that explicitly seek such “pooling” at this early stage of schooling (4-7 years). The teacher in this case is supposed to stand back so that the student can take charge of the problem.

The space assigned to the student in the two subjects is therefore different. In one case, it initiates with peers and the teacher to inherent textual genres in French cultural forms and then can be practiced alone or with peers. Whereas in mathematics, the ball is first in the student’s court who deals with the problem and then “pools” his results, strategies and conceptions. This “pooling” tends suddenly to be considered a form of institutionalization where the teacher will say, perhaps⁷, what is/are the correct answer(s).

In the research interviews, it is worth noting how mathematics teachers sometimes regret a premature dissemination of strategies among the students, believing that “everyone should be able to build *his* answer”. However, the teachers do not seem to be particularly troubled by this difference in “input” between the two subjects. Do they think that they could animate the classroom management a little differently? Or is it what we called with Sensevy, forms of *superficial regulation* in order to “succeed” locally in doing, thus not always assuming the forms of *epistemic regulation* of cognitive reorganization of importance? The issue will be included in the next section. In addition, in the case of the school in western Switzerland, there is a difference in “type” between the teaching texts (called “methodological” documents) the two subjects: in mathematics (unlike some textbooks used in France), the teacher is faced with a repertoire of forms that often has nothing mathematical (“witches”, “cousins”, “stampede”...), with the teachers having to include in their work plans, spread over weeks of the school year, the names of the cards with the reference category of a higher order in which they are listed in the manual: number, geometry, location in space, reasoning.

⁷ Due to the “pooling” stopping there, the teacher is limited to congratulating everyone’s investment in the product without institutionalizing anything in terms of knowledge. This practice is widespread.

It is therefore very difficult to know what *mathematical organization* structures a series of cards from the teachers' perspective. The connection between the different forms and the knowledge they are supposed to have is left to the manual itself. Future teachers are often told: "they (the writers of the manual) have deeply considered this matter". In the teaching of French, the teachers have teaching sequences that are described in detail in *ad hoc* documents. In this case, the instructions are described, step by step, with the expected answers for the different exercises given. Unlike the case of mathematics where the teacher is supposed to give his own script to support a set of cards, French teachers can follow almost to the letter the proposed sequence. Is the assumption of the issue of knowledge and therefore the creation of an intense personal relationship with the subject taught better served in the second case? There is something to doubt when, for example (Forget, 2011) the teachers are the limitations to such an extent that they are willing to tell students when working on the encyclopaedic text of an animal: "I'm not an expert on frogs, see what they say in the document (flipping the accompanying document of the sequence)". Due to the divergence from the content of the texts that are the resources for teaching (Ligozat, 2008), we find that, at least in western Switzerland, the epistemic control of the subject is not assured. The teacher seems "to be carried along" by the structure of the manual. While being without a conceptually solid relationship with the subject, the teacher can barely cope with the various interpretations that will not fail on the part of students.

Without this in-depth knowledge of the subject and anticipation of possible major relationships of the students with the subject, such as the stage of the programme, the teacher can only be required to assume an oscillating position with a set of questions and sub-questions until obtaining the expected (provided by the manual) answer. Given the dispersion of the reasoning within the collective, the "good" students get away with assuming the "whites" of the teaching tool and the so-called "difficult" students are likely to become experts in the search for the teachers' marking scheme for speaking or writing (or pretending to speak/write) what the teacher wants to hear or see. This re-proposes the issue already discussed in the previous section in terms of a *cognitively intense relationship with knowledge* on the part of teachers for which students can create a relationship with the subject at their own level.

From the point of view of equal opportunities within a *sustainable* perspective and issues of efficiency, we find that this level of analysis highlights a number of barriers to equality. The institutional focus on a constructivist, socio-constructivist approach (reduced to the magical effect of peer interactions!) takes forms that could avoid the teacher becoming more involved in a personal relationship with knowledge on the grounds that "true knowledge" is an internal order and can only be built by the students themselves. This standby position with respect to the spontaneous maturation and internal development of the child as well as the belief of an "automatic" effect of peer interactions and potential "socio-cognitive conflict" cannot but be within a negative perspective of equality.

Once again, without an analysis of the nature of the opportunities effectively implemented for the group, organising an appropriate study to deal with referred knowledge (by the teacher), the teacher can only guide the class, step by step until obtaining the desired response, with the students sustaining this scenario.

Further elements of this "institutional standard", in terms of learning theories, are the various aspects of the profession that, as we have seen, are combined in a way that suggest a problematic didactic action from the point of view of equality.

4. THE JOINT LEARNING ACTION IN THE HEART OF EFFECTIVE PRACTICES

In Section 1, we discussed the origin of the concept of the differential teaching contract. Some recent works rely on the business concept and make it work within the framework of the joint action. Work carried out by the comparative didactic unit in Geneva, including that of Francia Leutenegger (2009) and Pier Carlo Bocchi (2008) provide examples in contrasting areas of knowledge (mathematics and French). Other studies (Ricco and Menotti, 2003) go in the same direction and show the variations of the teaching contract when the same teacher teaches the same content (concept of volume) in classes deemed “strong” or “weak”. The authors highlight how “notifications, the lines on the board and the institutionalisation” are different in the two classes. They also specify how the students in the weak classes are facing “a compartmentalised set of knowledge” which leads “on the one hand, to stacks of concepts without, institutionally, the opportunity to connect with each other and, secondly, the ousting of the intelligibility of these skills. These conceptualizations are the responsibility of these “weak” students”. They conclude: “this is a paradox in terms of the educational institution that is supposed to be the democratisation of access to knowledge. If, as may be the case, such situations become entrenched across multiple teaching organisations and schools for several years, the personal relationship that these students have with knowledge cannot but be affected. We can therefore conclude that education and school systems have led some teachers to strengthen, unconsciously and silently, the inequality of students toward academic achievement”. (Ricco and Menotti, 2003, p. 556)

This work echoes other comparative observations made by Arianna Giugliano (2006) on the teaching of Italian (language 1) and mathematics at a college in the Italian region of Switzerland. She, also, notes that the “good” students are those who the teacher allows to answer the key interventions in order to advance the educational class time, while the “weak” students are interrogated on old knowledge and therefore not sensitive to the current teaching contract.

This type of teaching is generic, while declining specifically as mathematics or language knowledge. It is interesting to note in this study how the same student can be in a “good” position in one case and a “worse” or “low” one in another learning collective. In these cases, it is useful to see how the configuration, including proxemics, of the joint action affects talking. “Weak” students, unless seated by the professor at a strategic table, often choose the most external positions in the classroom, thus allowing them to escape the influence of the teacher.

The study by Florence Ligozat (2008) also deals with this issue since it has been sharply challenged by the socio-constructivist institutional assumptions in the comparative study of classes of French-speaking Switzerland and French classes where the teachers do not support this learning hypothesis. Without going into the details of the highly complex data on joint action in the teaching/learning of the extent of variables in elementary school, I would like to note along with Ligozat that the debate is about a teaching posture which builds a juxtaposed device of workshops from which each student will experience various tasks in connection with the extent. The order of the workshops is random and the teaching in the various workshops is carried out with the students without engaging in any collective debate on the status of the various experiences.

Thus, it involves the *structuring* of knowledge and Ligozat asks, rightly, whether all the students have equal opportunities to access critical learning opportunities. The impact of the absence of a collective debate on the status of the knowledge relationships means that the class cannot keep a tangible record of institutional return to the state of knowledge: are peer exchanges and teacher's own rules in a particular group sufficient to provide a form of equality in access to knowledge? The issue of the organisation of knowledge through this type of tool is certainly relevant: what accesses any system of tasks and in what order? With what effects on the structuring of experiences in various subgroups and therefore the knowledge of each one?

5. ARTICULATED PERSPECTIVES

The levels of analysis defined within a didactic perspective relate to the conditions of access to cultural knowledge as well as the kind of opportunities available to students.

On site observations clearly show how the evolution of school place systems and, particularly, distinctive places among students cannot be *described* without considering the contract development of the issues of knowledge and time that mark this evolution.

As a result, educational systems have to manage the maintenance of the educational relationship by giving the constraints of sharing knowledge in fundamentally unfair terms. In doing so, this leads to an obstacle to the equality of opportunities: those who already know how to provide opportunities to learn and others give the benefit – in the best case – to the relational and emotional space! In order to keep knowledge issues out over time, considering and managing rules on a deep cognitive level, there is an unavoidable need for the teacher to have a “first-hand relationship” with the subject to be taught. It is therefore impossible to create a living knowledge from the students – and even further from the school culture – it is the death of the teacher.

However, the responsibility of a consistent relationship to the subject taught cannot be attributed to individuals. The institutional space, of which teaching is a part, after the drawing up of documents to teach with, contributes to creating a blurred equality of opportunities. Education and learning theories are far from consistent (although the official prescriptive texts tend to reduce tensions towards a relatively smooth and compatible logic), with the teachers creating a version that seems to be viable and if possible not too expensive.

However, educational requirements, taking into account the epistemic differences that characterise them, are greater, with it being especially difficult for generalist teachers to be experts in all the areas under their responsibility. Nevertheless, it is a skills contract that binds teachers to the institution, making any admissions of personal difficulty unspeakable. In this context, the individualist and capability logic, widespread in common sense theories, are in fact very useful to teachers who can keep the dispositional attributions (intra-subject) to the failures of the “in difficulty” students. It avoids jeopardizing the teaching tools and their own relationships to taught knowledge using, whenever necessary, causal internal explanations to the student, which have not lost legitimacy in terms of interaction with parents (especially the poor). In other cases, the external attributions involving a dysfunctional family environment are also dealt with. The mechanism is widely known to social psychologists and is in no way attributable to a Machiavellian thinking and conscious of teachers to save face.

If a *sustainable* equality of opportunities can be considered as according to Savidan (2007), beyond the political issues it raises and the balance of power it entails (including academic debates are only the echo), it cannot take place in the school system without the conditions mentioned above being taken into account. In particular, in-depth work on *the function and dynamics of collective statements of teaching* is inevitable in order to show the connection between the joint construction of intense cultural references and the emergence process of empowered people.

Taking into account current practices and especially the joint teaching act, it is necessary to carry out dynamic studies over determined periods. If the analysis unit of a lesson is already sufficient (under certain conditions it should be noted that the characteristic of typicality of the chosen session) to observe various differentiation phenomena (passive and active), it is the length of a sequence, or a system of teaching sequences that fully reveal the signs of a possible *sustainable teaching* of equal opportunities or opportunities to learn.

My argument is to show that:

- if entering the problem “from above” (level of analysis, i), namely the philosophical debates about what *a just society* is and if we support the socio-political opportunity of *equal opportunities/sustainable opportunities*, we must continue the reasoning into the classroom and take into account the educational and psychological components addressed in the analyses ii) and iii), otherwise the argumentative premises seem to be incomplete in order to *theoretically* consider a just society;
- if entering the issue from the “bottom” (level of analysis, iii), namely the ordinary teaching act, again we realise that the theoretical arguments of the *sustainable teaching* of equal opportunities, although already highly complex, cannot stop at the doors of the classroom but must “go back” to the theoretical systems (academic and professional) that support/constrain this act and, upstream, to the intelligibility of social and cultural practices (learned and common sense) that orchestrate the compatibility between social institutions and, in particular, between the school and other organisations in society
- if, beyond the theoretical model, projected towards such a society, the actors must be able to undertake, with others, a good path within just institutions⁸. Otherwise, a *sustainable teaching* of equal opportunities is not only open to possibilities in this direction but also shows the challenges of such a project. Not to mention that a person can emerge empowered without a collective desire for recognition. The notion of *thinking space* that allows Anne-Nelly Perret-Clermont to articulate a level of analysis of the *individual*, that of *interpersonal relationships*, the level of *social positions* and finally the analysis level of *symbolic systems of representations and values*, that seem to meet the analytical requirements of the same order.

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⁸ Ricoeur's definition of ethics is also a definition of politics.

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Chapter 14

**SELECTION AND MARGINALIZATION
IN EDUCATION AS A POLITICAL PROCESS**

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ABSTRACT

This contribution addresses the role of the political context in shaping the mechanisms of education systems that contribute to reproduce social inequalities. It goes beyond some well-established approaches that explain educational success and failure predominantly by rational decisions of individuals and their families and puts structural features of education systems in the foreground.

Particularly, the influence of concepts and strategies of political parties is examined. Switzerland and its federalist structure offer a suitable field for analyzing this type of questions. Education and its structural configuration are essentially a matter of cantonal and local authorities so that different patterns of selection and discrimination mechanisms may be attributed to the effect of varying composition of the political landscape.

The article starts with some general considerations and a recall of some fundamental theoretical concepts on the role and mechanisms of schools and education systems in reproducing social inequalities. Then a short description follows of the Swiss education system as well as of some important features of the Swiss political scenery, particularly the strength of political parties.

A glance at the parties' position on educational issues shows the different stand-points and gives some indications for their approaches and strategies.

In an empirical part, cantonal differences in typical situations of selection and categorizations are illustrated and related to the electoral strength of the parties on the occasion of the National Council election. In one canton the analysis is realized on the local level and gives first impressions of the influence of political parties on the concrete reality of educational structures and macro-processes.

INTRODUCTION

Social inequality in relationship with education is a persistent phenomenon lasting over time in spite of the general expansion of higher education and well-meaning declarations of intent by leading actors in the political and educational field. This text looks at some aspects of this issue, putting in particular some structural features to the fore.

It goes therefore beyond the currently well-established theoretical approaches that explain educational success and failure predominantly by rational decisions of individuals and their families. And it argues that schools and characteristics of education systems play a central role in the (re)production of social inequalities and that these systemic features are themselves influenced by contextual factors, namely by the political environment.

In this view, the persistence of social inequality has, among other things, to do with the central task of education to prepare for hierarchically structured social roles.

Thus, an essential function of education is to (re)produce social inequality with commitment to the merit principle, which provides the necessary legitimization. The increasing importance of economic purposes, or *vocationalism* in the terminology of Grubb and Lazerson (2004), has rather intensified the inertia of the education system to move towards more equity.

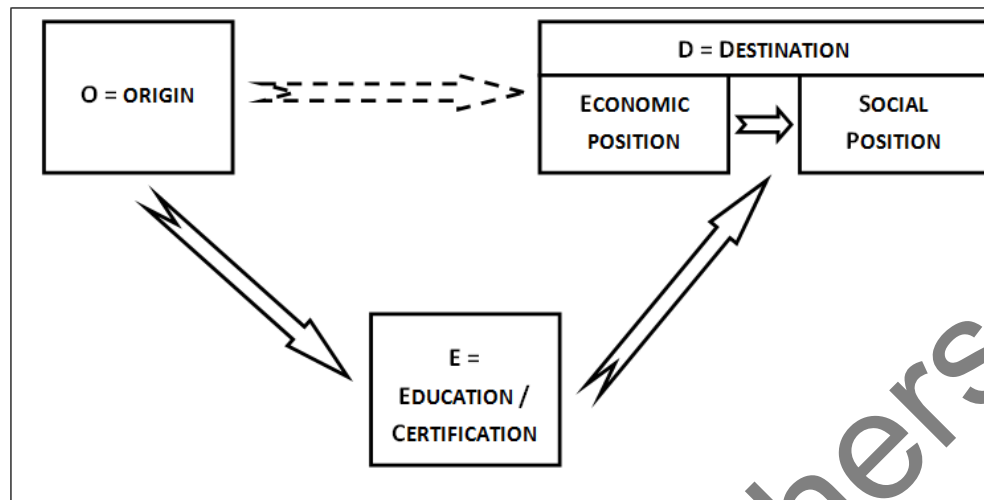
For understanding these processes of reproduction, it is therefore essential to examine the connection between education and society.

If the problem of social inequality is not only a matter of within procedures in the education system but connected to social structures and practices, it is also useful to address these structures and processes. That is, however, a wide field. This contribution deals with a specific aspect, namely the political environment in which the educational selection decisions are taken. Thus, the contextual macro level is addressed. The role of this macro level seems to be even more important as the theory of self-determined individual decisions, as represented for example by Boudon or the Rational Action Theory, hardly can claim absolute validity, given the weight of the institutional decision power in the selection processes of the education systems.

Public affairs such as education are issues of political discussion and arrangement. Political parties have thus an important role to play. We examine therefore the positions of the major parties in Switzerland related to educational policy questions and whether such attitudes have a noticeable impact on the extent of excluding selections. As education issues are frequently decided in the cantonal and local context, the corresponding relationships are analyzed at that level.

EDUCATION, SOCIETY AND ECONOMY

A discussion of inequality in relation to education is not possible without a view to the link between education and society. As Duru-Bellat (2002) or Goldthorpe (2003) for instance indicate, the point is to remove or at least to weaken the direct link between individual's origin (=O) and their eventual social destination (=D) and to replace it by a triangle where the distribution of social positions is basically delegated to a specialized intermediate agent, the education system (Figure 1).



According to Duru-Bellat (2002), Goldthorpe (2003), Becker (2009).

Figure 1. From origin to destination – the role of education.

The consequences of this conception are manifold:

- First, social inequalities in education are only problematic if social inequalities exist in the society as a whole. In a theoretically egalitarian society, inequalities in education hardly are a matter of concern as they are without effect regarding the final allocation of hierarchically defined social positions.
- Second, the fact of hierarchically structured societies certainly is ubiquitous, even if there may be considerable variation in the extent of these inequalities, but the differences are rather gradual than principal. However, the relationship between education (E) and hierarchical social positions (D) is varying too (Dubet, Duru-Bellat, & V  r  tout, 2010)(Dubet, Duru-Bellat, and Veretout, 2010) suggesting that there is some space left in the design of the educational structures and processes that form the relationship $E \rightarrow D$ and thereby in the more or less close match between education and social positions.
- Third, social inequalities are in most societies primarily defined by way of economic features. The professional status, connected to the professional income, is the essential characteristic for determining social positions. The degree to which schools and education systems focus specifically on economic requirements forms a crucial criterion for the impact on the relation between E and D. At the individual level, "what is at stake, is the transformation of knowledge to money"(Stoer & Magelh  es, 2009, p. 45), (Stoer and Magelhaes, 2009, p. 45) while at the macro-and meso-structural level the cost-efficient provision of human capital with the view to maintain or increase economic competitiveness is of high priority. The extent and the moment of this orientation are decisive factors to shape the relation between school and society and thus for the relevance of educational inequalities for the distribution of scarce social positions.

This means that educational concepts and structures with strong orientation to labor market demands compete against approaches that give priority to the optimal development of individual potential.

Certainly, the results of the international project on the definition and selection of key competences (DeSeCo) show, on an abstract level, a narrow similarity of essential competencies required in the professional and the societal life: interacting in socially heterogeneous groups, acting autonomously and using tools interactively as well as acting reflectively (Gilomen, 2009; Levy and Murnane, 2001; Rychen and Salganik, 2003). But finally, the concrete curriculum priorities generally focus rather on tool using competencies and less on other categories of key competencies. And where labor orientation prevails, professionally usable skills are at the fore and not so much generic (key) competencies. That is, the stronger the orientation towards the professional field and the labor market, the more the knowledge, skills and competences usable for other social fields are neglected. Economy gains priority over the tasks linked to the roles as political voter, communicator in heterogeneous groups, responsible family member, interactive neighbor, etc. (Grubb and Lazerson, 2004; Grubb and Lazerson, 2005).

This narrow focus on rather specific and short-term economic requirements corresponds well to what Grubb and Lazerson (2004, 2005) call the "educational gospel" and the "vocationalism" of education and results in restricting the spectrum of competencies to economically usable skills. Another consequence concerns a more structural level. Economic demands are structured in the sense that attractive positions linked with specific skills and competences are scarce. In the effort to optimize the relationship between educational certification and the allocation of economic - and therefore social - positions, schools and education systems aim to proceed to a rather selective transmission of highly valuable competences.

On the structural level, early and clear-cut selection structures are the consequence.

SOCIAL AND EDUCATIONAL INEQUALITIES

Social inequality associated to education is a favorite issue of the sociology of education and diverse theoretical approaches have been developed in order to clarify and to explain these relationships. Social inequality may be conceived of the systematic unequal access to social positions, whereby these social positions are associated with advantages or disadvantages related to action and life conditions (Lévy, Joye, Guye, and Kaufmann, 1997; Solga, Powell, and Berger, 2009).

Since economic and economically dependent characteristics, such as income, wealth, professional power, are essential for the determination of the social status, the professional situation plays a prominent role in the definition of social positions, particularly as, according to Lévy et al. (1997), there is still a remarkable coherence of positions in diverse social fields to observe and a de-crystallization as stated for instance by Beck (1986) cannot be discovered. For Becker (2009), social inequalities are fundamental to meet the requirements of modern societies based on division of labor and to cope with the essential challenges of further developments in an optimal way. He considers the access by the labor market as a

generally accepted and therefore legitimated mechanism where the link between performance and reward is a direct one. Thus, the allocation of the professional status comes to the fore. The human capital theory offers a first approach to structure this field (Becker G., 1964; Schultz, 1963; see also Bills, 2003).

Following this theory, schools and education systems provide skills and competences necessary for professional activities that for their part serve as determining factors for the company's productivity. Higher levels of education provide more and higher levels of skills and therefore higher productivity in the economic processes. This productivity is responsible for the competitiveness of the company and thus for a successful profit orientation. On the individual level, productivity, determined by the level of education, is consequently the primary factor for the assignment of the salary, the accession to economic power positions and the security of the workplace.

This direct link between educational competences and economic and social positions is not uncontested in the further development of the human capital theory. Arrow (1973) or Spence (1973) for instance point to the information problem and the actual impossibility of concretely assessing the skills of (potential) employees.

So the educational certificates obtain crucial importance as signals of the candidates' competences and as supports to the employers for their screening the labor market. Credentials and certificates, and not the competences they seemingly signalize, receive hence an eminent significance. Collins (1971) or Bills (2003) extend this approach by their "credentialist theory" and point out that employers don't really know their own requirements and act predominantly on the basis of generally shared, but rarely confirmed, hypothesis as well as due to internal powerful pressure groups. Therefore, the economic success of the owner of highly valued credentials is less ensured by their acquired competences than through the access control by existing elite groups.

However, the relationships between school and labor market are organized, and formal education is the essential factor for the allocation of economic positions either by the transmission of competences or by their certification by credentials or diplomas. Fend (2006) considers this allocation role of schools, which is associated with the mission of selection, as one of the essential tasks of education systems, along with the functions of enculturation, qualification and legitimation. Goldthorpe (2003) for his part notices that the request of meritocracy is far from being realized and the significance of educational certificates still depends on the social origin: The higher the social origin the less marked is the relationship between the educational level and the achieved social position. He concludes that the significance of non-meritocratic characteristics increases with the level of the position to be occupied and that these resources reflect essentially the social background of more advantaged class origins.

Nevertheless, the point at stake is how the school executes this task of selection and certification. Two sub-questions should be distinguished:

- 1 What are the mechanisms that enable schools to execute the task of selection in an effective, non-ambiguous and efficient way. Procedures of marginalization, early selection and tracking, special schools and classes, retention and repetitions form part of these mechanisms.
- 2 And only after this, the question comes up whether by these mechanisms particular groups of the population are advantaged or disadvantaged. This is the classical

question, mostly discussed under the label of equity, among others in the Swiss Education Report (Swiss Coordination Center for Research in Education (SKBF), 2010) (Swiss Coordination Center for Research in Education (SKBF), 2010) where educational inequalities are dealt with exclusively under this point of view.

For this contribution, the first question forms the general background. In effect, we analyze some contextual (political) characteristics as determining factors for the educational processes of selection and categorization and thus for the shaping of the allocation task of schools. But first, we will briefly discuss the two concepts of (in)equality and equity.

INEQUALITY AND EQUITY

To speak rather about „equity“ than about „inequality“ has come into fashion. Hutmacher, Cochrane, and Bottani (2001) for instance mention this term in the title of their book about inequalities in education and OECD uses it in their PISA publications (OECD, 2010)(OECD, 2010), as well as in their publications of educational indicators where this notion appears parallel to that of inequality (OECD, 2012)(OECD, 2012). For the Swiss Education Report (Swiss Coordination Center for Research in Education (SKBF), 2010) (Swiss Coordination Center for Research in Education (SKBF), 2010), “Equity” is one of the three principal thematic dimensions. It explains: “the internationally used term of equity is given precedence over equality of opportunity not least because this latter term has gained many different connotations – not all of which are positive – after years of drawn-out ideological debate in the education and social policy fields” (p. 31). And with reference to Coradi Vellacott and Wolter (2005), the report defines equity as possibilities for individuals of making free choices on the basis of their abilities and talents and not on the basis of ascribed characteristics such as gender, race, ethnicity or social status. So the concept of meritocracy is addressed claiming that social position and associated advantages are not allocated as in pre-modern societies based on inherited and ascribed characteristics but on the basis of performances. Duru-Bellat (2002) names this concept “the ideology” of meritocracy as it involves social constructs depending on the power relations within a society and serving to justify social inequalities, a statement shared by R. Becker (2009). Young (1958) himself, who had introduced the notion of meritocracy, does not conceive his story with a happy end as performances are assessed in an one-dimensional way and the excessive application of the merit principle leads towards an elitist society. In this context, R. Becker (2009) emphasizes the danger of social disintegration.

The tight relation of the concept of equity to the ideologically afflicted theory of meritocracy as well as the limited scope of thematic discussion involved makes it sensible to privilege the concept of (in)equality instead of equity and to discuss not only questions of discrimination but also general questions of mechanisms and procedures that are operative with regard to the allocation and selection tasks of education systems.

BOURDIEU, BOUDON AND OTHERS

In order to conceive and to explain questions around inequality in relationship to school and education systems two main approaches may be distinguished (Kronig 2007), the structuralist and the individualistic approach. Pierre Bourdieu and Raymond Boudon, the two dinosaurs of the French sociology of education, represent examples for these two directions.

In the view of Bourdieu and Passeron (1964; 1970; Bourdieu, 1986) social structures exist independently from individuals.

Social positions, hierarchically ordered, and the associated power relations subsist therefore irrespective of the concrete persons who occupy actually these positions at any given time. The effect is a strong stability of social relations and simultaneously the distribution of positions is pre-structured and particularly advantageous positions are very limited.

For the education system, this means to play an active role and to practice its selection task primarily in accordance with these pre-structured requirements and not on the basis of the skills and competencies of individuals. The stability of social structures and the derived structures of demands for school certificates also leads to a stability of school selection structures. For example, in Switzerland the part of students in lower secondary education at the level of the basic abilities has hardly changed and remained on about 30% over the last 20 years (Swiss Federal Statistical Office – SFSO, 2012) (Swiss Federal Statistical Office - SFSO, 2012). According to Bourdieu and Passeron (1970), the main instrument for the selection is the symbolic violence, that is, the power to define specific meanings and practices as exclusively legitimate while concealing the underlying power relations. In doing so, the selection process will not follow meritocratic performance criteria, but becomes the result of the confrontation of different cultures, the habitus of the selecting agents who mainly represent the interests of the dominant class, on the one hand, and the habitus of the selected individuals on the other one. Thus, through the school selection, the lower social origins are disadvantaged and the dominant classes are advantaged. With the key methods of evaluation (tests, marks, etc.), the cultural differences of varying social backgrounds are reinterpreted as differences in talent and performance. The educational certificates reflect and thus reproduce the existing power relations in society.

Bourdieu's (and Passeron's) approach is mainly criticized on two points (see for instance Duru-Bellat 2002). On the one hand, it is accused of structural determinism, in which the class structures were impermeable and members of social classes would automatically be replaced in their class origins, without possibility of social ascent. The individual is powerless, at the mercy of his fate and has no freedom of decision. Secondly, there is criticism that Bourdieu and Passeron interpret socialization problems of disadvantaged groups only as cultural (habitus) differences and ignore actually existing cognitive socialization deficits.

Boudon (1973; 1974) offers an alternative suggestion to both points. He is a representative of methodological individualism and can be situated in a line with Coleman (1986; 1990) or Esser (1993) in their approach of Rational Choice Theory and Theory of Action. Accordingly, social phenomena can in principle be explained by the sum of the actions of rationally acting individuals who enjoy freedom of decision. Thus, there are no anonymous structures and individuals are not helpless in the face of such anonymous

structures and social processes (Boudon 2002). What is not contested is that individual action is influenced by social relations, particularly through the individual's social status.

With respect to educational selection processes, Boudon (1973) suggests two types of effects through the social origin: Effects of the first type stand for cultural and cognitive socialization and performance differences due to differing social origins and are operative particularly in the early school years. With progressive school career, effects of the second type become more and more effective. These are caused by the diverging evaluation of the benefits and risks of continuing educational careers by members of the different social classes, so that class-specific educational decisions are generated. The school itself is largely neutral in its selection processes.

According to Kronig (2007), this model of individual decisions by the family of origin is hardly adequate to the situation in Switzerland. In fact, throughout the educational career, the school is the most important decision authority, especially in the crucial transition to tracked secondary education, where, at the utmost, there may be a hearing of the families, but where the school makes the final decision. The Rational Choice Theory itself relativizes the concept of purely cost-benefit decisions and includes values- and tradition-oriented decisions and is constrained to revert to structural elements such as institutions, roles, positions, etc. (Goldthorpe, 2010).

Nevertheless, Boudon too sees important structural influences when he points out that origin effects are even more important if the selection processes and specialized trackings start early in the school career (Boudon, 1973).

So, the opposition between the structuralist and the individualistic approach that seems at first sight to be a fundamental one proves to be on closer examination not so enormous as regards the active or passive role of schools and education systems. Duru-Bellat's approach (2002) can be interpreted as an attempt to combine the two views. She attaches particular importance to the fact that the socialization differences are not only of cultural origin but also include decisive cognitive deficits that give an advantage or disadvantage from the beginning of the school carrier. But the behavior and attitudes of school stakeholders as well as the structures of the education system are crucial elements too that explain differentials in educational attainment.

Certainly, the (rational) decisions by the families are of special importance. There are, however, not only decisions of choice at the crossroads of educational careers, but also the ones about the type of influence on school actors as well as the support measures that should be taken. With the concepts of the different forms of capitals Pierre Bourdieu (1986) has prepared such perspectives.

THE CONTEXT MATTERS

With regard to Boudon's (1973) allusion to the importance of early selection for class-specific advantages or disadvantages, the macro-social level of the context of educational processes is addressed. The concept of context has different meanings. Zittoun and Perret-Clermont (2009) for instance subsume under the concept of frames especially the environment of inter-individual teaching-learning relationships. Dumay and Dupriez (2009) asks among other things about the school environment and practices that favor successful

learning, and we have applied the concept of context especially to the political problem solving process (Gilomen 2002; Gilomen and Herrmann 2003; Gilomen 2003) and established the thesis that particularly economic and social factors determine the different stages of the political process.

Following OECD, we can actually distinguish different levels of intervention in the teaching and learning processes (OECD, 2012)(OECD, 2012), and we see that higher levels form a relevant context for the inferior levels:

- 1 The individual learning processes in which the personal environment - and here, among other things, the class-specific origin on the one hand, the classroom processes on the other hand play a central role.
- 2 Then the actual teaching processes essentially influenced by the conditions in the classroom, that for their part are affected by the composition of the pupils, the characteristics of the teachers, as well as the guidelines by the school management as a reference to the subordinate level.
- 3 The third level, that of the school functioning is characterized by the interplay of policies at the school level and the composition of the pupils in the school as well as that of the teachers. The school functioning is itself influenced by higher-level rules of decision instances situated at the level of the entire education system.
- 4 This system level is characterized by general national - and in the case of Switzerland, cantonal - orientations, provided resources, structural differentiations and requirements for standards and evaluations. An example of such a national policy in Switzerland is the HarmoS package (Swiss Conference of Cantonal Ministers of Education – EDK, 2012an.d.) (Swiss Conference of Cantonal Ministers of Education - EDK, n.d.), which was approved by the cantonal ministers of education and intends a minimal harmonization of cantonal school systems in central dimensions.

These national policies on the system level are influenced by macro-social factors such as the composition of the population, general value orientations, general affluence and so on so. This includes general policy orientations as they are represented by the main political parties. In accordance to Parsons, Lange (2005) has also stressed the importance of the relationship between the educational system and the political system. For Lange, this is a sort of exchange relation where the political system ensures the financing of the education system and develops in return key rules for the governance of the education system. In the opposite direction, the political systems expect legitimation services and - through the subsystem of the social community - loyalty services.

He is thereby in line with (Fend, (2006) (Fend, 2006)who defines further essential social functions of the education system besides the selection task, namely the transmission of fundamental values and symbolic systems, the provision of qualifications which enable participation in the economic and social life, as well as the legitimation function that validates key social processes and behaviors - including key political processes and school procedures.

SOME INTERMEDIATE CONCLUSIONS

This discussion of some theoretical aspects brings us to several points that are relevant for the following parts of this contribution:

- First of all, success in education is not only an individual matter, such as Boudon or The Rational Action Theory argue. Structural patterns are most likely to be significantly involved and the organization of schools and education systems is an important factor for the determination of success and failure in formal educational processes. Here we prefer Bourdieu's (and Dubet's / Duru-Bellat's) arguments to Boudon's and The Rational Action Theory's approach.
- Schools are not neutral. Formal equality of treatment as a fundamental educational credo produce in particular an aggravation of differing starting conditions and an increase of differences that come from socialization processes (habitus and cognitive deficits).
- Thus, the equality of treatment of differing starting conditions lets the principle of meritocracy rather appear as an ideological statement than as an effective means of educational development.
- The idea of an optimal development of individual potentialities is an illusion inasmuch as formal education functions as a producer of economically relevant signals in the form of educational credentials and as the structure of these credentials follows the structure of economic positions. Early and decisive selection is a clear indication for this form of institutional strategy and is often related to a strong and important sector of vocational education on the secondary II level.

The concrete configuration of the education structures is a matter of public debate and decision, influenced by economic and social context factors. Political parties are supposed to play a central role in this debate as they are key actors in structuring and organizing public discussion and influencing the configuration of education systems. Thus, in the next part of this contribution we present the main features of the education system in Switzerland and analyze the visions and positions of the strongest political parties with respect to some essential characteristics of the education system, namely to the processes of selection and the orientation towards economic demands. Finally we analyze at the regional (cantonal) and local level to what extent such party position influence the concrete structural selection process with regard to the tracking (ability grouping) on the secondary I level.

THE POLITICAL AND THE EDUCATIONAL SYSTEMS IN SWITZERLAND

According to the Federal Chancellery of Switzerland (2012), the political system of Switzerland is characterized by federalism, the expanded people's rights and multiparty governments at national, cantonal and usually at the local level, too. The starting point is the historic convergence of the nation of Switzerland on the basis of culturally and linguistically different cantons. Until to date, the official Latin name for Switzerland, "Confoederatio

Helvetica" refer to that origin. (Linder and Iff, 2010). Federalism means that the lower levels of the political system, the 26 cantons and the around 2600 communes, have in many areas the decision, financing and action authority. At all levels, the parliaments and partly the executives are elected by the people. A Swiss peculiarity, however, are the enlarged people's rights, which gives the citizens the right to decide on particular issues as well. The mandatory referendum is compulsory for modifications of the constitution and requires the double majority, that of the voters as well as that of the cantons. An optional referendum must be required by the collection of signatures and then simply the majority of votes is necessary for the decision. These expanded rights of the people that frequently threaten to block innovations are one reason for the concordance and consensus orientation of Swiss politics at all levels. Among other instruments, the composition of national and cantonal governments where usually all major parties are represented, attest to this particularity, without, however, being in the strict sense coalition agreements.

People's rights, multi-party governments, concordance and consensus procedures have the effect to limit the influence of a single party and to prevent its doctrine from being implemented in its pure form.

The Swiss party landscape is very diverse too (Federal Chancellery 2012; Linder and Iff 2010). Thus, in the Swiss National Council 11 parties are represented and four of them form the Government, the Federal Council: The largest party is the Swiss People's Party, with 26.6% share of votes on the occasion of the national elections 2011 and 54 of 200 members in the National Council.

It is situated today at the national conservative right. The Social Democrats with 18.7% share of votes and 46 members in the National Council is situated at the left and standing for social, ecological and economic reforms. The Radicals, with 15.1% and 30 seats, and the Christian Democrats with 14.5% and 28 seats, the two center parties, represent liberal and generally pro-business positions.

Education is one of those areas in which the cantonal and partly communal competencies are essential (European Commission, 2012). The federal government has very limited powers in this field and is only allowed to apply them, if the inter-cantonal harmonization policy fails. The Constitution, moreover, establishes a close co-operation between the federal and the cantonal level. The cantons themselves are organized in the Swiss Conference of Cantonal Ministers of Education, which defines the common parameters of educational policy and prepares appropriate agreements, known as concordats.

The most important agreement in recent years is HarmoS (Intercantonal Agreement on Harmonization of Compulsory Education) that regulates some central points of the compulsory education for the whole country. However, this is a rather laborious business in the federal structures of Switzerland, and only 15 of the 26 cantons have joined the concordat until now, while 7 cantons rejected explicitly any participation.

The federal character of the Swiss education system manifests itself in striking cantonal differences in practically all school-related variables. Thus, the average time spent in kindergarten varies between 1.3 and 2.8 years (Swiss Federal Statistical Office – SFSO, 2012)(Swiss Federal Statistical Office - SFSO, 2012), the length of the compulsory education in the current situation, where some cantons already have implemented the HarmoS agreement, between 9 and 11 years, the duration of the primary school between 4 and 6 years (Swiss Conference of Cantonal Ministers of Education – EDK, 2012b)(Swiss Conference of Cantonal Ministers of Education - EDK, 2012), the proportion of secondary school students

in the lowest elementary level between 11% and 46%, matriculation rates from 44% to 23% (data: Swiss Federal Statistical Office SFSO, 2012), etc.

In addition, we find a remarkable plurality of selection and marginalization instruments in compulsory education: Delayed transitions, retentions, repetitions, special classes, special school, ability grouping etc. The most important is the selection procedure after the primary school, at the age of about 12 years.

Here, the students are grouped according to their ability in different school types, or in different classes for the lower secondary level, where again different structural forms and an impressive cantonal variety can be observed (Swiss Conference of Cantonal Ministers of Education – EDK, 2012b)(Swiss Conference of Cantonal Ministers of Education - EDK, 2012). The organization of this level is only comprehensible with regard to the particularities of upper secondary education where the vocational training has a great significance.

The lower secondary level must therefore be seen as a preparatory stage for the decisions to the next stage: "It therefore prepares ... for upper secondary level education.

As pupils have to take an extremely important decision about their further education at the end of the lower secondary level, lessons covering career guidance and vocational preparation are particularly important" (European Commission, 2012).

This concerns first the decision between the general programmes at baccalaureate schools and upper secondary specialized schools on the one hand, and vocational education on the other hand, and secondly, within the vocational education, the choice between the many options offered in this field.

Around 70% of learners in a given school year on secondary education are in vocational training. The content and the procedures of the specific professional training are primarily designed by the professional organizations and predominantly carried out in a dual system: The basis is thus an employment contract between the apprentice and the company, and the opportunity to do an apprenticeship thus depends from the decisions of the company, which in turn is naturally dominated by economic criteria. Thus, the company's selection process is of great importance.

So, the classification at the lower secondary level into different performance tracks with partly different curricula and learning objectives has not only the function of preparing students for the next phase of the educational career, but also that of a signal to the companies about the ability of the student to successfully complete the proposed apprenticeship.

Thus, with the advancement in compulsory education, progressively not only the development of the individual potential is important, but also the production of clear signals that are comprehensible for economic actors. In many cantons for example, the school reports at the secondary lower level mention the absences of the students. This takes place in particular on the request of employer organizations that require not only the performances to be certified but also behavioral elements. From the perspective of the Swiss Trade and Crafts Association (*Gewerbeverband*) and its director such items are a "sign of the reliability and motivation of the aspiring apprentice and represent a factor in the selection of apprentices" (Donzé, 2012, trad. by HG).

EDUCATION AS A POLITICAL TOPIC

As a consequence of this close connection between education and society and particularly the economic field, education and the education system have also become an issue of political discussion. The very fact that each year public budgets spend approximately 29 billion Swiss francs for education is a good reason for a public discussion. And this is especially true if we have the social functions in mind that Helmut Fend attributes, as mentioned above, to the education system (Fend, 2006)(Fend, 2006). Political parties are the institutions that structure the political discussion and organize it. It is therefore sensible to examine their positions on this issue. We limit our analysis in the following to the two political poles, which are marked by the Swiss People's Party (SVP) and the Swiss Social Democratic Party (SSP) and use their party programs and / or specific position papers to explore their visions of education. We are particularly interested in the function they assign to the selection process in the compulsory school.

The SVP Swiss People's Party (Swiss People's Party – SVP, 2011) places emphasis on performance and willingness to perform. "Egalitarianism" is viewed as a less effective strategy for meeting future challenges.

According to the programme, the indiscriminate inclusion of weak and strong pupils result in chaos and quality decline and the current decrease of achieved standards is due to the integration of immigrant children. With the demand for primary manual training for weaker students in the secondary school, the party implicitly postulates a clear selection.

This includes the request that "at the less cognitively challenging levels of secondary school, they [the teachers] should be able to teach almost every subject." (P. 70). The clear focus on performance implies the rejection of integrative teaching.

Instead of reducing inequality, the SVP requires to document it by marks (Swiss People's Party – SVP, 2009a)(Swiss People's Party - SVP, 2009). Regular evaluations and tests have for the SVP a predominantly selective nature which decides on admission or rejection in the further steps of the school career, even within the compulsory education.

A strong emphasis on vocational training shows the primacy of economic orientation, as mentioned above, and a clear selection is the main instrument of this orientation. At a press conference, the SVP explicitly confirmed this view (Swiss People's Party – SVP, 2009b) (Swiss People's Party - SVP, 2009)(Swiss People's Party - SVP, 2009).

Optimal promotions of the individuals' potential and avoiding marginalization are of secondary importance.

The SPS Social Democratic Party in turn puts much emphasis on equality and universal education (Swiss Social Democratic Party – SPS, 2008)(Swiss Social Democratic Party - SPS, 2008). Their educational theses are characterized by the requirement of equality of opportunity and of a school which puts the interests of children at the centre of its activities. The development and encouragement of the learners are the essential elements of the educational mission which is defined to be broad and to include the preparation of mature and responsible citizens in a democratic society.

Logically, therefore, this includes not only the transmission of cognitive content but also the social, ethical, and artistic development of the children. So the aim is a comprehensive education system that realizes the equality of opportunities for all. Selection, which in the SPS' view takes place in Switzerland too early and too often, is rejected.

Instead, different abilities and levels of development of learners are met through individual support and encouragement. Such measures should also replace instruments of marginalization and selection like repetition or special classes and special schools.

It also means that children with special needs should be integrated in regular classes in the sense that plurality and diversity is welcomed. In the conflict between a more individual support and a more selective and competitive school, the SPS clearly supports the first orientation and also explicitly rejects early selection.

So we observe two very opposed positions in relation to the educational mission: firstly, a strong focus on economic needs, therefore, a strong distribution function of the school in view of economic (and social) positions and as a result, a performance-oriented and competitive school (SVP).

On the other hand (SPS), an orientation to the optimal development of individual learners and acceptance of their diversity, including performance diversity, the comprehensive development with cognitive, emotional and cultural elements and consequently an inclusive education model, without selection and without instruments and processes of marginalization. We now have to examine whether one or the other position prevails in the educational reality.

POLITICAL INFLUENCES ON SELECTION PRACTICES

Thus, it makes sense to have a closer look at the topic of selection in the lower secondary level and to examine whether we will find signs that could be attributed to political influence by a party. Given the variety of selection models, we choose as an indicator the proportion of learners grouped at the lower secondary level in the tracks with the lowest requirements (basic abilities grouping).

As mentioned above, the ratio of pupils placed in the lowest ability classes has remained stable throughout Switzerland for the last 20 years at around 30% (Swiss Federal Statistical Office – SFSO, 2012)(Swiss Federal Statistical Office - SFSO, 2012). In the light of the numerous pedagogical or structural educational reforms realized during this time, this stability is rather amazing. We would expect that due to these measures, the competences of the students had generally increased and therefore, in accordance with the principles of meritocracy, the ratio of the weak ones would have decreased, notably since in this period also a general rise in baccalaureate and university diplomas is to be noted. Obviously, a specific kind of the elevator effect (Beck, 1986)(Beck, 1986) has been at work, which keeps the social inequalities for constant despite a general expansion of educational achievements.

And secondly, this stability emphasizes the early stage of the decisions taken as regards the exclusion from higher education. Actually, according to Swiss Federal Statistical Office - SFSO (2011) the probability of general post-compulsory education for pupils grouped at the lowest level in secondary I education is dramatically restricted: only about 2% attain a general type of school at the upper secondary level in contrast to pupils stemming from higher level of secondary I education where the percentage amounts to around 50%. These findings are generally confirmed by the TREE-study (Meyer, 2011)(Meyer, 2011).

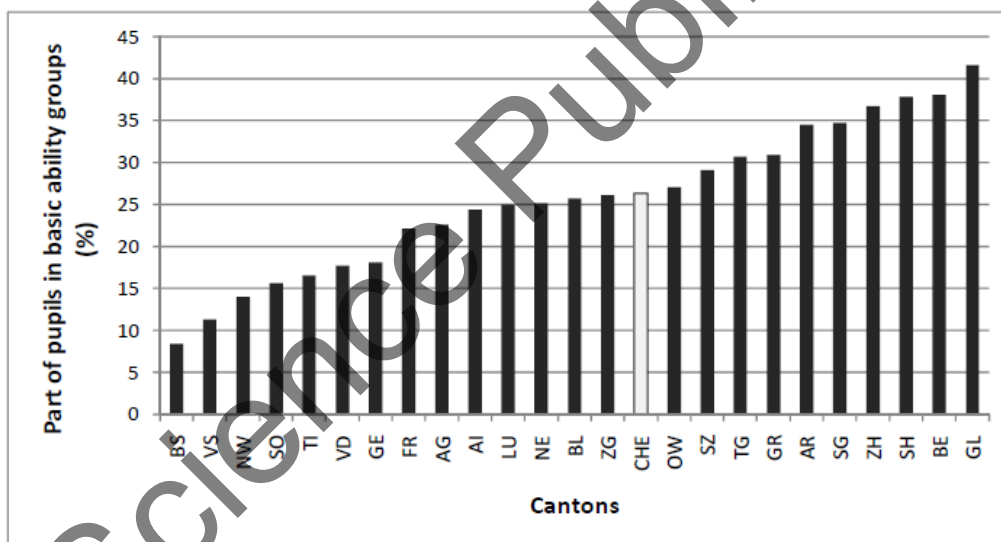
Figure 2 shows an intercantonal comparison of the ratios of pupils placed into the lowest ability groups. The differences are quite striking. They vary from 8% in Basel-Stadt up to 42% in Glarus (data: Swiss Federal Statistical Office - SFSO, 2013a). Expressed as odds

ratios, that means that the risk for a student in the Canton of Glarus to be placed in a school type of basic (lower) abilities rather than in a school type of advanced abilities is about twice as high as the national average and even 8 times higher than for a student in Basel city.

As mentioned above, behind these ratios stands the degree of limited opportunities to pursue a more challenging school career. Kronig (2007) speaks in the context of such cantonal differences of the randomness of the selection process as opposed to the systematic discrimination of children from lower social classes. However, the question arises whether the cantonal differences represent not rather a systematic dimension in the sense that specific context factors lead to more or less hard selection and thus to more or less opportunities for the future educational and economic career.

One context factor may be the influence of political parties and the question now is how party positions on selection and streaming are represented by these facts. What is the influence of a more or less strong presence of political parties on the selection processes in the compulsory school?

A variable that reflects this presence is the share of votes at the general elections of 2011. Intercantonal variability is remarkable and goes for the Swiss People's Party (SVP) with a national average of 26.6% from 10% in the canton of Ticino to 45% in Nidwalden, while the SVP did not compete in the cantons of Appenzell Innerrhoden and Glarus.



Data: Swiss Federal Statistical Office SFSO, 2012.

Figure 2. Pupils in school types / classes of basic abilities 2010/2011¹.

For the Social Democratic Party (SPS), with a national average of 18.6%, the share of votes varies from 5% in the canton of Zug to 35% in the canton of Schaffhausen. The SPS did not nominate candidates in Appenzell Ausserrhoden, Obwalden and Nidwalden (Swiss Federal Statistical Office – SFSO, 2013b)(Swiss Federal Statistical Office - SFSO, 2013). We observe that in no canton either party has an absolute majority. We now associate the party

¹ In this and the following figures, the cantons of Uri and Jura are excluded because of problems with the basic data.

strengths with the corresponding shares of students in the school types of basic abilities and get the results in Figure 3.

On the left side of these figures, we see the cantons where the parties did not compete and therefore have a share of vote of zero percent. In these cantons, the differences of the parts of pupils in the lower (basic) ability groups are considerable, varying from 24.4% to 41.6% for the SVP and from 13.9% to 34.5% for the SPS.

This is a first indication for a rather weak influence of the presence or absence of a political party. This is confirmed by the clusters of points where no systematic trend of co-variation of the two variables is observable and the regression line is more or less horizontal with very weak slopes. The correlations between the two variables are therefore weak and statistically not significant ($r = 0.15$ / $RSquare = 0.02$ for the SVP and $r = 0.03$ / $RSquare = 0.00$ for the SPS). Obviously, the parties do not succeed in directly translating their electoral strength into concrete education policy. This may be due to the political system, oriented towards concordance that prevents from achieving particular aims in a pure form, or to the fact that national elections are not always able to reflect the political reality in cantonal matters. Here, other empirical research would be necessary.

Another thesis is that particularly in school issues important decisions such as selection verdicts are frequently made at the local level with the result of considerable heterogeneity within a canton. We take as an example the canton of Bern, where the government worked out a special analysis in 2008 on the number of pupils in the school types of basic abilities in the communities of the canton (Government of the Canton of Berne, 2008).

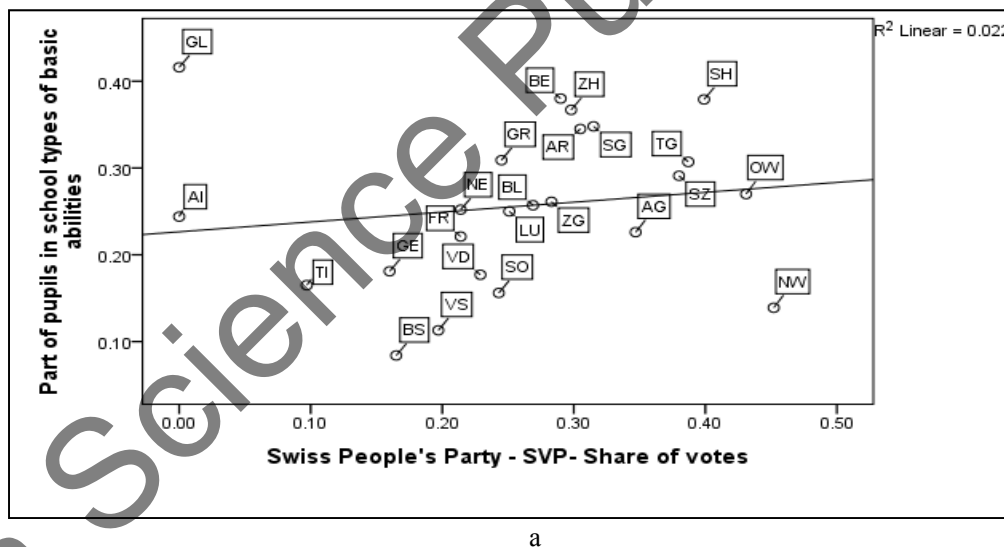
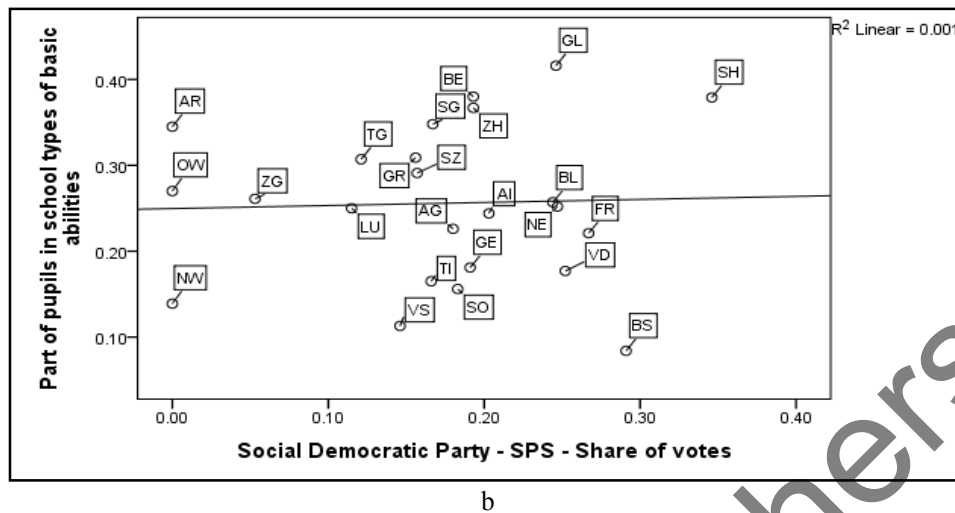


Figure 3. (Continued).



a) Swiss People's Party (SVP).

b) Social Democratic Party (SPS).

Data: Swiss Federal Statistical Office - SFSO, 2013.

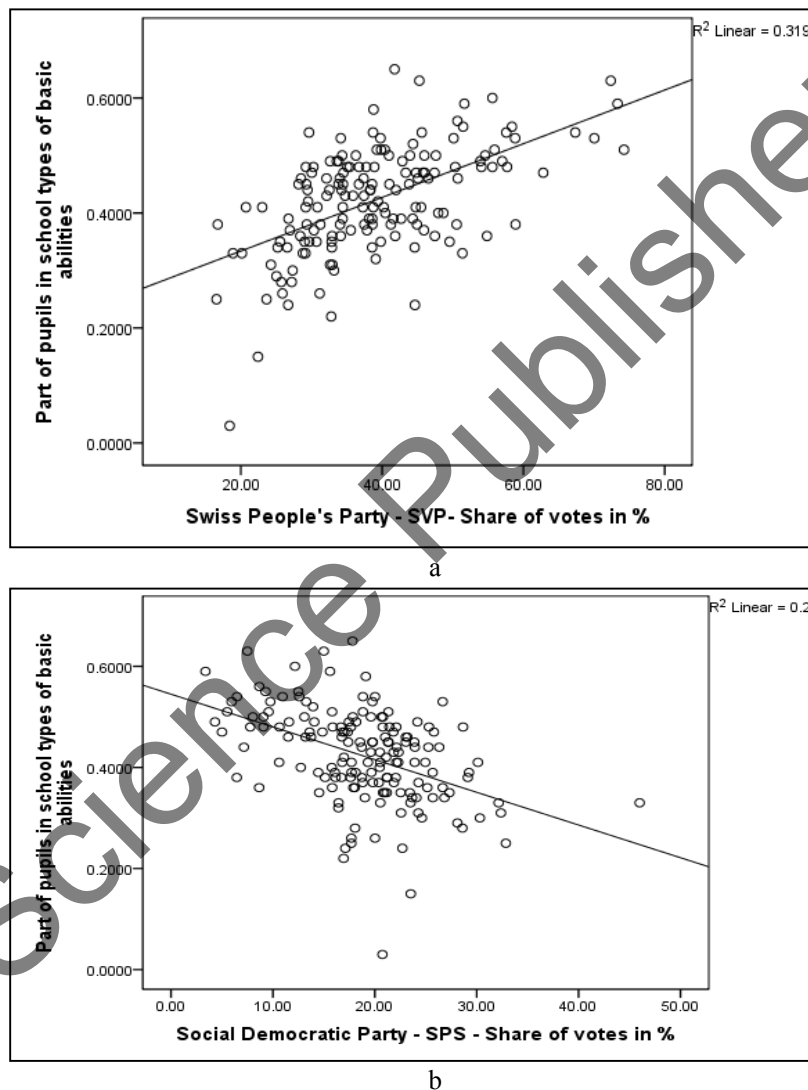
Figure 3. Share of votes and proportion of pupils in school types of basic abilities 2010 / 2011.

Only those (larger) municipalities are given, in which at least 50 students are in the seventh school year. The report shows a quite considerable range of the proportion of students placed into school types with basic requirements: from Évilard with 3% to 65% with Ringgenberg. Expressed in odds ratios, the risk to be placed into a lower school type in Ringgenberg is therefore around 60 times higher than in Evilard, reducing to absurdity the “ideology” of meritocracy (Duru-Bellat, 2002) (Duru-Bellat, 2002). Bernhard Pulver, the Bernese cantonal minister of education, argues that the society expects from schools (and from policy) to operate selection processes and with the streamed model at the lower secondary level, the schools exactly assume this responsibility (Forumbildung, 2011)(Forumbildung, 2011).

Moreover, the political majorities in the cantonal parliament would not allow any modification of this practice. So, in figure 4, we combine these cantonal and communal data with the strength of the above-mentioned parties in the municipalities, but on the basis of the national election 2007 (Swiss Federal Statistical Office – SFSO, 2007)(Swiss Federal Statistical Office – SFSO, 2007), closer to the time of the Bernese analysis.

Now, at the local level, there exists a close link between the practice of selection and the strength of the parties located at the poles of the political spectrum. The proportion of pupils in the school type of basic abilities is significantly positively correlated with the strength of the Swiss People's Party ($r = .57$ / $RSquare = .32$) and significantly negatively correlated with the strength of the Social Democratic Party ($r = -.45$ / $RSquare = .20$). That is, the stronger the SVP party is in a community, the more students tend to be placed in the basic school types. With the SPS, it is just the opposite. The Bernese report shows by the way the social index for each community that reflects the extent of difficult living conditions. This index is only weakly correlated with the percentage of pupils in basic school type, the tendency is even negative, and that is, with increasing social index (i.e., difficult living conditions) the proportion of pupils in the basic school types tends to decrease. This is clearly against the

expectations on the basis of theoretical considerations giving importance to effects of the second type in the sense of Boudon's conception (see above). But the interpretation of these analyzes is not easy to make. The question is whether effectively representatives of the respective parties acting as decision makers concretely implement their party program, or whether the party strength represents rather symbolically a general accepted culture, in which the conservative rightwing or the progressive egalitarian value patterns manifest in both, in the party election result as well as in the shaping of the concrete municipal selection processes.



a) Swiss People's Party.

b) Social Democratic Party.

Data: Government of the Canton of Berne (2008); Swiss Federal Statistical Office - SFSO, 2007.

Figure 4. Share of votes on the community level, National elections 2007 and part of pupils in school types of basic abilities 2008.

CONCLUSION

This contribution examines the question of whether political context characteristics have an influence on the selection practice in lower secondary school. Some general considerations on the explanation of social inequalities form the wider frame for this discussion. We advocate not reducing such problems to aspects of equity, where class-specific reproduction mechanisms and thus discriminations, disadvantages and privileges inside the education system are the main focus.

Rather, the discussion must start with the connection between school and society and thereby follow Fend's (2006) idea of assigning to schools, among others, the task of selection and allocation of social positions. In doing so, schools as specialized legitimate actors are not neutral but contribute decisively to the reproduction of structural inequalities in a hierarchically formed society.

The allocation of social positions essentially takes place via the professional field, where critical factors, economic goods and power, are distributed. According to the human capital theory and its revised variants, educational goods in the form of competences and certificates - or in the language of Bourdieu (1986) embodied and institutionalized cultural capital - are key factors for success in this field. The education system produces and distributes these resources by means of the well known evaluation and selection processes, whereby the number of certificates that give access to the scarce advantageous higher social positions are kept limited too.

The more pronounced the education system executes the distribution and selection function, the more it gets into a conflict with the qualification function, which basically postulates the best possible development of individual potential. In other words, the education system gives priority to the economic orientation, to the "vocationalism" (Grubb and Lazerson, 2004) (Grubb & Lazerson, 2004) over the orientation to individual development.

Among other instruments, which are aimed at facilitating the smooth and early categorization, the selective transition into secondary education in Switzerland is a crucial process to practically exclude approximately one-third of the student body from higher education and thus from higher social positions.

The type of school attended together with the corresponding certificates is not only a drastic setting for the further education and professional career, but also a strong signal to potential employers about the presumed abilities and skills of possible candidates for an apprenticeship. The striking cantonal and communal differences point out the illusive character of the highly praised meritocratic principles. Kronig (2007) confirms this through his studies on the within-school evaluation processes.

Selection and recruitment decisions within schools and for apprenticeships are largely made through the educational or economic actors. It is difficult, therefore, to interpret them as a consequence of second type effects of social origin according to Boudon. The magnitude of intercantonal and inter-communal differences, which becomes manifested through the indicators, can be explained neither by differences in abilities, nor by origin-related cost-benefit-decisions.

There are rather more structural mechanisms at work, which is also underlined by the stability of the rates over time.

The configuration of these mechanisms is subject to multiple factors, among others political influences, given that educational issues are to a large extent public affairs. A look to the programs and statements of political parties shows that the two strongest parties, the Swiss People's Party (SVP) and the Social Democratic Party (SPS) present very different visions on educational questions.

On the one hand, SVP, develops a rather conservative, economic-oriented and selection-friendly position, and on the other hand, SPS supports an individual-centered, potential-oriented view, which rejects early selections.

At the cantonal level, these positions can, despite the varying strength of the parties, hardly prevail in pure form. Obviously, the concordance influenced policy mechanisms are too strong for an implementation of a singular political position in its pure form.

Many important decisions in the educational field, however, are taken at a local level and here partisan positions manifest themselves more clearly. The stronger the conservative right-wing SVP is represented in a community, the higher is the percentage of students who are placed in the basic school types at the secondary I level and inversely for the SPS. Social characteristics of the communities seem to play a marginal role.

There is certainly a need for further empirical investigations. For the present, the available indicators suggest that the modalities of school selection in compulsory education are at least co-determined by contextual features.

Political factors also play a role, whereby the parties' political strength in the local area can be interpreted as a cultural and symbolic factor that reflects a generally accepted pattern of social values.

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PART VI: EPILOGUE

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Chapter 15

**AN EVENING IN ITALY: A SOCIOCULTURAL
DIALOGUE WITH ANNE-NELLY
PERRET-CLERMONT AND GERARD
DUVEEN ON A SCIENTIFIC TRAJECTORY**

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ABSTRACT

This chapter is an edited conversation that took place between Anne-Nelly Perret-Clermont, the late Gerard Duveen and Tania Zittoun in 2003, and aimed at a “sociocultural reading” of Perret-Clermont’s scientific trajectory. The conversation opens with an analysis of aspects missing in the psychology developed around Piaget in the 70s: the person, engaged in meaning making, with affects, and committed in real practices. The chapter then explores the resources on which Anne-Nelly Perret-Clermont could draw to so as to develop an original voice in that context: a first-hand experience of cultural diversity and of voluntary work in various youth organisation, the discovery of the emerging movement in adult education, as well as an active exploration of sciences and philosophy. On this basis, the chapter then explores what appears to be a scientific program in Perret-Clermont’s work: the will to meet the Other, by expanding the research laboratory in real-life situations, including a real exchange with practitioners, before coming back to theoretical elaboration. Finally the chapter highlights some of the values underlying the whole scientific project, also opening challenges for the future: the importance of thinking spaces, the core value of social relations, meeting Otherness, the responsibility of the researcher, and the “taste of knowledge”.

1. INTRODUCTION

This chapter is based on a conversation that took place in Milan in 2003, during the European Developmental Conference. Gerard Duveen and Tania Zittoun invited Anne-Nelly Perret-Clermont to reflect on her scientific trajectory as she had done on Jean Piaget’s a few

years earlier (Perret-Clermont, 1997, 2008). As any conversation between two old friends can go on a terrace, an evening in Italy, the discussion touched on many points and followed its own course. Thanks to Charis Psaltis, this conversation was integrally transcribed; yet for diverse reasons, it was actually never published. Ten years later, for the purpose of the present volume, it was edited by Tania Zittoun so as to highlight the development of Anne-Nelly's ideas and vision as committed researcher. To facilitate the reading many aspects of the oral were simplified – yet trying to preserve the voice of our late friend Gerard Duveen.

Overall the chapters follows an implicit scenario: it opens with an analysis of aspects missing in the psychology developed around Piaget in the 70s; it then then explores the resources on which Perret-Clermont could draw to so as to develop an original voice in that context; further, it then presents the scientific program of Perret-Clermont in 2003, and closes with some of the values underlying the whole scientific project.

Large parts of this conversation were left out – some can be found in Psaltis (this issue), some others can be found in Anne-Nelly's own writings (A.-N. Perret-Clermont, 2004a, 2004b; Psaltis, Duveen, and Perret-Clermont, 2009; Tartas and Perret-Clermont, 2008; Zittoun and Perret-Clermont, 2009); and further ones are still available to anyone who wishes to take part to this conversation...

Negotiating the Meaning of the Task...

GD¹: Our point of departure really was from reading your work on Piaget and the influences on Piaget and the way in which, as you started to look at Piaget as a person in a context, you begin to see something else in Piaget, not just the finished product, but the process through which he becomes Piaget. Piaget thus appears not just as the producer of a culture, but as the product of a culture (A.-N. Perret-Clermont, 1997, 2008). It becomes a part of a cultural history, in which he i's located as a young man of a certain social origin growing up in Neuchâtel at a particular moment. One of the things we wanted to ask you about was to take this model, and to ask you to reflect on your own development: where [does it come from], and then, what are the kind of cultural frameworks within which we a're now trying to construct a psychology?

ANP: If I understand the first statement; then of course Piaget can be seen as producing culture, or being himself a product of a culture, and I think I would take a third position. It's interesting to see how being historically in culture and situated at one human moment with some kind of threads in your hands that come from traditions that can be conflictual or not... he threads them. Because I think we have to confer to him some agency. We are still quite embedded into a sociological determinist perspective, on one side, or by the psychological determinism on the other side.

And we don't take seriously enough our own concepts of agency. So, I would reformulate the question, just to give it a small twist: in my own or in our own work in psychology, or in our own development as thinkers or actors in psychology, what were the things we are conscious of having received? And how did we handle them?

¹ GD: Gerard Duveen; ANP: Anne-Nelly Perret-Clermont; TZ: Tania Zittoun. All editions, cuts and references are made by Tania Zittoun. [] signals words or passages unclear to the transcription and completed later, as well as further addition to facilitate the reading.

Then, trying to make a narrative, we might discover that we are not conscious of all that we have received and we are not always conscious of our motives; or of how emotional are the actions or the processes of identifying with others. I think that this kind of collective introspection is important; one of my own goals has been not go into a pathological kind of dismissing of that complexity.

GD: But isn't that one of the gulf that we find ourselves having to confront somehow? If we look back to Piaget, one of the things that we see Piaget doing is constructing this very general model of psychological development. He wants it to be abstract, and he wants it to be free of the entanglements of specific and particular cultures. On the other hand, if I think back to the earliest work of yours that I know, which is the work with Willem Doise and Gabriel Mugny, and the book on social interaction in cognitive development, there you see a certain vision of how we might think about issues about psychological development, as social and as a cultural process. [So a second question would be], what were the sources and experiences that first of all drew you into psychology, but, more important brought you in a position from where you and your generation developed such a particular perspective on psychology?

2. WHAT WAS MISSING IN DEVELOPMENTAL PSYCHOLOGY

ANP: Willem Doise is 15 years or 16 years older than I am, it i's not a full generation, but as he was my "doctor father" as they say in German, I feel it a little bit like a generation. I was his assistant in Geneva when he came and started the chair. It was a terrible institutional fight to try to take a role in which you defend the idea that everything is not only individual, to introduce the idea that there could be some social regulation. Doise didn't come to Geneva to be against Piaget, he came to Geneva to go upon his shoulders somehow. He takes seriously Piaget's work on social interaction and tries to empirically study them with correct methodologies.

GD: And offers a way out of some of the really obscure dilemmas that Piaget found himself in. In Piaget this whole notion of equilibration, in the end, it's an effort to show how a single cognitive system can self-regulate its way into some kind of development. But it keeps encountering really severe difficulties. Because even a simple thing, if you are a four year-old child who's convinced that the amount of water changes when you pour it from one cup to another, why should you stop believing this? And Piaget's accounts of why you should stop believing this are some of the least impressive things he ever wrote. Because he relies thinks that the children, as they work on this problem, they focus on one dimension and then they focus on another dimension, and this is what introduces a dynamic into the system for him...But what came out of that work in Geneva that you and Willem were doing was that this is not an issue that confronts one child trying to construct feedback from their own experience, but out of some kind of interaction. It's because someone says "what are you doing?", you know, "you've got more than me?", "I've got..." it's those kinds of arguments. And I always thought that that work really returned in a very productive way to some of those themes you find in *The Moral Judgement of the Child*...

ANP: Yes it was, and we were quite disappointed, the three of us, Doise, Mugny and me, to see that Piaget was not more interested. Because he was still a genius, that was not senility...

GD: Why was he so uninterested?

ANP: Well, for many reasons. One is because he had always set goals for himself, he knew he was not very young and he wanted to reach his goals in the structures. So we were out of the work plan, we were a distraction. I think that if he was sincere answering the question 'why', I think he would say that. But then there are other reasons behind. Why should it be such a fight just because it's out of the programme? There was more aggressiveness and, well, first the aggressiveness came from the *disciples* of course. It was so insane at some moments, we also tried to move back to the source. And I think that to understand why he was so *désinvesti*, we had to try to understand why he chose the moral judgement, in which context, and why he abandoned the moral judgement. I remember also the way they mentioned in Geneva the work of Kohlberg: I think there a conscious distancing from that.

Missing: Meaning

GD: There a question at the bottom of this, which is actually the theme of your paper, which is "what is knowledge for?" (Zittoun and Perret-Clermont, 2003): people don't just develop. (...) I mean, people develop because they have some reason to. They want to do something, they want to achieve something, they're identified with something, that makes a new pattern of thought important to them. And that's something that is only ever kind of appeared on the very peripheries of psychology it seems to me...

ANP: Well you see, it could be that Piaget was afraid of that. Looking into his story, why did he put logic at the centre? Why is he so happy not to talk about meaning but to talk about logical structures that give meaning to a behaviour? It's an objectivist perspective. Why logics? I mean, I would not put logics. And I think he is typically Swiss there, because it's not an imperialistic country Switzerland (...) culture is always the culture of the empires around – Germany or France – and they are not interested in taking over the culture of these empires, and they don't value that much their own culture and dialect and so on. They just want to be rational, you see? And do good farming, and good banking, and good trade... Rationality makes them part of humanity.

GD: Is that something Swiss, or something specifically Protestant?

ANP: That's the Swiss part. And there is also, you are quite right, I think a Protestant dilemma there. In Piaget's time there was a strong battle amongst Protestants in Neuchâtel, with his mother in one group and his father in the other. So he certainly knew about the tension! And, with the third group which were the Catholics, which in Neuchâtel were working class immigrants from Fribourg, from Jura and from other surrounding towns. And it's quite fun to see that when he was in the high school, I think one of his best friends, Zundel, had turned to be a Catholic, and they kept quarrelling. And this Zundel was more working class guy and so on. And so I think in fact there were three lines: two Protestant and one Catholic (see also Perret-Clermont, 2008). And the one he chose was the Protestant, in fact anti-Catholic line; there are very good reasons for that: to fight against dogmas, to fight against authority...

GD: But that's also in a way this is connected to a second point, which is this kind of contrast between a general theory, which is abstract, which sees development as progressive and progressing towards something, and the kind of alternatives which are local, which is

psychological processes embedded in specific contexts, and which struggle to recover a sense of development, and where their progress becomes quite difficult to [assess]... I mean, can we talk about development?

ANP: Well, we have another problem with development, it's the colonialist addition - Geneva was interesting place to be because it was not the capital of any Imperialistic state. We had quite a few Africans who were choosing Geneva as a place of study, not to be in England or in France or in Belgium, quite consciously. And I remember, as a naïve assistant, in seminars, the reaction of the African students, they really questioned this. Teaching Piaget with the lines of Bernstein and so on, they would also tell me, "careful you are not going into relativism". Someone who was doing the certificate in education was studying the role of the Arabic language and the French language in Algerian schools; I remember trying to tell him about Bernstein and so on, he would say, "well, careful: we don't to find any scientific basis for racism or anything against..." and the discussion was very difficult because they were defensive. For me, the main consequence of that is that his unit of analysis was the individual. That was already a commitment: a typical liberal, Protestant commitment. It was a commitment against fascism, against traditional schools and the catechist model. School was not caring - is still not caring! - for the individual.

Missing: La Personne

GD: But there's an ambiguity in Piaget about this. I mean there's one sense in which you are right: that's the unit of analysis for him. But what he wants to say about the individual is only what it is that every individual shares with every other individual. It's not what makes one individual different from every other individual.

ANP: It's what we would call *l'individu* - the "individual", not *la personne* - as defined at that time by the strong philosophy called *phénoménologie personnaliste*. Piaget was afraid of not finding universality going into *la personne*. I think that it reflected a distrust of the social, and distrust because of World War I, already; because of all the murders of the Soviet Revolution, post-Revolution. And because of the distrust of armies, I suppose... It was before World War II, it was World War I that counts. That distrust of the social comes from political and historical events.

But also, as a scientific attitude - and I think it's a very positive attitude - of being *critique* (critical). And that come from his father's heritage. He's a historian, who learned not to hide under narratives but to submit history to modern methods of text analysis, language analysis and confrontation of the sources and so on. Piaget's father in Neuchâtel made a very important work in which he proved that what were considered fundamental manuscripts for the history of Neuchâtel were false were fake. So he went against the self-representation. But then he was so much aggressed for that, not praised for that. So, Piaget learnt that lesson: if you are a free mind you might go against the establishment and be a martyr of the situation. You should mistrust the common opinion and doubt about social representations.

GD: So the distrust of the social is in one sense that it introduces instability, variability, where a scientist ought to be interested in organisation, structure...

ANP: No, no. I think that it is that the social impedes thinking: the initial thing, is you should no't be critical, because you might have to go in exile - and it was very strong. I think that his grandfather had to go in exile for a few years, because he didn't agree with the

Prussian, or the Republicans... The social declares, “this is the case” without having to give arguments, without having to prove it.

GD: This all resurfaces in the discussion of constraint in *The Moral Judgement of the Child*.

ANP: Exactly. Distrust the social because the social is only a source of constraints and doesn't allow you to go and look for the truth.

GD: But there is another social in *The Moral Judgement of the Child*, which is cooperation.

ANP: Yes that's a good social... but that's the same as being logical. It doesn't reflect much on you. But the social as cultural transmission of institutions, hierarchies, authorities and so on is very bad.

GD: So the social is distrusted because it sets limits to the freedom of the individual.

ANP: Exactly. So it's a poison you see, if it sets limits to the freedom of the individual. [Piaget] sees this limit only as a poison, somehow. It's right, limits can be poison, but they can be also a tool to respect, or a friend – that's another point. He never studied the social *per se*. He considered the social as negative; it is distrusted and it has the status of an external variable. And he had a very rigid understanding of what the social means, that is typical of this hierarchical society, with no alternatives. And I think this society, until '68, was present everywhere.

And then another thing is auto-equilibration. [Piaget] had his own reasons for studying it. I think he had a very deep fear of conflicts, because of his personal experience. He was not good at interpersonal relations. He liked to have women around taking care of everything – a bit of a childish attitude. He didn't want conflicts. As a person, not as a subject, I think he could deal pretty well with inner conflicts and was happy to theorise that, but I think he was not very skilful with external. And in his theory, he gives a large space to inner conflicts, not to external.

GD: And that also comes back to his reactions to the work with Willem Doise; there the conflict is realised as conflicts between children.

ANP: External, so he is afraid of that. I remember before Willem, before Moscovici – the pre-historical times! – we were asking for social psychologists, we were students... and the first one to come was Flament, in answer to our big quest. And we were asking for social psychology of many types. (...). And I remember very well Piaget's answer in one of these really informal groups: “you will all end up inside psychiatric hospitals”!

Missing: Reflecting on Actual Cooperation

GD: And did he ever come to reflect on his own activity as an educator at the university?

ANP: We tried to have him reflect on that in '68. We tried very hard. We had a lot of admiration for him, and really could have been turned if he had. So we invited him to our seminars, you know we had a lot of spontaneous seminars, and I remember him coming and sitting... I remember once I was presiding and everyone would say his name and he would say “Jean Piaget” like the others! But you see, he was too playful, for us it was serious. And he was playing. And we told him, “but listen, you say co-operation amongst peers” and I remember we had posters: “We want co-operation without [constraints]”. And finally one day in the main *aula* with about a thousand students because all the faculty of science also had the

lectures, he came and said, “listen, you students, you say you are not co-operating, not co-operating, you are co-operating to all my research. You are doing all your work, you are hands-on! They envy you all over the world! And you disdain that! Listen, I have just received a letter from America. They have created the Piaget society. And you disdain coming in my research, hands-on? Don’t you call that co-operation?”... Hopeless, I mean! It [shows] incapacity to decentre to someone else’s perspective. He has theorized that, when he was teaching us how to write a paper or to plan an experiment, he told us, “Always take three scapegoats when you write your paper or your book”. You are not interested in what the others think, you are interested in taking them as opponents to make your point. You are not really interested in their point, you only use their point for the defence of your point.

GD: But this is an attitude which is wholly consistent with the way, in *The Moral Judgement of the Child* and those other papers, he deals with social processes at this very abstract level and never really engaged with this as a practical question. The things about co-operation and constraint are defined purely in abstract terms, he never tried to develop any active research around these ideas.

ANP: He would praise subordinates in the hope that they would develop. He had a sort of generative perspective. He hopes to find the universal laws and mechanisms, and others will apply. So, for instance, Constant Camille was in charge of applying to education, Vinh-Bang was in charge of developing assessment tools for clinical work... So he had subordinates who would take care of all these phenomena that make life un-pure, you see. For Piaget it’s quite a pity that the epistemological subject has to live a life in a society. If you have epistemological subjects living life as it was in heaven or somewhere, maybe many problems would vanish.

GD: But this is where the abstraction of Piaget’s theory is really very clear, because his focus on the epistemic subject actually carries into the world that that subject knows, because that’s simply a world of epistemic subjects. If you read his research and ask yourself, “what is the world that this child comes to know?” it’s a world of objects that have properties that I can determine, but I couldn’t distinguish one object from another.

Missing: The “Real” Person - Affects

ANP: That was one of our findings as students. We had discovered that Piaget’s objects were always vanishing, that they were not really resisting, they were always in a structure that wasn’t reality. And I remember that we had sort of, under the table, some papers about Soviet psychology and objects. We were a bit annoyed that they really were so sovietic, but we knew we had to do something about objects – we did not really know what!

GD: There’s a very funny piece in [Piaget] lectures on intelligence and affectivity. There’s in the middle of a paragraph where he’s describing the development of object content and so on. Suddenly there’s a little parenthesis and he says, “Probably the first permanent object in the child’s world is the mother”. End of parenthesis!

ANP: There were also some kinds of unconscious factors... Remember, in my book I studied social classes of children; it was totally taboo. One day, [Barbet] Inhelder asked me to come and visit me. Quite unusual, because then I was not in the inner circle. And of course I accepted and, because she was a very shy person, it took a lot of time and then finally she came to my place, and my dissertation was already submitted but not defended. At about twelve at night she finally started telling me that I shouldn’t study such a thing, that she was

terribly annoyed, and that I *shouldn't* do that and I ought *not* to do that, and so on and so forth. And I thought “well, you are entering the important point now”, so I tried to have her talk a little bit more about it. I think she was almost like in a nightmare. She offered me very practical reasons, for instance the schools would not admit that we would do that, or political reasons – it sounded leftist to do that, and it could be dangerous because of the Cold War atmosphere. Of course she wouldn't spell it out [but it was] pretty clear. And they had promised not to interview children on sensitive data, so I said “please tell me more about that, what is sensitive?” [I must add that] She had already forbidden me to take as a Master's thesis – I wanted to study the notion of property in children. At that time she had told me “oh, it's too difficult”, I said “well I'll write a project.” So, I wrote a project; she didn't answer, and I asked her - “please feedback, I want to write my dissertation.” And there she invited me for lunch, and at the end of the lunch she told me, “no, it's too difficult, it's dangerous, OK?” Do you know what happened? She gave me almost the maximum mark for the three pages and I didn't have to write the dissertation! That was the end of it! So... these were sensitive topics. So that when I asked her why they were so, she told me that in about 1948 or 49 Piaget had sent his students to study the notion of *Patrie*, fatherland. And everybody wonders why he stopped; Inhelder told me why. Piaget was a very open man, he had students from all over the world; he also had **Vinh-Bang** as his student – a Vietnamese refugee. He had sent him, as all the other students, to ask children “what is your fatherland, what is a border?” and he got phone calls from the Ministry of Education, saying what “the parents are quite afraid because Chinese people come and interview children”! Reds! More than Cold War, you know. And they all panicked, and they made a sort of treaty that they would never more ask any questions in social areas. But I am not sure that she was conscious of that before telling me. *Patrie* was the forties, and I was in 76, or 75. She had forgotten, it's a habit and that was not their main interest, and they were pushed because of these ideological circumstances into doing that, with a sort of more or less unconscious fear. So, you know what I answered because I wanted to study social class – they were doing it at the Faculty of Sociology, why couldn't I? So I told her, “well, let's make a deal: we all know from the work in sociology, also from the work in Geneva, that there are social class differences in success in schools. I am interested in that, because I want to do social psychology of education. You tell me that it's a lexical problem, I shouldn't know about the social class of the child, because I might be prejudiced against the child. So now I have not asked the profession of the parents from the student, I have found it in the register, in the school, on the desk of the teacher. So we'll do it that way: if you manage to have the profession of the parents erased from those registers, I will erase it from my book!” As she was very *fair play*, she said “OK” – and I published it.

3. FINDING A VOICE IN GENEVA

GD: That work is where different threads of things begin to appear and start to unravel: in that book you use Basil Bernstein's work, as a way of trying to talk about the mediation between social class and psychological development, and that's interesting. But if you pursue that line, you move away from this kind of abstract and general model of psychological development towards seeing children's development as being enmeshed and immersed within some practical reality.

In Bernstein it appears first of all as codes and socialisation, and it becomes Bourdieu's cultural capital. Suddenly a different set of ideas emerges, which really run against the sense of trying to define a single developmental path.

ANP: Yes, but I was in a difficult position at that moment, being younger than Bourdieu and Bernstein and others, and because I was the first one to teach Bourdieu in Geneva. If you tell them that – especially those people who are the sort of liberal, left kind – that in different social classes you develop *differences*, especially if they are from working class extraction – they don't like that, they are very sad about it.

GD: But this is full of contradictions, because if instead of talking about the working class in Geneva or London you talk about Australian aborigines that's OK, that's fine, they can be different.

ANP: Among the politicians identified with the working class, there were different lines of thinking. The problem was really: how not to be segregated in a popular sort of culture, how not to be segregated as developing otherwise than medium sort of sub-species; how to have the right not to be outcast from access to mainline literature? And being afraid of being always second class, or not in the mainline. Maybe the contradiction was almost stronger within those who wanted to protect minority groups.

GD: One of the consequences of Bernstein's work, which he got into a lot of trouble over the year, it seems to me that Bernstein also demonstrates to us that there is always a value in patterns of working class thought and understanding. If you don't devalue it, if you say "yes, working class children are not ignorant, they're not stupid, they simply are thinking in a different way", it's a great dilemma because one side of this, if you value it in this way, you are almost encouraging the emergence of a segregated pattern of thought. And so you fall back into the other horn of the dilemma which is that you are accomplice in devaluing.

ANP: That's what they were afraid of. And that's something that they were fighting among themselves, mostly sociologists, political science people. They were not very interested in the agency of the individual.

And then, if you go to a psychologist, a mainline psychologist, and you come and speak about social individuation and so on, those like Piaget – who had really battled for sanctioning the rights of the individual, against fascism, against – they just didn't want to hear that again. And so it was a big challenge there, potentially.

GD: There's an odd little footnote to this story about Bernstein, because I think Bernstein was the first significant academic I know who took the work of Luria seriously. Luria gave a series of talks in London in the fifties, that Bernstein had definitely been at. If you look back to some of his early papers in the late fifties, before Bruner, for Bernstein it seemed to offer a vision of a psychology that was consistent with his sociological insights, because it offered some way of explaining how you went from some level of collective determination to a level of individual thought.

ANP: Well what I liked most from Bernstein when I followed his seminars in London was the idea that under certain circumstances the young could have access to the roots of his or her socialization. And that language could play a role in that, but it could also be the key... The idea of the accessibility of the roots of socialization: this really struck me, because you have societies in which rituals, in which secrecy forbids the access to the roots. Especially authoritarian societies, and I think in the West, at least the Catholic countries are, or were, very good at authoritarian practices that prevent this access... When I heard him, I thought that it may be an important key.

The French Jacques Vergnaut was more or less my age and was doing a PhD at the same time; he was trying to look at social class differences, and trying to observe practices in testing situations or in mental behaviours that could explain [differences] – we were almost on the same topic with different methodologies. But he was always looking at individual processes from the outside, and the behaviour from the outside. Bernstein was offering a possibility of seeing the individual reflecting upon his own socialisation, which was quite Piagetian in a way.

GD: There are strong connections in some sense, but at the same time that Bernstein was doing this work, the other thing that one could see in England for instance, was a movement amongst historians towards studying popular working class oral history. And part of that, in effect, is the unofficial means through which that kind of reflection takes place, which is under-recognised and undervalued at the level of the mainstream of culture, but seems to go on anyway, because people, whatever you tell them, and however authoritarian you are, people still have a wish to make sense of things.

ANP: And what is funny is that all the papers I published at that time in parallel, alone, on the relationship between schools and daily life have been cut. “That’s not science” or “I don’t agree with that”...

GD: Willem and Gabriel in this sense are both experimentalists, they certainly were then, and their vision of experiments as a *method* is that it leads to generalizable results. Nearly all of the work on schools and schooling complicates the issue because whenever you deal with schools, you deal with very practical contexts.

ANP: I agree with that. That was no problem for me, it’s a methodological position. I just don’t think it’s the method for everything, but it’s a good method for some things and then there are the rules of the methods. Maybe 6 or 10 years after my dissertation, when I was a bit ‘grown-up’, I remember having had a face to face discussion with [Doise] after a presentation made in a seminar, and I told him “but I’m sorry I don’t understand why you disagree about the interpretations, why can’t we just step one step backwards and just look at that, what does it mean for our other social representations of ourselves”. And then he told me that he was quite afraid that, with my position, the end point would be a complete collectivism. I don’t know why he attributed this thought to me, but it was really something that panicked him. That I can respect, there is no need to go into an intellectual venture [of which] you are already afraid...

Resource 1: Experienced Diversity

ANP: In my biography there was a different experience... I lived in several countries and I attended schools in several countries. My intellectual training and university was in Switzerland, and when I went to Italy or when I went to Great Britain, the social class differences were so much bigger, so much more salient and so much more linked to education.

Of course you can find a few private schools in Switzerland, but these processes are not as visible in Switzerland. As I was going often to Italy with the boy-scouts movements, or going to England for these studies, and the social class ethics were so strong, and so connected to education, then afterwards I thought OK, they are optimized in the Swiss society but they are present also and I wanted to study them.

Something that was very important for me at that period also were the results that some colleagues were having, in different lines of research, in which they were showing that there was a constant underestimation of the competences of the working classes people. If you would [as Michele Grossen] studied (Grossen and Perret-Clermont, 1994; Grossen, 1998), : if you interview them differently, you get [different understanding]. It was really interesting, these counter examples to the dominant ideology, because then it really questioned it, in its roots.

GD: And that connects to another phase that followed where in effect you were looking more at the pattern of interaction within the testing situation.

ANP: Yes, because if you say OK you underestimate their competence, that's a good point. But they ended up at finishing school and so on, so it's not sufficient. So I wanted to understand the fabrication, the making of this incompetency or this competence. And obviously from Labov, from Bernstein, from the educationalist authors, or even from Head First programs – remember those programs where in the States they had provided more adequate nursery schools and had the social class differences diminished, but then they found that they had no long term effect, and of course they stopped providing the help - so, I was quite conscious that it was an ongoing process. You couldn't just stop. It was not just filling the glass and then it's OK. And I wanted to study this on-going process.

In my personal biographies I have also four different heritages in the religious fields. One is Jewish, one is Catholic, one is protestant and one is anti-everything – the family! They kept marrying against the conventions, between enemies. So each time the next generation has to solve the equation.

GD: And are all of those four traditions active for you?

ANP: Somehow yes, because I thought the best was to take the best of everything, or at least to understand what the stakes were about, and also well, at some point it's a handicap, because you have all the conflicts, you have all the social markings and so on. One is enough, two is a lot, three and four is too much! And you are always the enemy of yourself, you know. That's the negative part. The positive part is a certain kind of possibility to have an emphatic experience from within different perspectives, to some extent. And also to the moral tradition, and not only to the academic, not to know the others only from the enemy's perspective. And perhaps, being a woman, to the female traditions and not only to the male, official discourses and things, and from all this battling, I think that the Jewish Hebraic tradition of considering that knowledge is more a question than a knowledge – the important is the question not the answer – gives a completely different perspective on scientific work than the tradition in which – that would be the extreme on the other side – knowledge is (and some people have more answers than others).

Resource 2: Voluntary Work

ANP: Maybe, for myself and maybe so for others of my generation, an important source of [our posture] was the non-academic work. Then you must have been involved in voluntary work, in youth movements or social work or in part-time jobs to earn a living for the studies, in teaching or education... And I think we valued that experience, and we didn't want the academics to oblige us to dismiss all we had learned 'out of school'. And I think that it gave us some kind of critical position.

Of course we were not fully-trained academicians, we were not aware of [the whole] literature etc., but we had some experience. We didn't have to take [knowledge] as a divine word, or [to accept] as scientific fact something that was counterfactual to our own experience. So I think that many of us students really were disturbed by Piaget's teaching.

TZ: So, is it that your work and the work of many of you around was to redefine the academic work in a way that could include this part of your experience?

ANP: Ah, well, that took a few years! At the beginning we were unsatisfied with our training, and we would let it know because it was '68 and that moment. But later on I think I understood that the generation that was training us was really a generation that had been hurt so much by the wars, and the fears. They were protecting their sense against things that that we didn't know, and they were defending a certain kind of society, and we couldn't talk about this. So what was the space we could occupy? The space we could occupy is becoming actually by *doing things* – such as when we did youth camps, or when we studied or worked with a priest, all these different rituals involved in doing things, also with the feeling we had to construct society. Schools offered space for doing things, and we [expected a training allowing us] to do that better, and we were just trained on a little part of it!

On the other hand we were fascinated because [Piaget] would introduce us to a lot of different types of thinking, and nobody else among the Professors would do that. He would have us study sociology, biology, philosophy, pathology, epistemology – we were studying so many different things that were very interesting, even if it wasn't Piaget's line. So somehow we were quite disappointed: we were fascinated because it was opening all sorts of doors nobody had opened, but it would leave us without tools for what counted for us – being active. There was another problem: Piaget's disdain for education: it's all mysticism.

GD: You were talking about the dissatisfaction that you and others felt about the narrowness of what you were being offered in Geneva. So if you began to look a bit wider, what theories or ideas could you draw on to enlarge the space of what you were doing?

Resource 3: Adult Education

ANP: On what kinds of ideas did we – the group with which I might have affinities – have enlarged our horizons when we were students? I think that the first one was education. Educational sciences around were underdeveloped. One of the professors had been a head of a school and a very involved, committed person; he had invited the Bertrand Schwartz from Nancy (Schwartz, 1998). [Schwartz] was head of a school of engineers in Lorraine and Alsace-Lorraine, at the moment where all the industry and the charcoal fell. He took responsibility to really reflect upon the adult education, because the whole area, millions of people in France, also Germany and Belgium, were kicked out of their work, so it was really a breakdown of a whole area. He thus got into contact with Piaget, and then came to Geneva; and [this professor] then became a friend of his, and invited him several times. [Schwartz] had very pioneering ideas on how to deal with this population and offer them an opportunity to get training, with a basic idea that these people had already completely organised, as adults, their *Weltanschauung* and their understanding of everything of the world, I mean, of the job, of the self, they were *adults*. And that to teach them, one had to take very seriously into account their *Weltanschauung* and their [experience]. For instance, if they were to be trained in electricity, if they were charcoal miners usually, one had to understand what they thought

electricity was and how they thought it worked and what they could already do, and what they already knew, even if it was wrong, about being an electrician – because at home they would mend themselves their equipment – before training... Of course that idea is not completely new because in philosophy you already have ideas of *obstacles épistémiques* and things of that kind, but it was completely new to have it as a policy in education. So, he built in Nancy team of researchers and writers, both at the same times, who studied scientifically these people's representations. They were not programming the schooling or training with credits and assessments, they were trying to diagnose the needs... Their aim was not to be right and reach truth, their aim was to make people capable of being agents that could earn their living. The aim in itself is not philosophy: it is patterns of activities and responsibility. And I think as a group we were fascinated by that. He was also a very nice person so we took a lot of time with him, we had seminars with him, and he really put the school systems upside-down, in a way. And I went to visit him in Nancy, and also at that moment he helped fully to organise us to open the university to professionals, who had no university degree or nothing, other ones who were coming back. So we were between twenty-three and thirty years old, training adults who were usually ten years older than us if not more. It was obvious we couldn't do anything about traditional school psychology, or educational psychology in that position. We were maybe the knowers of some little bits, but we didn't even know if it was relevant for the others to be trained, and they would know plenty of things. And emotionally we had to learn to adjust to this asymmetry, and that brought us to get training in social psychologies, education sociologies, political sciences... Vygotsky and Mead were part of our academic readings. Doise hired me because I had been with Bernstein. I was charge of telling him what Bernstein had told us; so, that was one part.

Resource 4: Science

ANP: The other one was just the arriving of computer sciences and so on. We were a few of us to go in the Faculty of Science to follow these courses and to be a bit amazed at the attitude of these young scientists... It was also the moment where our friends – exactly the same generation in Geneva – were doing the first trainings in biochemistry. It used to be two degrees: biology or chemistry, or pharmacy; that was the beginning for the first years of *biochemistry*. That meant a change in paradigms: it was the biologists, and the biologists are still now very pragmatic, they don't look much for theories. So when human sciences thought they were not scientific enough, we went to discuss with those friend: who is scientific or how? They didn't correspond at all to our social representation of what science was. It was an interesting *décalage*: they were very pragmatic, they put genes in things and look what happens and they don't really care that much about theory, they want to see if it works. And when you learn about nineteenth century science with hypotheses, theories, models and so on you see there is a shift in paradigm there.

Resource 5: Philosophy

ANP: And then, to finish with that question, I think we also tried to go to the lessons of philosophy of Jeanne Hersch.

It was interesting because we didn't know at all what to do with it. And I think that was because there was this implicit hatred by Piaget, which had not been revealed to us. And we didn't know that he had written this book, *Sagesse et illusion de la philosophie*. So we were taken in the middle of the quarrel with a lot of implicits, I never made my way through that! And then we tried some sociology, several of us, we were quite disappointed.

TZ: I'm just curious, when you say "we moved to philosophy" or "we moved to sociology", was it a kind of intentional thing like "we are dissatisfied, let's try that all together" or is it like people just moved...

ANP: No, it's having fun at university, not being closed up in a little box. Maybe ninety per cent of the students wanted to do clinical psychology and were closed up in the box, unsatisfied, but closed up in the box.

Among the ten per cent, these were years of *effervescence intellectuelle*.

4. DEFINING A PSYCHOLOGY FOR TODAY

GD: One kind of schematic thought that Tania and I had was that if you look back you see that Piaget, certainly when he began, there was this kind of sense of a project that's rooted in some very fundamental values for him. If you look at Vygotsky you would say exactly the same thing, I mean the values may have been a bit different, but the sense of there being some very fundamental values is there. You were talking about your experiences in Geneva, this again motivated by some very strong values that were part of the community and the culture and the generation that you grew up in; what pattern of values can sustain a psychological project today?

ANP: It's a question I almost always ask my students, one by one.

GD: And what answers do they have?

ANP: Of course they don't know, but I think it's part of the training I want them to have, is to get them to formulate them. So for instance when we ask them to prepare the examination after two years – that's half way – it's usually after three years, half way, I always ask them to ask two questions that are important for them², and in accompanying this work I try to understand what are the stakes for them in that. I try to have them feel that if they are rooted into an understanding of what is important for them, what their mission was... That's pure Bernstein. Accessing their socialization or their reaction to their socialization, then they'll know why they invest so much effort. But if they don't, then they play a game of conformity or non-conformity, and they never find a meaning to that game. But that's as an educator... [Otherwise,] I told you about looking closely at Piaget and trying to understand the link between what he had lived, or what he was supposed to live, and what he crystallized in his model.

And understanding that it opens ways, because then one becomes conscious of the implicits (and not only the implicit, sometimes they are very explicit), allows a decentration from the model and then it opens up questions. And these questions, I think, are part of the questions you were asking me.

² At the time of the interview, students had to choose the topics on which they would be interrogated for their half-licence and licence examination; with the curriculum change introduced by Bologna, a similar exercise is required from students in their last semester of Bachelor (TZ).

Meeting the Other

Then I tried to look in my own experience what I consider as *acquis*, established – of course I don't consider anything as established, but what is the most solid for me, or things that were essential bits of my own path. Then I tried to answer the question, "*quelles sont les valeurs fondamentales?*" But I have a hard time with the term *valeur*. (...) But I know how to play with this word. For instance, "*quelle est ta valeur fondamentale?*" I would answer maybe number one: *la rencontre de l'altérité*. But that's not a typical way of talking about *valeur*. I twist the question immediately I suppose. But it's still really what I believe has to be fundamental.

GD: It's not traditionally what's thought of as values, but it can be transformed into a value it seems to me, because it is fundamental.

I mean without the experience or confrontation with otherness, with strangeness in some form or another we are completely autistic in a strict sense, aren't we?

ANP: Well, in fact it's also a clash between traditions. Because values are immortal and are somehow in a static model. We always knew they change, but we want to have them fundamental. And the idea of *rencontre* is something in the move. I prefer the word commitment, responsibility... Because I think that has a *movement*...

Expanding the Lab

ANP: Biographically one important moment among others was when our studies on conservation of [liquids] were replicated in Holland by John Rijsman and in Salerno by Antonio Iannaccone (e.g. Iannaccone and Perret-Clermont, 1993; Liengme-Bessire, Grossen, Iannaccone, and Perret-Clermont, 1994). And they carefully replicated from what was written in the book. And it was the beginning of video registration, and they came to Neuchâtel with the video registration and we laughed so much. Because the Dutch, the Dutch they had a little bus – they didn't want to bother schools, they had a little bus and they took children out of the schools and onto the bus. And they would sit, in this very nice Dutch little bus, with a nice table and the two children in front of them. And they would really sit orderly as the questions were asked, and another student would grade them immediately and they would come in the bus and get the social interaction. And in Salerno how was it?

GD: Oh, chaos...

ANP: Not a chaos; in the corner of the classroom the psychologist would come, take a child on her lap and...! Exactly! Now, are they doing the same task – they asked the same questions?

GD: Even in the Open University film where you see Paolo de Paulis doing the village task, and you see how directed she is. In a sense she's quite controlling in trying to keep the children focussed. Whereas, in another sense I know when we've done similar things, we've tended to absent ourselves. We say, "OK, we want you to work on the problem together; call us back when you've finished." And we just leave them to it.

ANP: Yes, so that's an important point and that's one of the reasons why I'm very reactive... I was trained in Piaget's clinical psychology, [Doise and Mugny] were experimentalists. So they took the Paulis position.

And I was more, just let them interact among themselves and so on.

When I came to Geneva back from Bernstein, they were already working on that, but they had no results. And I was the first one to get results, because I think I knew more about psychology. So, there is something about the position of the adult: controlling or not. At that moment I had the feeling they didn't understand children and the clinical thing, they were coming as social psychologists. Now my position is that, in fact, in all these accounts of children's developments, we have not theorized the role of the adult properly. In my book, I've said what the adult should do, but not sufficiently, because the Dutch had it their own way and Salerno their own...

GD: The really interesting thing would be to take Dutch children and put them in the school in Salerno and see how they respond!

ANP: No, no, because it's impossible, their parents would put the Salerno person in jail for ambiguous behaviour! The cultural thing is much more deeply rooted into... I think that if you want to get the child to conservation of liquids, in Holland or Salerno, you have to behave differently, you have to relate to them differently to get to the same end-point. Because you ask them to abstract the notion of quantity –it's a different job in the different cultures. And in the Italian culture it's the same in Ticino at the same period, it's also historically situated. I'm not sure it would be still true now. You have to tell girls not to be polite with the adults because that's not the problem. Yes they are entitled to the same quantity of juice, of course they are, or let's pretend they are and so on and so on! If not they wouldn't, because the obstacles put by culture to that kind of abstraction are not the same. I don't know if it's the obstacles put by a culture or if the gymnastic of abstraction is different...

GD: But wherever there is interaction, people have a set of expectations about the other. And that's partly what you discover in any kind of research...

ANP: So studying this operationalization we'll see that in the laboratories there are the *pratiques* in the Bourdieu sense; it's of course embedded into the culture. The experimenter is attuned to the culture in which he has invented his experiments, and he just makes explicit what is explicitly needed because of course he's not aware of the specificity of his own implicit culture. So when he writes up his research for others, he makes explicit all he can, but not what is obviously blind to him because it's so much culture.

GD: I mean there are other imperatives in writing up as well, because there are strong conventions of style about how you should express yourself.

ANP: Of course, they add up. But then it becomes a bit Bourdieusian in the sense that you can see that at work in the moment of operationalization are institutional pressures on how to do it and how to write it up, unconscious social representations of the adult-child relationship or the adult subject relationship of science. You have discourses, you have techniques, you have the way you dress, the kind of building the... In fact you can do an ethnography of the situation. And that doesn't lose the meaning of these mending tools, but it just shows that it's done within a context of which one is not always aware and is not always the immediate interest or the urgency of the situation. So, the researcher himself tries to move one variable at a time – within a given culture at a given time – all other elements being equal. But then it means that transfer from the laboratory to the field with a generalisation will be very difficult. Because, if I have a socio-cognitive complex in a very sophisticated situation... I mean, conservation of liquids is a tradition but the idea of conservation is also a tradition!

And then a setting of this type of adult-child relationship is like embroidery: it's a very complex social construction to get the child to the point where he benefits from the other thought, minding this idea of conservation.

Now you are in the classroom and they want to teach chemistry to children or prepare them to that kind of thought, and you think, "OK I have to have them [engage in a socio-cognitive conflict]", and what they do has nothing to do with what I meant initially in my book. Because they are taking it to another set; they tried to operationalize it in the classroom. The classroom has its own didactic contracts, implicit set of representations of what you are doing. If the teacher's asking you to co-operate it's not the same thing as if an experimenter who you won't see any more asks you to co-operate. It's a completely other setting, so the same operationalization won't have the same meaning in that setting. And we did it with [Schubauer-Leoni], if we tell the child that we are a psychologist or an experimenter and we out of the classroom ask something, or if we ask a teacher, who is one of our students, to come *as* a teacher and declare she is a teacher not a psychologist, she gets completely different results! (M. L. Schubauer-Leoni and Perret-Clermont, 1980, M.-L. Schubauer-Leoni, Grossen, and Perret-Clermont, 1992). Because the encoding of it is different.

So from these studies of practices I said, "well, OK, thinking cannot be disentangled from these practices, so what about studying these practices?" And that's the field I am in now. If there is a problem in a school, for instance teachers, head teachers direct, or local authorities, calling us and saying, "these new technologies of information and communication are coming in our schools and they are disruptive, because we are a vocational school, we train mechanics, technicians, and we used to have a curriculum. We used to have a tradition of teacher-student relationships, and with these machines everything is disrupted. The teacher-student relationships are disrupted. We don't know how to change or not the curriculum, because it's not the same skills are used. Please psychologists, come and tell us what to do because we know about your work and maybe it's relevant to us!". But in the first phase I can't do anything with my [theory]. So what I can try to do is to understand what's their practice and to understand what it is they are aiming at, and then go into my toolbox, full of lenses maybe [developed] in the laboratory, and see if with these tools I can look at the reality in a way that would be informative because it would be different from the one they are used to (Perret and Perret-Clermont, 2011). So I'm trying to do *travail sur l'idéologie*, or *travail sur les représentations sociales*, *sur les construits cognitifs* of my partners – the school directors and the school teachers and even students, I consider them partners in this situation – and say, "how do *they* understand what they are doing, how do they understand what they are aiming at, and can I, with my lenses, throw light into what's going on (light like a projector, not like a divinity) through them, and help them make informed choices on what they are trying to do. And I cannot from my science, neither the one existing nor the one I'll be doing there, decide on their values or how they should change about values, or their goals or should they change goals - that's a political decision, I don't want to be as technocrat as that. But maybe I can, with my lenses, sort of step back, help them to re-evaluate their position and their activities, but with the complexity.

To Practice in General

GD: So, in one sense that takes us from the laboratory to the world of practice...

ANP: And back.

GD:... and back again. I mean, that's the kind of circle I wanted to come to here.

ANP: The famous circle between behaviour, attitudes and social representations, if you take it very seriously, you come and say, "what are these people's activities, behaviours, actions, ideas and so on, what do they display?" – it is complex. What are their own representations about that? What are their values about what they are doing? It's also the scope of that, it just doesn't turn like that; it's not just endogenous group of minds in technical schools, they have *goals*.

GD: Yes, they do.

ANP: Of course, when you start studying that, as we did in [Sainte-Croix] (Perret and Perret-Clermont, 2011) to take one example, we see that there are incredible *décalages* – but that's normal in human functioning, but still not normal from the ideological perspective – between what they think they are doing and what they are really doing, between the goals they are pretending they are aiming at and those that we can describe they are aiming at.

GD: Isn't that fundamental to the human condition in some way?

ANP: It is. But then, OK, the problem is that it is fundamental to the human condition but it is *contra*-ideology.

GD: Yes. Because in some ways, if we had a perfect grasp of what we are doing, not only would our lives be so much simpler, but other people would have no functional role in our lives somehow, because it's usually the intervention of the other that makes us aware of the gap between our beliefs and our practices.

ANP: My observation is that people in Switzerland who are in charge now in schools have so much the dream of having simpler lives and controlling everything that they are asking from science to help in this controlling. And they call it "quality", "expertise" or "international expertise" and they want to have their practices grounded in empirical data that would really predict that if they do it this way they would have...

GD: In England this is raised to the level of Government policy. It's a kind of quality management but in talking about health or education for instance, they talk about "evidence-based practices". In all of that they focus on operationalization, that's where the ideologies that have constructed particular forms of evidence have taken place.

ANP: Yes, exactly. And of course that's not my line, because I don't like having to control everybody and so on, but also because in fact they don't manage. They try to do that, but it's a story of failures. You know, this idea that you can make this evidence-based control of an educational system...

GD: For the psychologists, that's an approach that puts them in the position they want to be in. It puts them in the position of the expert, the expert who is not attached to any one particular ideology, they're simply formulating policies in terms of the best evidence of their discipline, which is objective and independent. And the fact that reality turns out always to be more complex and more subtle than our imaginations of it doesn't impinge on them somehow...

ANP: Not yet, but in Holland they have gone far this way. They've also applied this to the dyke system, which is vital for Holland, because you have to control the safety of the dykes because half of the country is under the level of the water. In that tradition, for "quality management", they have invested the management of the dykes and the water policy with this idea. But of course, when it started failing it became immediately a national problem (because

with failing schools there's no problem – if you don't work in class you don't learn in school, it doesn't bother you much) but see, if the dyke leaks, it does.

And so there has been in Tillburg with [John] Rijsman a very important dissertation demonstrating how it doesn't work: it's very dangerous to function like that.

So what can be the position of the psychologist or social scientist towards society's problems, like dykes or education or? The move I suggest, and I even managed to institutionalize it in part of the Swiss national funding agency – a very small part but still, I think we've had 4 million Swiss francs and we might get 8 more million, so it's not negligible – is to fund research in which there is a contract between people in the field who say, "we have such and such a problem, we are aiming between this and that. Can you help us understand why we are unsatisfied and we call this a problem", and a group of scientists who says, "OK, I suggest we study this and that with you about your practice, to try to understand why here you are unhappy and here you are unhappy and what's the matter." And our funding is there³. Part of the funding comes from the field and part of the funding comes from the federal organism. The federal funding is to make sure that the scientist is independent, because of course, if the scientist was paid by the field he would be paid only to put *de la pommade sur la blessure*. And also it sets rules of this type somehow, but not exactly the same. Funding will be got if there is the state of the Art, both from the scientific part and from the field. It gives funding only if it will be presented in public as public data available to everybody and not owned by the field. It has to be presented at conferences and discussed, methodologies should be discussed, and the interpretation of the data should be public and discussed. Professional practice becomes an object publicly discussed, and is not the secrets of a corporation. That creates very interesting dynamics, in which the object of study becomes a complex set of practices. Their representations, their values, their operationalizations... because when the social worker or a medical nurse works doing this or that, they've got beliefs on why they should work this way and interpretation of the results of can be questioned.

And Back to Theory

TZ: But here you have the problem to negotiate with the person about how they would accept the lenses you propose, yes?

ANP: Now I turn back doing social science of those people, and doing this kind of research, well, it makes evident that there is a very complex set of practices: discourses (scientific discourse is one of them, then professional discourse, political discourse is a third one); techniques for looking at reality, for keeping data and records of what happens to your patients and so on; institutions behind – the scientist wants to make a career in the university, the other one wants to be chief nurse and so on; and cultural traditions with their own social representation of what is occurring there. And this, finally, can now become an object of study.

³ This format of funding has been called DORE – Do Research, and was co-developed by Anne-Nelly Perret-Clermont at the beginning of the 2000s. With some modification, the format of funding still exists http://www.snf.ch/SiteCollectionDocuments/fop_spe_dor_jb_f.pdf.

It is impossible to move into this without becoming aware of the fact that you don't control things anymore. So you have to choose, I mean for instance we can observe how some fields ask some things from the scientists and the scientists produce a discourse on what they have observed and then the field recognises that or don't recognise it as within the discourse, and the researcher is surprised or not surprised about that phenomenon, they enter into a negotiation. Sometimes the scientist only tells the field what the field wants to hear and goes to congress to tell the rest of the story. Or sometimes the field is so amazed at what is being said and different that it asks for more, or it goes to court to be sure – that happened – that the book will not be not published! We've had all the cases. But then it starts becoming interesting, because that's what it's about. It's people starting to reflect on the social activity of thinking, and on how it's useful or not for them to think their way, or the scientists' way, or still another way about their own practice.

TZ: So but then the psychology is at two levels: one is about the practice that you're studying and the psychology about all these negotiations, adjustments...

ANP: Yes, yes, the psychologist can do psychology at all the possible levels and it's not only psychology it's also social sciences at large, also political sciences, geology and so on. The division of the science, it's just the division of the toolbox with the lenses.

GD: That opens an interesting perspective. , which is that one of the things about the modern world is that it... I mean, Adorno used to talk about the administered world, and. And the way in which the administered world was becoming ever larger in occupying more and more of people's realities. And one of the reasons why I find this vision sympathetic is that the role it gives to the psychologist is of trying to stimulate the kind of reflection that takes you out of simply the administered world, into becoming something more of an agent within a set of complex relationships.

ANP: Exactly, and that's the call from the professions. The professions – some of them – have got organised, saying, "life is becoming too difficult." Now our clients in our hospitals, in a small city, fifty-thousand inhabitants, have employees of the hospitals, from the kitchens to the doctors, of sixty nationalities. Our patients have fifty different nationalities with each time a different understanding of body, health and so on. Of course the international Red Cross has put standards on how to do things but they are interpreted in many ways, and anyhow these people have to work in teams and have to understand each other. The training our nurses have in classical schools is totally insufficient for that, especially for those who have to be chief nurses. So now how should we train them? We need research about that. And if we go little bit by little bit in fifty years we would not have answered their questions, which would have changed in the same time. So the idea is to create these dynamics of questions and not of answers, in which that, OK, it's a legitimate question from the hospital, and it's an urgent question, so I don't have an infinite time, nor an infinite number of means or financial aids to solve this question. How much do you give me from the hospital to contribute and at what date do you need the answer? And then what can we do that can help as a step in the process? We [need to] go a step towards that because they are really worn out and unsatisfied and there won't be any Swiss nurses anymore and any trainers for Swiss nurses within five years if nothing is done.

GD: It's certainly true in England, yes.

ANP: So, has social science something to do there? And I think it has, because, having learned to look at the state of the art, our understanding [allow us to], make propositions for changes and study the impact of the idea, with the actors, not as subjects but as actors.

GD: I mean, people used to have this vision of action research, which was closer to this in some way.

ANP: Yes, but it isn't the same thing; action research is one of the many propositions a social scientist can give to this hospital. It is one methodology and one kind of epistemological attitude, but it has had many failures. Maybe there is something to be learnt from their failures and also from their successes. It is only one of the possible attitudes. The first one is to say, "well, we'll make a state of the art of the local situation and a state of the art if somebody has already had the problem elsewhere in the world." And sometimes that [is] just sufficient. Another suggestion is to make clear for themselves the implicit of the choices they have made and the way they are doing it. Another suggestion would be, "we find the problem in communication is number one, the problem number one, would you allow us to come and observe your meetings, your talks and your patient with medical doctors relationships?" That is one of the research we have done, and they found that a lot of the problem is just created at the reception, starting at the entrance in the hospital, and that tuning-in better solved already some of the problems. They are so enthusiastic of that success that they are now ready to fund other things.

For me, this, as work on ideology – in fact work on thinking – it is creating thinking tools, thinking spaces, thinking attitudes and a value around thinking, not around rationality, but around *thinking* and different forms of rationality – of practices of rationality, practices of thinking. And it is taking seriously the subjects, not as controlled subjects, but as research participants – in German call it *die [Teilnehmende] Personen*.

GD: The researched person, yes. Quite often people now talk about the research participants rather than the subjects of an experiment.

ANP: They are social agents – that's also a Bourdieusian term – they are *persons*... I suppose by rights they are all sorts of things, but they should remain what they are when they are in the research. In action research, roles are often confused: the researcher becomes a director projecting an action, or and the director becomes a researcher... The researchers take the role of the school administrator of a school when he says "we should do this or not". [In contrast], there we find ourselves in a situation in which doing this research there is no problem or application because it's meaningful for the actors and the process.

[On this basis], there are many problems that require fundamental research. Never in these dynamics do you have time to really wonder if your statistical tools are appropriate, or if your coding method is a good one. So it sends back problems to the laboratory, with which you have to deal in another position. It also sends back problems to the theory, because when [the practitioners] say, "OK, what do you call socio-cognitive complex, I don't remember, because it's written in this complex..." and then that's not the only process, and maybe not the relevant one in the situation. So it doesn't erase the first paradigm; but [here the laboratory becomes] the specific space in which we are mending tools.

5. VALUES AND CHALLENGES FOR THE FUTURE

TZ: But does it mean that, dDuring the past years when you were mostly there... you said, "to answer this question I probably need new lenses", does it create a specific type of research field, does it change that?

ANP: No, it doesn't change that community, except that I'm bored in congresses because I don't find those that are mending the lenses that would be useful, or that interest me.

[Of course there are exceptions;] I find people who are working, as you said yesterday, on the processes, (...) it gives ways of thinking that permit to address the field with new lenses.

I think that in thirty years I'll say, "oh well, the attitude I had in the early 2000s was a sort of exportation of the scientific attitude into the professions and it was marked by the scientific traditions of the nineteenth century". Just now I can't do anything else, because that's the present state of our culture. And of course we'll have to be *critique* of that at some point because the thinking adventure, as it is understood presently, culturally is certainly historically situated.

But just now I think it's really bringing fresh air to democratize the scientific attitude, not the results of science, but the making of science. [Right] now we are trying to democratize, to sell the applied world the results of science.

And the politicians want to use the results of science to control society. I would like to democratize the *making* of science, the fundamental essence of going from one question to the others. I think it's a very strong empowerment; I think it gives back the thinker it's dignity as thinker.

Thinking Spaces

ANP: The more I study the socio-cultural impact of Piaget, Inhelder and so, the more I become Piagetian, or I discover communalities between myself and Piaget; not in the results, which were amply criticized, but in the process. They were active thinkers. I would think of myself as I hope an active thinker, but in an activity system, in a complex set of activity systems, in sets of traditions and cultural practices and tools – language being among the cultural tools – and of institutions that give some kind of reality... I mean, that reify these traditions until the institutions crumble in a chaotic vacuum! So it's very complex, so it's much more complex I think, than what Piaget was already aware of. Of course Bourdieu was interested in all that, but he was not interested in the black box of the subject. He had agents but with *habitus* but never studied the *habitus*. So there is a role for psychology, just in that place.

[Then], if I go back to the future of psychology, I have the feeling that we, neither from Piaget, nor from Vygotsky, have sufficient tools to pay attention to the adult's role. And then, [how can we] theorize and or all the possible ways of being an adult and an experimenter, and how much that guides the conversation, controls it, brings it to an endpoint? An adult creates a Zone of proximal development for the person, but you pull him where? To yourself, or to your culture and so on? That has to be studied, if not we will never understand inter-generational transmission, and that's what a psychology of education is about. So I think that's an important thing.

The other one is the notion of control: experimental psychology has really been very controlling. By theorists it has to be controlling, but then when it's applied instead of using, then it leads the will of some politicians to control... And well, I'm certain it doesn't work, that humanity is much more complex, and so we'll have to revisit the notion of control, and *what* we want to control. Because I want to control that in society there'll be spaces where

children can play and adults can think. *Des espaces où les enfants peuvent jouer et les adultes penser*. A control is not always negative or positive. It's something that has to be studied.

Le Lien Social

GD: But this is linked to a broader discussion because, in some ways, one of the imperatives of contemporary psychology is that we ought to be oriented towards causal models. And the experiment is always presented as the sole method through which you can establish causal relations. But this is a very reduced and restricted view of science, because much of science is actually descriptive, it's not explanatory. And we need better tools of description. And if we think about the process of description more, we lose the sense that we need to specify variables in this precise way in advance. We create circumstances and situations, and we see what happens, and we find ways of describing that. And it shouldn't worry us too much that what we take to be variables in this sense, turn out to be something rather looser. They don't define the situation in the way that we anticipated.

ANP: Because it becomes looser, and then I think we have to be aware that we always interpret. Bruno Latour's points on that are very important (Latour and Woolgar, 1986). Human sciences are interpretive sciences. The difficulty is not to lose touch with reality, which maybe is constructed as interpreted; I don't want to lose the possibility of the idea of the feedback. So I think that's something that has to be revisited: control – what for? What kind? What consequences? What's real and what's pathology? Because if not we have a too polarized [situation]: those who are against any kind of control and those who play to control Iraq and everything by any means. And in between, it is emotionally loaded with values, and in fact it's something that should be revisited. But of course, the word control is not a good word, but it is [perhaps] empowerment... I'm interested in the frames; in the frames and the frames of frames. What are their effects? How they're understood... And then you reinvent society and law, but I mean it's always, as psychologists, the interpretation of that, and do you understand it, and how do you define yourself or an agent of [it]?

La Rencontre De L'alterite

ANP: Then the other point of course is this question of culture. Even discussing it with anthropologists and so on, it seems to be a very, very difficult word to use, culture. There is a big box there with culture, which interests a lot our students and nobody knows what it is... But it's made up of social phenomena like migrations and of the need of finding *le lien social*, the solidarity of our social links. (...) Everybody feels there is something that doesn't work. So there is a question around that. And that's also a field that has to be reconsidered and sort of links a bit to migration and so on... I feel these questions in my students and I don't know what the next generation will do, but for me it has something to do with the *rencontre de l'alterité*.

Le nationalisme has been, "we are all together, we have uniforms, we have the same ideas, we are a nation, all similar." And in fact, we have become afraid of diversity. We are afraid of somebody having another viewpoint, another religion; conflicting ideas or conflicting religions or... I don't want to be naïve, I don't say conflicts are good, no, [even

iof] in certain circumstances they can be creative... So this capacity to view alterity – first it exists, and second it's not necessarily threatening. In fact, it might be at the start of any possibility to think and to build a community; admitting alterity exists. That's why I like our socio-cognitive conflict but I'm fed up with it, because it's just one force among many others.

But the idea to see the social, not as a global mass that compresses, but as personified in persons, or in given groups, or in given traditions, or in given frames... So now, if I try to speak with the term "values" I would say *rencontre de l'altérité* is probably for me the key one. Which means not being too scared, but not losing oneself, because there is no encounter if you are not there anymore. And that also goes back to all the inter-group relationships, the language groups, there are many, many aspects of that. So it means being different from the other. It's the opposite of some kind of fascism in a way. But it doesn't mean that [we] don't [have to] reconsider the... *le lien social* is an unsolved problem. You cannot live alone. You have to have some kind of association with a few others who support you and you support them – a social contract, in Rousseau's terms. There is something about fear that has to be captured by psychologists. People are anxious in many ways, and are anxious about encountering diversity. And there is something about creating secure frames, because if not, people get wild or mad...

GD: Yes, Moscovici has this and he takes it from an old discussion that goes back to James and Bartlett, is the powerful influence of the unfamiliar. For Moscovici, the whole dynamics towards the construction of representations is this effort to make the unfamiliar familiar.

ANP: OK, so Piaget had the same... But you know, that's no fun, I want the *altérité* to remain *altérité*, not to always assimilate to oneself.

GD: But the presence of insecurity in people's lives today is very strong, and it's not just the unfamiliar. I mean, Bourdieu's work in French *La misère du monde*, in English *The Weight of the World* – this is a wonderful research. Because it draws out all of those nuances of insecurity. People's insecurities and fears are not based on the unfamiliar, it's the all too familiar in this sense.

ANP: I link it to agency – from what I am and what I can do I can work in giving back agency and thinking. It's not the only one, the agency in making trade institutions, culture, arts and so on is also important, it's [also] what I know how to do! And people when become very insecure when they lose the feeling of agency. And if they don't have a time perspective, how can they...? And vice versa. *Le droit au cadre*: I have a feeling there is something also about *le droit à un "frame"* - "The right to have frames. [For instance], the African fathers [who] come to Switzerland, they don't know how to deal with their adolescents, especially if they are Muslims, and so on... Where will the frames come from? And what are the frames of the other? I'm certain we have to negotiate if there are inter-groups present on the same land, but they have the right to have frames, haven't they? And that also brings back to the feelings of security but of respect of the otherness.

La Saveur Du Savoir

ANP: Another value for me is the savour of knowing –*la saveur du savoir*, the good taste, *le goût de connaître*.

GD: The taste, the flavour of knowledge, the flavour of knowing.

ANP: Knowing – the action, not the result. I am sure that a large number of the students never get into tasting that.

GD: When you talk about the flavour of knowing, is there a very particular flavour of knowing that you have in mind here?

ANP: No, I'm looking for the intrinsic motivation, maybe I'm too Piagetian because Piaget said this "Eureka" feeling. But I mean, I think people in sports, they can do sports and make terrible efforts really, painful ones, but they still have something of the flavour of doing that, [rather] than doing only for commercial reasons and so on. And I think our society offers this opportunity for sport, but not as often [for knowing]...

GD: Well I... Since all of my really creative moments of thinking when I was at school were spent in trying to find ways of avoiding school...

ANP: OK, so you are a counter-example!

GD: No, but I always had this idea that this kind of... I agree with you that people will do extraordinary things, they will put themselves through very painful things, I take it to be something of a contemporary figure, in the sense of a social type that we accept, that it's a contemporary stereotype that this kind of suffering is good for us.

ANP: You are having on sport the same discourse as many are having on thinking and knowledge, exactly symmetrical, and there are the believers and non-believers. But I think they've not tasted it!

Responsability

ANP: And the other one is the notion of responsibility, but it's maybe the same as the *lien social*, in my mind. *Responsabilité*. To be a person you have to have agency, which means responsibility and which comes from *lien social*. But that I have not done research on. It's something quite evident in that kind of Health domain. For instance, how do you want a nurse or a chief nurse to feel responsible, or the people in charge of the dykes in Holland, if it's only an abstract model? If it's an abstract model, and economic criteria and figures and figures and "experts will tell you", and even they tell you how to communicate – how can you feel responsible? You are playing a Shakespeare game...

GD: But in this sense in the modern world you don't have responsibility, you have only the obligation to fulfil your part in a scheme, this is not... which is different from responsibility.

ANP: Yes, exactly. You don't have the responsibility to think anymore, you see. Your thinking becomes useless. You don't know where to feed it back; you are destructive with your thinking.

GD: Or the people in charge of my government, [UK]... Just reading these accounts of the enquiry that's going on, and nobody was prepared to accept any kind of responsibility, they were all "just doing their job". Instead of responsibility there is the rationality of the system. When my actions are regulated by the rationality of the system I don't have any responsibility and I don't feel that responsibility...

ANP: No. And if you take responsibility – I can tell you for I have tried – you get into a chaos, because the system doesn't want this disruptive aspect. With one of the case studies, we are ending up in the Ministry of Internal Affairs, Ministry of Economy and so on – I didn't want to have to go and talk to the ministers! I was thrown into that immediately by the

functioning of the system. And those try to do their jobs and you realise they don't understand anything about what's going on! And I don't know which language to speak to them.

TZ: So does it mean that if you want all these things to be possible –frames, and people's rights – you have to go to the ministers?

ANP: Well I would prefer to be inconspicuous longer! Because the next step is that those that are against your minister try to put you into jail. It's no joke because they try to find out errors in the accounting and then they try to put you or your partner into jail as having certainly done something wrong there, which is the best way to keep you silent. It turns like a nightmare very quickly. So I prefer to build small spaces; it's a new culture of thinking, not of delegation, not of being just a worker in a system, but also a thinker. You have to recreate the *lien social*, and very deeply, and ministers cannot create the basic *lien social*. He can be disruptive towards that, but he cannot create it himself.

GD: But in that sense there are two different forms of social connection, I mean there are the systematic connections that come from the rationality of the system, and there are affiliations that come from the exercise of responsibility...

ANP: Yes, and these affiliations I think the self-made man society [does] not understand them anymore, and the others are much better at that. The other groups are much better at that.

GD: There's an official way in which life is organised, and then there's the practical way. You know, if you're in, whether it's Algeria or Rwanda or wherever it is, and the World Bank comes and says "blah blah blah", and if you can demonstrate to them that you are within their criteria, funds flow in your direction. So you then have to create a formal structure. It doesn't matter if it doesn't correspond to anything about Algerian or Rwandan society.

ANP: But all this formal structure will die as Westerners and culture, if we are not careful, because it's a formal. Because it's not rooted in anything, and it out-roots us also...

That's why I want to come from the forms of life and grounded situations and try to create a dynamic of thinking, moving a step, looking at what it changes, thinking again... But also thinking on the thinking. And the thinking on the thinking, that's fundamental research.

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Chapter 16

SPACES OF FREEDOM – THINKING THE FUTURE

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ABSTRACT

This concluding chapter considers the notion of *thinking spaces* as developed by Perret-Clermont. Adopting first a retrospective gaze, this chapter considers its origins, and connects them to various contributions in this volume. Second, it underlies five main lines of research currently active or emerging, which all find their roots in this idea: research on classroom interactions, on science or mediated with NTIC; research on transitions, from migration to lifelong issues; research on educational settings; research in argumentation; and finally, studies on the very conditions of thinking as an unique person. It thus concludes on the heuristic power and the generativity of the notion.

INTRODUCTION

Then notion of “thinking space” is at the heart of the work by Anne-Nelly Perret-Clermont. Less directly studied as empirical phenomena, it has become one of the overarching theoretical ideas within her work. Formulated in some working notes (Perret-Clermont, 1994), the notion of “thinking space” was first explicitly published in two chapters at the beginning of the 2000s (Perret-Clermont, 2001, 2004b):

Thinking is considered here in the large sense of a dynamic mental activity, both cognitive and symbolic, an alternative to acting out and reacting. Under certain conditions that permit it, the individual develops in what may be viewed as the continuation of Winnicott’s (Winnicott, 2001) *transitional space* or what we designate as *thinking spaces*, which pertain to both the self and the nonself and allow us to elaborate both fantasy and images of reality. The thinking space is the frontier of freedom in the psychic activity in which the individual elaborates the perceived reality in order to represent or symbolize it and to become able to reflect on it (Perret-Clermont, 2004b, p. 3).

The notion emerges at the meeting of various research interests: analyses of the conditions in which interactions between children or children and adults allow new ideas to develop, or the risk of thinking on one's own (Iannaccone and Perret-Clermont, 1993; Perret-Clermont, 1993); an exploration of the therapeutic setting as a safe frame precisely allowing to move beyond the known (Grossen and Perret-Clermont, 1992; Perret-Clermont, 1992); an observation of institutions which, as larger systems, can create conditions for people to interact and develop, or at the contrary, can be experienced as constraining and limiting (e.g., Perret and Perret-Clermont, 2001, 2011); or also, a careful observation of scholars and practitioners who were committed in the creation or the protection of such spaces for thinking (Perret-Clermont, 1996, 1997). As suggested here, the thinking space belongs to inner freedom, and is seen as the condition for thinking, taking distance, or symbolizing experience. Yet it is not a purely subjective or intrapsychological capacity.

In effect, Perret-Clermont has repeatedly further articulated the notion of thinking space by using an interpretative frame developed by Willem Doise, that in terms of "levels of analysis" (Doise, 1982; Perret-Clermont, 2004a). From this perspective, the thinking space is psychological, yet also emerges in interaction and relationships, ; it is made possible in certain social frames, yet structured by wider fields or representations, ideologies and power games, parts of which also constitute the "frame of the frame". More than a "Russian doll" model, this analysis allowed Perret-Clermont to identify what constitutes the fabric of thinking, or rather:

[The thinking space] does not evoke the limits, but rather the surface, the multiple contents, the semantic fields, elements of knowledge, etc. (...). [It is] physical (there where one thinks), symbolic (it brings back to the universe of the patient, the student, her family and social group), psychic (internal to the person) and social (activities take place between specific interlocutors). The thinking space is thus both objective and subjective – events' material reality resonates within the persons that participate to it. (Perret-Clermont, 2001, our translation).

These preoccupations are also better understood as reflecting deeper values which have both an ethical grounding and epistemological consequences (see Zittoun, this volume).

Although the notion of thinking space was never operationalized as such, it occurred to be a very powerful heuristic tool – a way to orient one's gaze, to observe practices and interactions, and to bring researchers and practitioners to address a core question: at what conditions can a person in that situation, in that frame, develop an idea, a thought, a feeling of being who he or she is, a possibility to voice his or her own voice, to become author of his or her action?

FROM THE HISTORY OF A NOTION...

In this volume, a few chapters offer historical accounts of the evolution of a research field. Rigotti and Schwartz (both this volume) locate the reflexion on thinking spaces in a wider cultural historical perspective – Greek argumentation and the Talmudic tradition.

Carugati and Psaltis (both this volume) consider a more recent history, that of a socio-cognitive tradition that originates in the footprints of a giant, Jean Piaget, before getting independence and finding its own momentum.

Cesar, Resnick as well as Zittoun (all this volume) give accounts of long research trajectories, which eventually also allow to see the transformation of a social field, a problematic, or a person – and so illustrate the mutual interaction of sociogenesis, micro-genesis and ontogenesis (Duveen, 1997; Gillespie and Cornish, 2010).

And finally, certain chapters explore other issues, growing out of the same soil yet exploring further routes for the understanding of the development of thinking and understanding: Säljö and Pramling explore new didactic settings, Psaltis new developments of the study of interactions, Grossen expands the idea of the frame within the testing situation, Muller Mirza observes adult exchange networks (all this volume).

Finally, taking a more distanced view, Gilomen and Schubauer Leoni's critical readings (this volume) allow also questioning what will come next in the world of education.

... TO NEW FUTURES

All these chapters gathered here contribute to the understanding of thinking spaces, whether they examine the specific relationships that support them, the quality of social frames that constitute them, the context that allows or hinders them, and the overall political evolution that guides them.

On the other hand, as suggested in the previous chapters, these various enquiries can be read as part of a wider project supported by important values: the importance of social relations, the recognition of the Other, and the unique taste of knowing (Perret-Clermont in Zittoun, this volume). On this double ground, we can now examine new branches of research which pursue this line of enquiry and generate new questions.

Classroom Interactions and Science Learning

One of the roots of the idea of the thinking space can be seen in what led to formulate the idea of the sociocognitive conflict – that specific modality of a social interaction which, because there is a mismatch between two perspectives (or more), can invite a reorganisation of one's understanding.

This idea has been extremely inspirational and widely diffused in research on learning and instruction, with more or less fruitful reinterpretations. Among others, it has inspired a wide field of research in mathematics and science learning as well as studies on collaboration in children (e. g., Baker, Bernard, and Dumez-Féroc, 2012; Carpendale and Müller, 2004; Foster, 2011; Ligorio and Ritella, 2010; Martin, Nelson, and Tobach, 1995; Mercer, 1993, 1996; Yackel, Cobb, and Wood, 1993).

These lines of studies are still active, among teachers and practitioners, in didactic exploration as well as in what regards innovation in the classroom – based on new material, new technical tools, etc. If past research results have been replicated and discussed, and

modalities of collaboration explored, what could still be further explored are the specificities of the cognitive operations *as socially mediated*.

Working with Professionals

An second line of investigation was linked to the wish to collaborate with practitioners and observe their expertise; here, the question that becomes relevant is how creating or transforming the setting and the frame in which people work, or the tool that mediate their activity, might actually affect – support, hinder – the thinking space required for their activity to remain meaningful, efficient, and creative (Coulon, 2004; Giglio and Perret-Clermont, 2010; Lambolez and Perret-Clermont, 2010; Zittoun, 2006). As mentioned by Perret-Clermont in the interview reported in Zittoun (this volume), these ideas participated to the creation of a specific funding tool in Switzerland (DORE), which allowed practitioners to account for their work and innovations, together with researchers. Indirectly, this project can be found in many projects demanding the collaborations of practitioners and researchers (Tartas and Muller Mirza, 2007), or diverse type of reflexive descriptions of institutional work (Bausch, Perret-Clermont, and Schürch, 2007; Perret and Perret-Clermont, 2011). An extension of this line leads to examine extreme conditions – of poverty, risk or deprivation – in which the miracle of thinking still occurs (Frésia and Perret-Clermont, 2013; Rémy, 2012).

This of course demands a very dynamic and complex understanding of the “good-enough” conditions for thinking spaces to deploy – sometimes dependent from very minimal conditions, extremely variable and always evolving – and calls for further theorisation and case studies.

Arguing – and Thinking?

Perret-Clermont’s attempt to understand the social and cognitive conditions of thinking, or the activity of thinking as both creative and yet allowed by the participation in a tradition, led her to explore argumentation. Arguing, or the capacity to make a stance and justify it, is a millenary old activity; yet in the daily life, it appears rare and precious. This itself appears as one of the possible operationalisation of the idea of space of thinking – for if it is a fabric, then arguing is probably a complex craft of embroidery (Muller Mirza, Perret-Clermont, Tartas, and Iannaccone, 2009; Muller Mirza and Perret-Clermont, 2009; Sinclair-Harding, Miserez, Arcidiacono, and Perret-Clermont, 2012). In dialogue with a wide network of scholars, this axis is certainly the current form of studying thinking spaces as social and cognitive activities. Yet even so, the more explored it is, the more it raises the question of the ultimate miracle of its appearance.

Migration, Transfer and Transitions

One of the questions little explored in this volume is that of cultural diversity. In the early 80s, with a group of colleagues, Perret-Clermont thematized the question of cultural diversity met by migrants and their families, as well as the practical implications of coming to a Swiss

school with a diverse language and cultural socialisation (Gretler, Gurny, Perret-Clermont, and Poglia, 1981; Poglia, Perret-Clermont, and Dasen, 1995). Entering a new frame thus raises new questions: to find a thinking space, one needs to learn to master or trust the frame as such.

A comparable problem occurs in people's lives as the move through new institution or new spheres of experience, as it is for instance when leaving compulsory school to enter a vocational training (Perret-Clermont, Pontecorvo, Resnick, Zittoun, and Burge, 2004).

Finally, the very fact of moving from one task to another, or from school to home and back, underlies that competences or understanding are not acquired once for all and simply "transferred": in each frame, new conditions for thinking are met by the person, who needs to define her position anew (Perret-Clermont, 1993, but see also Resnick this volume).

These different issues were identified and problematized under the notion of *transition* (Perret-Clermont and Zittoun, 2002; Zittoun and Perret-Clermont, 2009; Zittoun, 2004, 2006). This additional notion proved to be heuristically very powerful, and is still used for the study of various phenomena, which all question the processes by which learners or people can find or restore thinking spaces, for instance in vocational changes (Due, 2012; Masdonati and Zittoun, 2012), in migration (Abreu and Hale, 2011; Elberts, 2010; Greco Morasso and Zittoun, in press 2014; Greco Morasso, 2012; Kadianaki and Zittoun, 2014), and in other lifecourse transformations (Zittoun, 2012a; Zittoun et al., 2013).

However, even when frames change, something – earlier understandings, skills or operations – need to remain partly the same; even when there is reinvention, there is stability; yet what is it that is developed and acquired?

From Interiority to the Emergence of the Subject

Finally Perret-Clermont raises the question of the affective and more symbolic underpinnings of the thinking space (Perret-Clermont, 1992, 1996, 1997).

Although she has not directly addressed this in her empirical work, it has been pursued by studies on the importance of friendship in interactions, or the place of emotions in the classroom (Bell and Das, 2011; Hinde, Perret-Clermont, and Hinde, 1985), the question of the conditions by which a person can express herself, or develop the freedom of thinking on one's own in a given set of constraints, has been further developed by one of us (Zittoun, 2007, 2012b). How to articulate notions of subjectivity and agency, internal freedom and activity, and the processes that allows such inner thinking space, are still to be further explored.

CONCLUSION

Altogether, the future of the study of the thinking spaces goes in various complementary directions: the careful study of diverse settings in order to understand the minimal configurations allowing it to deploy; a careful examination of the delicate movements of dialogue and problem solving, to identify the operations that constitute thinking; an exploration of the sideways of everyday activity, so as to highlight the deep connections

between an experienced, embodied, affective life, and thinking; and through collaborations with various professionals, an exploration of the conditions that facilitate it.

The idea of thinking spaces gave a frame to many scholars to deploy their academic creativity, and through their diversity, to constitute a highly generative community.

Hence, this volume closes on an opening: a notion such as *thinking space*, vague enough yet grounded in a long and deep tradition of scholars from different fields, has proven its heuristic power, and through the lines sketched here, its potential –and we look forward to see its future developments.

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