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Analyzing Changes in View During Argumentation: A Quest for Method

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Abstract: There is an increasing interest among psychologists and educators in articulating argumentation to knowledge building processes that evolve in teaching-learning settings. However, a major problem facing researchers in attempting to do so is the lack of analytical instruments with which to approach this issue. In such conditions, it is tempting to look for methods developed in other domains and consider what they can offer. What is concerning in such methodological decisions is that the researcher often appears to ignore precisely what the methods adopted were originally designed for. Not surprisingly, studies carried out with these methods often fail to answer the researchers' questions. This article discusses the risks involved in importing methods developed in one domain to another one. It focuses on emerging approaches to the study of learning through argument and discusses the risk of transporting existing methods from argumentation theory and discourse studies as if they were ready-made tools for exploring argumentation in contexts of learning. It is argued that, although methods developed in other domains can play an important role in describing and understanding argumentation processes, certain dimensions must be incorporated if they are to be extended to the study of discourse mediation in teaching-learning processes.

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1. Introduction

Concerns about the relationship between discourse practices and knowledge-construction processes are not new to psychological and educational studies. Over the past decades, however, this topic has attracted the attention of an ever-increasing number of researchers who have concentrated on investigating forms of discourse that emerge in learning-related settings (e.g., COLL & EDWARDS, 1998; EDWARDS & MERCER, 1987). One of the many factors associated with the growth of interest in this issue is probably the enormous influence that the sociocultural approaches to mind, language and psychological development

(WERTSCH, DEL RÍO & ALVAREZ, 1995) have exerted on western educational research since the sixties. For researchers who take the social and cultural foundations of human psychological functioning as the starting point for their work, the perception of language as meaningful, sign-mediated action is the key to understanding how individuals negotiate and construct meaning in contexts designed for teaching-learning purposes. [1]

More recently, some research efforts have been directed towards understanding and assessing the role played in the teaching-learning process by a specific modality of discourse, namely argumentation, i.e., the sort of discourse people develop when facing opposite perspectives on a topic, weighing up the pros and cons of such perspectives, and justifying the positions they hold (BAKER, 1999; CANDELA, 1998; DOUEK, 1999; FORMAN, LARREAMENDY, STEIN, & BROWN, 1998; INAGAKI, HATANO, & MORITA, 1998; LEITÃO, 2000b; ORSOLINI & PONTECORVO, 1992; PONTECORVO, 1987; PONTECORVO & GIRARDET, 1993; WOOD, 1999). By and large, this research interest is motivated by the widespread belief that the way argumentation evolves in social contexts hides a learning mechanism that allows people to move on from old to new perspectives on a topic. Developing a better, theoretically and empirically backed understanding of the process in which shifts in knowledge are undertaken in argumentation contexts would seem to be an essential step towards a theory articulating specific discourse practices with the emergence of the new in people's knowledge. [2]

However, when trying to investigate how argumentation favors transformation in people's knowledge, a major problem that researchers are faced with is the lack of analytical procedures with which to approach this issue. This methodological difficulty is most crucially illustrated by the lack of any clear indication of how to set up a meaningful unit for the analysis of knowledge building and changes in view during argumentation. It is critical to decide what can be taken as an analytical starting point: the structure of argumentative discourse produced in events of learning (reason-claim links, the chain of supporting elements for a given view, counterarguments and refutation) or the interactional process within which argumentation occurs (emergence of disagreement and attempts of resolution).[1] In such conditions, it is tempting, and quite understandable, to look for methods developed in other knowledge domains and see what they can offer. However, what is concerning in this importing of empirical research methods from other domains is that, as researchers appropriate these analytical procedures, in many cases, they seem to ignore that such methods were originally designed for. Not surprisingly, studies carried out with these procedures often fail to answer the researchers' most crucial questions. [3]

To the best of my knowledge, two tendencies have prevailed in the quest for methods that suit the investigation of the knowledge-constituting potential of

1 This dilemma echoes the two perspectives within which argument has traditionally been defined in argumentation theory. Firstly, it is seen as a product, something that is linguistically expressed through a set of statements in which at least one is offered as a support for another. Secondly, it is defined as a process, something which people go through with each other when they disagree with respect to a point (O'KEEFE, 1977).

argumentation. There are, on the one hand, those researchers who opt for the application of analytical procedures borrowed from argumentation theory. For studies concerned with the description of argumentation structure, TOULMIN's diagrammatic model of argument is probably the best known and most widely used (TOULMIN, 1990). There are, on the other hand, those researchers who elect the interpersonal process that evolves in argumentation as the main focus of their analyses, and for whom the procedures devised by discourse and conversation analysis appear as a workable methodological alternative. Not rarely, insights from both perspectives are combined in the same study (FORMAN et al. 1998; INGAKI et al.; ORSOLINI & PONTECORVO, 1992; PONTECORVO, 1987; PONTECORVO & GIRARDET, 1993). [4]

This work is an attempt to examine strengths and shortcomings of the above perspectives as methodological tools for the investigation of learning and changes in views occurring during argumentation. In doing so, I shall concentrate on examining those aspects of each perspective that have more frequently been appropriated by educational research rather than attempting to give an extended critical analysis of these approaches as a whole. It will be argued that, although the procedures designed within those domains can play a decisive role in helping to describe and understand argumentation, their extendability to the study of discourse mediation in teaching-learning processes will require that other crucial dimensions be incorporated into the analysis. [5]

2. Basic Assumptions in the Study of Argumentation and Learning

In order to understand how argumentation serves the purpose of knowledge building, researchers first need to use models of argumentation that acknowledge its dialogical and dialectical dimensions and approach the phenomenon pragmatically. Moreover, the use of such models as a point of reference for conceptualizing argumentation needs to be informed by psychological assumptions about the nature of teaching-learning processes and their relationship with development. A proper understanding of the role of argumentation in eliciting changes in people's views and how such changes occur demands that argumentation be investigated developmentally. The central concern in development orientated research is to understand the process of change of a phenomenon, which takes place over time (VALSINER, 1997). Equally necessary is to acknowledge the fact that argumentation is, by definition, a discursive phenomenon. A proper investigation of this phenomenon requires that argumentation be placed within the context of those linguistic actions people perform in daily life, and which allow them to make sense of the world in which they exist. [6]

The methodological implications of accepting argumentation as a dialogical and dialectical phenomenon to be approached developmentally are profound. Researchers need to adopt a unit of analysis that, being dialogical and dialectical at a conceptual level, is also methodologically suitable for capturing the arguers' active role in the course of a dialectical weighing up of supporting and opposing

elements of an issue, which allows for transformation to occur in the organization of their knowledge. [7]

In the following sections I shall elaborate briefly on the above mentioned basic assumptions, which reflect my view on argumentation and how it relates to learning and development. While these assumptions are primarily theoretical, they carry with them some clear implications for researchers' choices of methods with which to study learning within argumentation contexts. Together, they provide a frame of reference within which I examine, in the second and third parts of this article, the contribution and limits of the two analytical perspectives that have most frequently been imported into psychological and educational research on learning through argument: TOULMIN's (1990) model, and discourse and conversation analysis procedures. [8]

2.1 Argumentation as dialogue

This article focuses on argumentation as a dialogical arena where people struggle for setting viewpoints against skepticism or divergence from others. It recognizes as argumentative those discursive situations in which justification of viewpoints and consideration of alternative perspectives are carried out with the aim of changing the audience's perspectives on a topic. The emphasis on the role of 'the other' gives argumentation its very dialogical dimension. This dialogical view can be defined on multiple levels. [9]

The first level associated with this view is pragmatic. It refers to the communicative conditions within which it emerges. Argumentation involves, by definition, two parties: an arguer and an audience. The audience is the entity to whom the argumentation is directed and who, according to the arguer's beliefs, may not share their viewpoint at the initial stage of argumentation (VAN EEMEREN & GROOTENDORST, 1992). It is constituted by the arguer's own self (inner argumentation), a person, or an unspecific addressee—whether an institution, a body of beliefs, or the universal audience, as proposed by PERELMAN and OLBRECHT-TYTECA (1971, p.30). Then, whatever the context in which it is produced, argumentation always arises in response to a position stated or assumed to be held by a real or potential audience. [10]

Second, this view places the ultimate goal of arguing at the center of what is "dialogical" in argumentation. Argumentation aims at modifying the audience's representation of a topic by increasing the degree of acceptability of the claim at stake. The existence of an audience whose beliefs the arguer expects to influence is a necessary condition that makes it possible for the arguers to achieve such a goal. [11]

Finally, this dialogical dimension is also portrayed as an inherent aspect of the main operations that constitute an argumentative exchange: justification of views and consideration of opposition. Altogether, these operations set up a process of discursive negotiation between the arguer and the audience that cannot come about in the absence of either party. Once again, the existence of an audience

whom the arguer construes as being skeptical of, or even opposing their view is the very dialogical mechanism that prompts the arguer to engage in a process of justifying their own claims while examining doubts or counterclaims that (might) come from the audience. [12]

Given the reasons above, it should be clear why argumentation is cast in the frame of a dialogue. Argumentation only exists as a form of exchange between an arguer and an audience who prompt each other's discursive actions. As an inter-active process, it emerges as a response by the arguer to possible doubts and divergence from the audience. It evolves through a process of negotiation between the two parties involved, the main purpose of this process being to modify the audience's perspective on the theme under discussion. As a consequence of such dialogical embeddedness, both the content of argumentation (specific kinds of justification the arguers invoke and alternative views they examine) and the discourse structure within which it evolves (a sort of match between supporting versus undermining ideas) are sensitive to the moves of the audience that argumentation is directed at, as well as to the goals the arguers pursue in specific contexts (see VAN EEMEREN, GROOTENDORST & KRUIGER, 1987 for a review of theories that share these views). [13]

The relationship between this view of argumentation as dialogue and forms of discourse practices that take place in learning settings is clear. Within the framework of the sociocultural theory, learning and development are portrayed as time-based and socially constrained processes that lead to the intra-personal construction of new levels of psychological phenomena. The appearance of the new at the intra-psychological level is viewed here as the outcome of a dialogical process of negotiation in the course of which culturally developed ways of acting, speaking and thinking become part of the learner's internal functioning. Discourse, understood as those forms of organization in which language becomes socially channeled (BRONCKART, 1999, p.81), plays a crucial role in such a process. It brings people into a form of social (inter)action that makes it possible for them to negotiate their views on a topic and transform them. [14]

It follows from the above views that, in order to understand the role it plays in teaching-learning contexts, argumentation must be examined as a dialogue. However, I argue that in doing so researchers should go beyond the narrower view that identifies dialogue with face-to-face interaction and focus on the dialogical mechanisms that operate in argumentation, whether it is carried out in face-to-face interaction, in monologue (e.g. writing), or as self-argumentation. That means assuming dialogue to be a particular epistemological view according to which one's actions can only be understood against the background of the social environment where they emerge and the action of others (BAKHTIN, 1995; HOLQUIST, 1990). [15]

2.2 Argumentation as dialectical

From what was said above it should also be clear that argumentation involves more than dialogical exchange between an individual and a real or potential audience. Whether face-to-face or solitary, argumentation requires that at least two opposite positions be distinguished, which are dialectically construed as the position of a proponent and that of an opponent. The dialectical roles of proponent and opponent in argumentation are highly specific. The proponent is expected to advance a viewpoint and to defend it against counterarguments and the critical questioning raised by the audience, who takes the role of opponent. Despite this specificity, the dialogical and dialectical dimensions of argumentation are here portrayed as two sides of the same coin. While the dialogical dimension points out the role of the audience, "the other" to whom the argumentation is addressed and whose characteristics constrain both the process and structure of argumentation, the dialectical dimension emphasizes the role of systematic opposition and critical questioning in argumentation that comes from the other. Thus, for a dialogical exchange to turn into genuine argumentation, the participants must propound and justify their viewpoints while leaving room for these views to be examined in the light of the opposing claims and critical questions posed by the audience (VAN EEMEREN & GROOTENDORST, 1992; FREEMAN, 1991). [16]

At first sight, the dialectical requirement for opposition and critical questioning in argumentation would always imply the presence of an actual opponent in the immediate discursive situation. Indeed, the scenario in which an arguer defends a position from doubts and criticism raised by another person does depict the most typical situation within which everyday argumentation evolves. However, it is not rare in actual argumentation contexts for the arguers themselves to anticipate doubts and opposite views that might be raised by an external audience. Doubt is in any case intrinsic to human experience, since one is never certain of what the immediate future will bring.[2] Consider, for instance, the following exchange between five college students who discuss the pros and cons of the legalization of abortion (SANTOS, 1993, pp.154-155).[3] In this debate, G. is a speaker who defends the legalization of abortion:

> G: (...) sometimes a woman cannot have a baby
>
> Unidentified speaker: uum
>
> G: or perhaps she can because ... I mean, this mother is going to think ... if she has a baby she'll blame that baby for any problem she has to face in life. But, there is no doubt that anyone who has had an abortion hadn't had it ... if I had got pregnant and had an abortion, of course if I hadn't had it, I'd love my baby, right? ... after getting to

2 I thank Jaan VALSINER for drawing my attention to this point.

3 Examples quoted throughout this paper are translations into English of arguments originally produced in Brazilian Portuguese, the speakers' native language. In the transcripts, dots in parentheses indicate that a piece of speech has been either missed or suppressed. Suspension points replace brief pauses. Words in brackets indicate contextual information that has been added to a quotation in order to make it read better. Double slashes mark the point at which overlapping speech occurs.

> know him, but I ... think a baby shouldn't be born if I don't want him before his conception (...) [17]

Although G believes that an unwanted child tends to be blamed by her mother for the problems she faces late in life, she concedes the point that a mother may actually come to experience feelings of love for a child who was rejected before birth. In the context of G's argument, this idea clearly plays the role of an anticipated counterargument as it might give an opponent a reason to stand against abortion and consequently, its legalization. [18]

Anticipation of opposition can take multiple forms in discourse. It arises as a critical stance that might be taken by a well-known, but temporarily absent audience (X would say...), an orientation assumed to be present in unspecific others (people think that..., contemporary man believes...), an institutional view or an idea that is seen as part of a specific body of beliefs (The Church says..., the Christian view), etc. Whatever the case, it is worth noting that critical questioning and opposition between views (not necessarily between individuals acting here-and-now) is the central dialectical requirement here. [19]

In the dynamic of real-world argumentation, the roles of proponent and opponent easily become interchangeable as the concern of arguers in many argumentation contexts is not only to react critically to somebody else's position but also to make their own cases. Consequently, from an analytical point of view, an argumentative statement voiced by an arguer in a debate can often be functionally analyzed from multiple perspectives. It can play the role of support to the viewpoint the arguers want to establish (proponent's role), a counterargument in relation to the audience's alternative viewpoints (opponent's role), and still serve to show the arguers' reaction to counterarguments that the audience might have raised against their position (FREEMAN, 1991; SANTOS, 1993). [20]

For the purposes of the present article, the question it is pertinent to ask is to what extent the discussions that emerge in teaching-learning contexts meet the dialectical requirements of argumentation. It is a matter of consensus, I think, that no account of learning and development can do without a distinction being drawn between the learners' already attained states of knowledge and potential ones. In argumentation produced in learning settings, the relation between the participants' current perspectives on a topic and potential ones can be pictured as dialectical. On the one hand, there are the learner's current views of a phenomenon (temporary states of knowledge). On the other, there are the views espoused by other participants in the situation, which may call the learner's views into question. It should be noted that in institutionally organized teaching-learning settings 'the views of other participants' include far more than the viewpoints voiced by individuals who are present in the immediate situation (teachers and classmates). It includes, above all, culturally developed and socially legitimated forms of knowledge (canonical knowledge) that circulate in the teaching-learning environment, which learners are expected to accept as the outcome of the educational process. Canonical forms of knowledge become available to the learners not only in the discourses of those they interact directly with, but also in

a variety of verbal or non-verbal semiotic devices that integrate the teaching-learning activity and through which conventional knowledge is made public (books, maps, graphs and tables, equipment of various sorts, etc.). [21]

2.3 Argumentation and development

From the above, it is possible to conclude that the view of argumentation as dialogue of opposites offers discourse researchers a powerful conceptual instrument for analyzing argumentation as both a form of discourse and a social process. However, if one wants to answer more specific developmental questions about how people's viewpoints may undertake change in the course of argumentation, further elaboration is called for. This elaboration should first serve the purpose of describing conceptually the transformatory potential of argumentation. Moreover, it should be capable of describing, at the empirical level, precisely how the process of transformation of views evolves. In other words, the analysis of argumentation must become developmental in its orientation. [22]

The developmental orientation requires the researchers to concentrate their attention primarily on the time-based and socially constrained *process of becoming* rather than on the assessment of already existing organization of a phenomenon. Within this perspective, any relatively stable state of a phenomenon is seen as a temporary outcome of "a particular functioning of the developing system in its relation with its internal parts and its external environments" (VALSINER, 1997, p.3). The analysis of outcomes as such cannot shed any light on the process of their emergence. [23]

To adopt a developmental orientation for the analysis of argumentation in teaching-learning environments requires the researcher to concentrate on understanding how pupils' perspectives of a topic are transformed during the course of argumentation, this process being based on their previously established states of content-specific knowledge organization. This implies that a proper understanding of a novel perspective that emerges in the form of an argument cannot be achieved without referring back to the process of transformation of previous perspectives from which the new argument emerged. [24]

In my view, the study of learning through the analysis of argumentation requires that the views of argumentation as discursive product and dialogical process be conceptually and analytically integrated with a developmental view. Only this integration will allow us to study how *transformations of arguments* (developmental level) that take place at the discourse level (*a product*) emerge out of the dialogical, challenge-response *process* that the arguers engage in. This view departs from one-sided empirical approaches to learning through argument (which focus either on the discursive product or interactive process of argumentation) by emphasizing the strength of the link that binds an argument and the process within which it emerged. Changes in people's externalized forms of knowledge can only be identified when past and present organizations of knowledge are analytically distinguished and compared. On the other hand, for

understanding how transformations in knowledge are achieved, researchers must concentrate on investigating the process through which a given view about a phenomenon changes into a new one in the course of argumentation. [25]

Given the assumptions above, the question arises as to which extent TOULMIN's model and conversation and discourse analytical procedures suit the demands and the specificity of psychological research on argumentation, learning and development. I examine these perspectives in turn in the next two sections. [26]

3. TOULMIN's Model and the Basic Assumptions in the Study of Argumentation and Learning

When applying TOULMIN's (1990) ideas to the analysis of discussions in teaching-learning environments, researchers have shown a preference for concentrating on the practical application of his model to the description of arguments, while leaving the more general theoretical claims of his theory unexamined. These claims refer, for instance, to TOULMIN's radical rejection of formal logic as a model for the analysis of argumentation in naturally occurring language and his equally strong defense of field-dependent, rather than universal, criteria for argument evaluation. In line with this tendency, my assessment of TOULMIN's ideas will focus strictly on the application of such a model to the analysis of learning (those interested in a more comprehensive evaluation of TOULMIN's ideas can refer to FREEMAN 1991, VAN EEMEREN et al., 1987). [27]

According to TOULMIN, an argument consists of a movement from data through a warrant to a claim. His account of arguments includes six basic concepts, each of which plays a specific functional role in an argument. The *data* correspond to facts or opinions serving as the basis for a claim. A *claim* is a conclusion to be established by the argument. A *warrant* consists of a general statement which authorizes and justifies the movement involved in advancing from data to claim; it explains why the data are pertinent to the claim. In addition, there is a set of components which may, but not necessarily, be explicitly present in argument: the backing, the qualifier, and the conditions of rebuttal. The *backing* provides specific information by means of which the warrant may be supported and made acceptable for any reasonable person. A *qualifier* consists of a specific estimate of the degree of certainty of a conclusion. Its function is to register the degree of force which the arguers attribute to a claim. Finally, the *conditions of rebuttal* express possible exceptions to the claim statement. In this sense, it limits the area to which the conclusion is applied and anticipates objections which could be advanced against the argument. [28]

There are several plausible reasons for the enormous attraction that TOULMIN's model has exerted on researchers interested in understanding the dynamic of learning in argumentation. One major reason is probably the fact that his model addresses argumentation formulated in everyday language. In addition, the model places justification of views as the main purpose of argumentation (data, warrant, backing, they all serve this purpose), a perspective that suits quite well

the emphasis that teaching practices normally place on the development of pupils' ability to justify claims. Also, the model seems to offer a workable method for researchers who wish to obtain a quantitative picture of argumentative moves that arise in discussions. [29]

Despite all the enthusiasm surrounding TOULMIN's model, its limitations as a general model for describing real-world argumentation have already been stressed in the literature on this topic. Of all the observations offered, one of the most damning comes from VAN EEMEREN et al. (1987). These authors show that when actually studying argument in real-world contexts, the model becomes problematic as it fails to consider both sides involved in argumentation: the side of the proponent, who offers supporting elements for a claim, and that of the opponent, who challenges the proponent's argument. TOULMIN's model, the authors claim, clearly covers only the former. This view stresses the difficulty the analyst has when attempting to reconstruct an argumentation in a meaningful manner that makes room both for the proponent's and opponent's views to be represented and for the inter-dependency of their roles to be captured. In a similar vein, WILLARD (1976) considers that if TOULMIN's model is to be adopted as an analytical tool for the description of real-world argumentation, three models, in fact, would be needed: one each for the arguer, the audience, and the discourse itself (see also BARTH, 1991 for comments on this matter). [30]

At first sight, the criticisms raised by above mentioned authors could be primarily placed at the methodological level. Altogether, they show that the building of argumentation in everyday life proceeds through a sequence of challenges-response moves, which cannot be empirically captured by a model like TOULMIN's. However, a closer look at such critical views shows that this line of criticism has also theoretical implications. It reflects a sort of mismatch between the conceptual and the methodological levels of the model. Whereas the model exhibits some dialogical and dialectical features (it places argument in the context of a response to either real or potential challenge), the analytical instrument it provides concentrates on describing the side of the proponent, assigning to the opponent only a minor role. [31]

Another inadequacy of the model that, in my view, limits its applicability to the analysis of everyday discussions has also been pointed out by VAN EEMEREN and GROOTENDORST (1999) in the authors' critical assessment of the model. They argue that the model has not given due consideration to the fact that argumentation is, above all, a discourse phenomenon. As such, its formulation is always tied to the particulars of specific social contexts that shape its structure and functioning. [32]

However, in my view, the last and at the same time most serious limit that raises doubts about the applicability of TOULMIN's model to the study of learning is developmental. The major analytical concern that inspired TOULMIN's model was to answer questions about the functional role of the various kinds of verbal elements that constitute argumentation. (FREEMAN, 1991). Thus, while the layout of arguments outlined by TOULMIN does appear able to describe the way

statements enter into arguments and the functional role of each statement in relation to others, it leaves the analyst helpless as to how to account for transformations in views that may occur in argumentation. (And it could not be otherwise, as the model was not conceived as a developmental one.) Thus, the analyses carried out with the help of the model can adequately be described as non-developmental (VALSINER, 1997). [33]

A truly dynamic, developmental analysis of argumentation would require the analyst to start with the identification of each argument a participant puts forward and seek to determine whether and under which conditions it changes in the course of the discussion. In order to achieve this goal, it would be necessary to take the time-dependent nature of argumentation seriously and to develop a sequential analysis of the process that leads to transformation (if any) of that argument. [34]

Researchers' need for analytical procedures that capture such a process makes it reasonable for them to rely on insights and methods of conversation and discourse analysis for the study of argumentation. Let me turn to this now. [35]

4. Conversation and Discourse Analysis Based Studies

Whatever the distinctiveness of the various traditions of discourse and conversational analysis (see, for instance, LEVINSON, 1983; VAN REES, 1992), they stress a number of assumptions that make them particularly attractive for the study of knowledge construction in argumentation. First of all, they treat language as a form of meaningful action directed to others (ATKINSON & HERITAGE, 1992; BRONCKART, 1999; POMERANTZ & FEHR, 1997; POTTER & WETHERELL, 1987). This perspective departs from those assumptions about language and mind in which language is depicted as a means of representing the world and a tool *par excellence* for communicating internal thoughts. In contrast, researchers who picture language as sign-mediated action take as a starting point that language action involves far more than representation and communication. They stress above all its constitutive and transformatory capacity. By using the semiotic resources made available in language, people enact a wide range of actions in specific social settings, which engage them in an ongoing process of creating and transforming meaning. [36]

Second, both discourse and conversation analyses treat the process of sense production in discourse as context-specific action, and both stress that the contingencies arising in the context in which linguistic action emerges are a critical requirement for the understanding of the process of sense production that unfolds in discourse. A basic tenet of these views is that, whatever the characteristics of the situation within which linguistic action takes place, they always constrain the way in which such an action emerges and evolves. Thus, in order to understand one's linguistic action, it is always necessary to know in what kind of communicative event it has been produced, where and when that event has taken place, and who the participants are (EDWARDS, 1997; POMERANTZ & FEHR, 1997; POTTER & WETHERELL, 1987; VAN REES, 1992). [37]

There is another sense in which the context-dependent nature of conversational discourse can be understood. Conversation is produced within a sequence of actions that are sensitive to the here-and-now characteristics of the participants' moves. What a participant says is always constrained by what other participants have previously said and, consequently, it can only be understood by referring to the place it occupies within the ongoing flow of actions. (HERITAGE & ATKINSON, 1992; POMERANTZ & FEHR, 1997). This assumption conveys a clear methodological implication for the choice of the unit of analysis for empirical research: sequences, and turns within the sequences, are seen as the basic unit for the analysis of conversation. [38]

Finally, when analyzing conversation, both conversation and discourse analysts commit themselves to an attempt to capture participants' perspectives on a topic under discussion, rather than concentrating the analysis on the researcher's pre-established conceptions about the phenomenon in focus. For example, when looking at similarity and difference between teacher's understanding of a topic (expert's perspective) and the views of pupils, it is not sufficient to say that some of those views are similar and some are dissonant. For those who wish to gain insight into the way in which the pupils' understanding steadily becomes closer to the teacher's, the important thing is to capture participants' orientation, what they construe as similar and different (POMERANTZ & FEHR, 1997; POTTER & WETHERELL, 1987). [39]

The contribution that principles and techniques devised by conversation and discourse analysts offer to researchers' treatment of discursive data analysis cannot be underestimated. As VAN REES (1994) notes, what makes conversation and discourse analyses such an extraordinary resource for the analysis of actual discussions is, above all, their sensitivity to the dynamic dimension of conversation and to details of specific ways of formulating. Nevertheless, however efficient they might be, their limits as instruments for the analysis of discussions that lead to knowledge construction should not be overlooked. When examining some of these limits in the following paragraphs, I will concentrate chiefly on those that, in my view, carry with them implications for research on argumentation and learning. [40]

First, I think that MARKOVÀ's (1990) insightful ideas about what constitutes a proper unit for the analysis of dialogue is an illuminating contribution. She points out the limits of electing turns as the primary unit for analyzing dialogue. As she notes, a turn of speech is not a homogeneous entity. Treating it as such would imply that its internal characteristics are not brought into discussion either in conceptual or analytical terms. In line with these ideas, I have argued elsewhere (LEITÃO, 2000a) that MARKOVÀ's view provides an important warning for research into argumentation. It helps one to see, for instance, that analysis based on sequences of turns in a conversation cannot capture some of the dialogical and dialectical moves (justification-opposition, agreement-disagreement) that lie at the core of a single turn, nor some argumentative moves that cut across several non-contiguous turns. In the analysis of argumentation produced in a

variety of everyday situations,[4] I have identified many cases in which in one part of a turn, the arguers anticipate and react to criticism to a view they present in another part of the turn. Any changes in view that might emerge from such situations can be portrayed as construction of knowledge through self-argumentation, a process in which anticipation of future opposition is central. These cases are very similar to those exemplified by MARKOVÀ (1990). I have also found cases in which one and the same argumentative move (e.g., a counterargumentation) spreads out far beyond the boundaries of a single turn before being established as such. [41]

To reflect on the limits of adopting turns and sequences of turns as a unit for analyzing knowledge construction in argumentation may also help one to understand how sequence-based analysis leaves the analyst helpless as to how to follow processes of sense production that build up in non-interactive conditions, like writing and solitary spoken discourse (see VAN REES, 1992, for a suggestion about the use of conversation analysis principles to gain insight into non-conversational discourse. However, the way this might be done is still in need of elaboration). [42]

Nonetheless, what is most crucial for research on learning is the fact that sequence and turn-based analyses are not designed to capture subtle transformations in knowledge that result from participants' involvement in argumentation. In order to capture such changes, I believe that much more attention needs to be given to variation in the content of the conversation. By saying this, I am not ignoring the fact that, despite the alleged preference of conversation analysts for exploring content-free principles of sequential organization, the analysis carried out of conversation is very much dependent on considerations about the topic participants talk about (EDWARDS, 1997). The point is that, as a consequence of the goals that pervade teaching-learning activities (i.e., favoring changes in pupils' conceptual organization), attention to variations across speaker and topic becomes a crucial concern in research that aims at capturing changes in view during argumentation. Analyses based on sequence of turns alone cannot shed any light on changes that may occur at the conceptual organization of the participants' knowledge. [43]

5. Concluding Remarks

This article has ultimately been concerned with examining the contribution made by TOULMIN's model (1990) and certain procedures developed within the tradition of the so-called discourse studies to psychological research looking at the role of argumentation in knowledge acquisition. In doing so, I have concentrated on examining those methodological aspects of each perspective that have more frequently been imported into psychological research, rather than on examining any such approaches extensively. Regarding TOULMIN's ideas about the functioning of everyday argumentation, it was noted that the six-step

4 Job-related debates among political activists (LEITÃO, 2000a), argumentation produced either in interactive or non-interactive lab conditions (SANTOS, 1993), and classroom argumentation (LEITÃO, 2000b).

model that he introduces to represent the layout of argument has often been turned into categories for the analysis of argumentative moves of individuals in discussions. In turn, the emphasis that conversation analysts place on turns within sequences as the main unit for capturing the dynamic of conversation has exerted a major impact on psychological approaches to discourse. The main conclusions can be summed up as follows. [44]

The contribution that the analytical procedures devised within the above mentioned perspectives have made to the investigation of argumentation in learning settings is beyond question. However, when analyzing argumentation in teaching-learning contexts, researchers should be aware of the risk that, by applying these procedures alone, they may neglect or underrate some aspects crucial to understanding processes of learning and development that take place in social, dialogical contexts. To prevent this undesirable consequence researchers must be attentive to the specificity of goals and actions that constitute teaching-learning activities, on the one hand, and on the other, to the purposes the analytical perspectives were originally designed for. [45]

It was argued that, although the analytical model formulated by TOULMIN (1990) does help to understand the interrelated function of statements in argumentation, it cannot capture the dialectical interplay between the proponent and the opponent in argumentation, nor transformation in the arguers' positions that might follow a discussion. I believe that what makes argumentation unique as a form of discourse that favors learning is the way it prompts individuals to review their beliefs in the light of others'. Confrontation of views and critical questioning from the audience are a crucial step. While the experience of being opposed does not guarantee that shifts in the arguer's position actually take place, it is a crucial step in the transition from old views to new ones. It opens up an argument for revision, which is a necessary condition for change in that argument comes into being (LEITÃO, 2000a). If this is the case, the lack of any clear indication of how to capture the dynamic of opposition is an important aspect that considerably limits the applicability of TOULMIN's model to research into learning. [46]

Naturally this does not imply that TOULMIN's model is of no value to this kind of research. However, it cannot supply answers to the crucial questions of whether and how people change their positions in the course of a discussion and what argumentation mechanisms can lead to changes in their views. To do so, which is the main goal of developmental research into psychological processes, a unit of analysis must be designed that allows for capturing how transformation of views can take place in the course of argumentation (see LEITÃO, 2000a for a contribution in this direction). [47]

In the same vein, I have examined some limits that, I believe, are inherent to discourse and conversational perspectives. The contribution of these perspectives to the understanding of the dynamic of argumentation has already proved to be an invaluable one. Both views have proved to be quite suitable for research aiming at identifying specific features of this form of discourse and also

for showing how specific pragmatic patterns that pervade argumentation settings do affect forms of arguing and thinking that participants then develop. [48]

However, when it comes to looking at the impact of argumentation on people's views, empirical studies carried out within such perspectives often fail to provide us with a clear indication of how the experience of being exposed to opposition and critical questioning fosters further elaboration and changes in those views. They also appear unable to show how transformations (whether subtle or radical) can actually be identified at the content level of the arguer's discourse. [49]

In my view, the development of a method for dealing with the above issues is one of the main challenges now facing researchers who investigate the relation between argumentation and learning. Whatever answer may be given to this challenge, I believe this search for method should take the following directions. First, in analyzing argumentation, the dialogical context in which argumentation emerges and evolves should be assigned a primary role. That is to say, methodological perspectives should be adopted that allow for portraying the arguer's and the audience's active and inter-related roles in defining the emergence, evolution, and outcome of argumentation in specific settings. Second, a distinction should be made between the dialectical roles of proponent and opponent (not necessarily between interlocutors) in argumentation so that the relevance of doubts and critical questioning for the emergence of new perspectives through argumentation can be clearly indicated. Finally, the search for method must adopt a developmental orientation. The method chosen must strive to capture how, precisely, already existing meaning is continuously updated in here-and-now argumentation contexts, while remaining open for further transformation in the future. [50]

To clarify how such a methodological orientation might work, let me conclude by looking at an excerpt from a teacher-led discussion during a class of Brazilian history for sixth graders (DE CHIARO & LEITÃO, 2000; the basic assumptions and analytical procedures that support the following analysis are discussed in LEITÃO, 2000a). The topic at stake was slave labor in Brazil in colonial time. (From the 16th to the 19th centuries the country was ruled by Portugal, in which time the transportation of Black Africans to Brazil as slaves was a common practice).

1. L.: (...) she [referring to a classmate] asked why the Whites too weren't (...) the
2. Portuguese didn't bring the Whites too to work, to go into the sugarcane. Because
3. the Blacks have more experience than the Whites. They have more (...) have more
4. culture/
5. Teacher: Have more culture?
6. L.: No, not culture//
7. Students: (...)
8. L.: They have more experience// (...) [Several students speak at the same time]
9. Teacher: If the Whites had come to work in the production of sugar, would they

10. have worked for free?
11. L.: No, they would earn "money" [said in English, rather than Portuguese, to imply
12. the Whites' special status]
13. Teacher: They would have to earn what? Re ...
14. Students and Teacher: ... muneration.
15. L.: And the Blacks, and the Blacks, they, they were actually enslaved and the
16. Whites, they had to be remunerated, that's why they made the Blacks slaves. [51]

According to L., the Portuguese brought Black Africans, but not white men, to work in Brazilian farms because they "have more experience than the Whites. They have more [...] have more culture". Two viewpoints are in fact advanced here ("they have more experience... have more culture"). Both proposals are made here without being supported by any reason. The teacher's reaction to L's speech brings the second of those viewpoints into question, thus placing herself in the role of a critical interlocutor (an opponent) with respect to the viewpoint set out by L. (the proponent). However, assigning herself this dialectical role does not appear to be the only function the teacher's speech performs in line 5. It is also a speech that challenges L's proposal. By rephrasing L's idea as a question, the teacher indirectly expresses disagreement with the content of his viewpoint, thus prompting him to reexamine his own claim. (Indeed, this is one of the most typical ways of showing disagreement and prompting the revision of views in teaching-learning interactions). That L. perceives the teacher's reaction as disagreement and a prompt to self-correction is made clear by his immediate withdrawal of the position being challenged ("no, not culture"). In the sequence, he restates the former of the two views advanced in line 3 ("they have more experience"). The teacher's response to this point of view remains unclear from the transcript. [52]

The next teacher's speech draws the children's attention to a new, crucial element associated with the topic under discussion. Once again, the teacher's view is indirectly expressed as a question ("if the Whites had come to work in the production of sugar, would they have worked for free?"). Despite this, it seems clear from her speech that she thinks that economic reasons should be considered when reflecting on the issue of slavery (in fact this is the view she wants to establish in her teaching). As she sets out this alternative viewpoint in the form of a question, she engages the children in a process of confrontation with opposing views, which allows for new positions on the phenomenon to gradually and collectively take place. In line 14, the entire class seems to join the teacher in the formulation of a new viewpoint. [53]

Finally, the argumentation ends when L., the child who had initiated this episode of argumentation, withdraws his initial view. In line 15 he leaves us in no doubt that he is abandoning his initial viewpoint and is going along (at least temporarily) with the teacher's view. Throughout the discussion, the experience of being challenged constitutes a developmentally relevant experience that gives the arguers the momentum to review their positions and seek new forms of understanding a phenomenon [LEITÃO, 2000a]. [54]

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