



Instructions for authors, subscriptions and further details:

<http://remie.hipatiapress.com>

Dialogic Learning, Interactive Teaching and Cognitive Mobilizing Patterns

Antonio Aguilera-Jiménez¹, María Mar Prados Gallardo¹

1) University of Seville

Date of publication: September 17th, 2020

Edition period: October 2020 – February 2021

To cite this article: Aguilera-Jiménez, A., & Prados – Gallardo, M. (2020). Dialogic Learning, Interactive Teaching and Cognitive Mobilizing Patterns. *Multidisciplinary Journal of Educational Research*, 10(3), 271-294. doi: 10.4471/remie.2020.5088

To link this article: <http://dx.doi.org/10.447/remie.2020.5088>

PLEASE SCROLL DOWN FOR ARTICLE

The terms and conditions of use are related to the Open Journal System and to [Creative Commons Attribution License \(CC-BY\)](#).

Dialogic Learning, Interactive Teaching and Cognitive Mobilizing Patterns

Antonio Aguilera-Jiménez
University of Seville

María del Mar Prados Gallardo
University of Seville

(Received: 22th January 2020; Accepted: 2nd September 2020; Published: 17th September 2020)

Abstract

The current conceptions of teaching and learning and the educational actions based thereon place the key to learning in the interactions that take place in educational spaces, highlighting the need to increase the quantity, diversity, and quality of these interactions as a condition to improve learning. With this purpose, this paper proposes a series of criteria that optimizes the quality of the interactions and characterizes the dialogical interaction style of the teaching staff. To identify these guidelines for dialogical interaction, video recordings of 26 sessions of interaction situations of different Special Education and Primary Education teachers whose students had obtained different results of cognitive development tests after the implementation of a program of improvement of thinking skills, were analysed, called "Understanding and Transforming". These are Cognitive Mobilizing Patterns (CMP), which constitute a systematic set of guidelines for dialogic interaction that may be used for both the analysis of interactions and for teacher training in the criteria that define interactive and dialogical teaching.

Keywords: group learning; dialogue; educational actions; cognitive development; cognitive mobilizing patterns

Aprendizaje Dialógico, Enseñanza Interactiva y Patrones de Movilización Cognitiva

Antonio Aguilera-Jiménez
Universidad de Sevilla

María del Mar Prados Gallardo
Universidad de Sevilla

(Recibido: 22 Enero 2020; Aceptado: 2 Septiembre 2020; Publicado: 17 Septiembre 2020)

Resumen

Las concepciones actuales sobre enseñanza y aprendizaje y las actuaciones educativas que se basan en ellas sitúan la clave del aprendizaje en las interacciones que se producen en los espacios educativos destacando la necesidad de incrementar la cantidad, diversidad y calidad de dichas interacciones como condición para mejorar el aprendizaje. Con esa finalidad, en este trabajo se proponen una serie de criterios que optimizan la calidad de las interacciones y caracterizan el estilo de interacción dialógica del profesorado. Para identificarlos se analizaron las videgrabaciones de 26 sesiones de situaciones de interacción de diferentes docentes de Educación Especial y Educación Primaria cuyo alumnado habían obtenido diferentes resultados en pruebas de desarrollo cognitivo tras la implementación del programa de mejora de las habilidades de pensamiento denominado “Comprender y Transformar”. El análisis realizado proporcionó unas pautas repetidas de interacción que se daban entre los grupos de mayores ganancias y que aparecían poco o nada en los demás. Son los Patrones de Movilización Cognitiva (PMC), que constituyen un conjunto sistemático de pautas para la interacción dialógica que puede usarse tanto para el análisis de las interacciones como para la formación del profesorado en los criterios que definen la enseñanza interactiva y dialógica.

Palabras clave: aprendizaje en grupo, actividades escolares, diálogo, actuaciones educativas de éxito, desarrollo cognitivo, patrones de movilización cognitiva.

Changes in social practices have given rise to new social theories that we can group into three major conceptions of reality: a) the objectivist, structuralist and systemic conception of the first part of the Industrial Society; b) the constructivist, subjectivist conception present in the second half of the 20th century and c) the dual and communicative conception characteristic of the Information Society (Flecha, Gómez, & Puigvert, 2001).

These changes in social practices and theories have had their counterpart in educational theories and practices that have gone from a “transmissive” conception of teaching based on “rote learning”, to an “adaptive” conception of based teaching in “meaningful learning” and, finally, to a “transformative” conception of teaching based on “dialogical learning”. Dialogic learning is learning that takes place through of egalitarian dialogue; in other words, the consequence of a dialogue in which different people provide arguments based on validity claims and not on power claims. This dialogical conception of learning is based on seven principles: 1) egalitarian dialogue, 2) cultural intelligence, 3) transformation, 4) instrumental dimension, 5) creation of meaning, 6) solidarity and 7) equality of differences (Aubert et al., 2008).

A central element in the educational proposal that derives from the communicative perspective in social sciences is the dialogical conception of learning that points out that one learns through interactions produced by egalitarian dialogue. The conception of teaching that corresponds to dialogical learning is interactive teaching (Alabart, 2015, Mercer, Hargreaves, & García-Carrión, 2017) or dialogical teaching (Alexander, 2001; 2008).

The foundation of this proposal is found in both contributions from the international scientific community and in successful educational actions (INCLUD-ED Consortium, 2009; 2011), which, on the one hand, derive from these contributions and, on the other, validate them.

Scientific theories revolve around contributions that converge in five points: a) universality of capabilities, b) importance of interaction, c) community as a learning context, d) power of communicative acts and e) transformative capacity of human agency (Aubert et al., 2008). Moreover, successful educational actions (hereinafter, SEAs) refer to inclusive actions of both the students and the educational community that participates in the

life of the centre at the decision-making, evaluation, and educational levels (INCLUD-ED Consortium, 2009; 2011; Valls, Prados, & Aguilera-Jiménez, 2014).

Based on this conception of teaching and learning, one of the keys of the work of teachers is to increase the interactions in quantity (promoting cooperation among students), in diversity (promoting willingness in the classroom of different profiles) and in quality, since not all interactions imply an improvement in learning and school coexistence.

The quality of interactions depends to a large extent on the style of interaction that the teacher develops in the classroom (Cazden, 1991) and which will be imitated by their students and collaborating adults, multiplying their effects while providing quality to the other interactions (Mercer, 2017). As Siles and Puigdemívol (2019) point out, it does not seem that certain actions or methodologies, by themselves, can be described, if more, as successful actions, regardless of the conditions in which they are applied (p. 229).

Furthermore, when that style of interaction is not adequate, there is a risk that SEAs do not develop in a way that responds to the principles of dialogical learning. It is very difficult for the teacher to develop dialogical interactions while the students work. For example, in interactive groups and other styles of interaction when volunteers are not present in the classroom; in this case, the usual style of interaction of the teacher that does not respond to dialogic interaction is that which becomes generalized when SEAs are developed, thus, they will be only nominal but not real. Even if it were possible to maintain two different interaction styles, we would find that what is created with the SEA is destroyed during the rest of the teaching time.

Hence, the problem that we pose is how to be faithful to the principles of dialogical learning both in the implementation of SEA and when only the teacher and students are present in the classroom? In other words, what is the teacher's capacity to provoke quality dialogical interactions in the classroom? Linda Hargreaves states that "*there is a series of criteria that optimize interactions and make them more effective in terms of learning*" (Alabart, 2015, p. 37). The aim is to identify these criteria and include them in teacher training. Therefore, the objective that we propose with this contribution is to

present teaching behaviour guidelines that characterize a style of dialogical interaction.

Methodology

To identify these guidelines for dialogical interaction, video recordings of 26 sessions of interaction situations of different Special Education and Primary Education teachers, whose students had obtained different results of cognitive development tests after the implementation of a program of improvement of thinking skills, were analysed, called "Understanding and Transforming" (Mora, 1991; 1998; Mora & Mora-Merchán, 1998; Mora & Saldaña, 1999). Of these, thirteen sessions corresponded to groups of students with high improvement after the application of the program, seven sessions corresponded to groups with average improvement, and six sessions to groups in which there was no improvement between the pretest and the posttest. The participants, instruments and procedure are described in detail in Aguilera-Jiménez and Mora (2004; 2012).

Given that with the same tasks, different groups had obtained different results, the researchers hypothesized that it was the different style of interaction of the teacher that made the difference. To verify, we analysed the segmented videos minute-by-minute to identify which elements appeared to be the causes for the changes observed in the students in each session.

Thus, a series of performance criteria, present in teachers who had achieved greater improvements in their students while absent in the performance of teachers that had less impact on the learning and development of their students, was identified. (Mora, 1991; Aguilera-Jiménez & Mora, 2004; 2012).

Results

The analysis provided repeated patterns of interaction that occurred between the groups with the greatest improvement and which appeared hardly or not at all in the others. We call these characteristics of dialogical interaction Cognitive Mobilizing Patterns (CMP) because they were the characteristics

of the teaching interaction style that was present in the groups with the highest cognitive development in the posttest.

It is important to emphasize that the key of CMP is more in direction and meaning that its protagonists give it than in the topography of the behaviours in which it is manifested. It is not behaviours or concrete words that determine the appearance of a specific CMP, but rather the attribution of a meaning and deliberate purpose that is given to what is done.

It is true that it is not just about having good intentions and that the intention should be expressed in acts that may be observed and recorded. It is rather about knowing that what is relevant is not in the topology of the observed behaviours, but in their purpose. i.e., in the direction and meaning that its protagonists give it. And, above all, in the effects that behaviour generates in other behaviours of group members, in their understanding of the situation experienced and in the attitudes with which they face problematic situations.

The research carried out (Aguilera-Jiménez & Mora, 2004; 2012) identified twenty patterns to which an additional one was added, grouped into three axes: a) classroom management, b) creation of an effectively warm environment, and c) orientation to thought processes. In this way we can affirm along with Mora (1998, p. 520) that:

The most effective teacher (...) is one that meets the triple condition of orienting the activity to processes, often resorting to presentation of models of thinking with that characteristic; creating a personalizing class environment, where students feel accommodated, group dynamics are subordinated to individual growth, and the teacher is a participant that helps with thinking and stimulates the improvement of self-image; and, finally, managing the rhythm of the activity and the attention of the students so that the processes may be more clearly perceived and the environment is rewarding.

These interaction guidelines are shown in Table 1 and described below.

Table 1

Cognitive Mobilizing Patterns (Mora & Aguilera-Jiménez, 2016)

<p>CMP OF CLASSROOM MANAGEMENT:</p> <p>Guidelines that focus on desirable dynamics in the classroom.</p>	<ol style="list-style-type: none"> 1. Slowing of class dynamics. 2. Analysis and structuring of the situation. 3. Stimulating interaction among students. 4. Focus of attention. 5. Opening of problems for another day. 6. Flexibility in following the proposed task.
<p>CMP OF CLASSROOM ENVIRONMENT:</p> <p>Creation of effective and participatory working, entertaining, and motivational environment.</p>	<ol style="list-style-type: none"> 7. Creation of an active and participatory environment. 8. Facilitation and encouragement of personal expression. 9. Participation as an active "member". 10. Personal attention to the demands of each student. 11. Encouragement of a positive self-concept. 12. Creation of an entertaining environment. 13. Reinforcement of higher cognitive behaviour.
<p>CMP OF PROCESS ORIENTATION:</p> <p>Focus of interest on strategies and thought processes more than the products thereof.</p>	<ol style="list-style-type: none"> 14. Stimulating explanatory thinking. 15. Posing of cognitive conflicts. 16. Focusing the activity towards the processes. 17. Moulding: successive approximations. 18. Verbal presentation of thought models. 19. Stimulating alternative thinking. 20. Increase of input 21. Distance

(1) *Slowing of class dynamics* consists of making the dynamics of the class as slow as possible so that it develops without haste. Therefore, latencies may be introduced before issuing responses, thus inhibiting impulsivity while improving results. When dynamics slowed, the classroom environment is reflexive and "contemplative", stopping everything that is needed for the analysis of the problem, including trivial aspects, but, which, have aroused the interest of the group or of a specific member. The only limitation to slowness is that the interest of the group is maintained and that contributions become richer.

(2) *Analysis and structuring of the situation* mean being aware that work continually responds to an objective so that intervention is developed according to a previously established plan. When structuring the session, unity and systematicity are given to all interventions so that they are coordinated, organized, related to each other and not merely juxtaposed; and, above all, that it is perceived by the students. The work being developed is not the result of improvisation or the result of random or uncontrolled factors but responds to a plan that is understood by the group. To ensure that the structure of the session is perceived by all, the teacher can make the stages covered explicit ("What have we done?"), the current objective ("What are we doing?"), and the anticipation of the future task ("What must we do?"). Time may also be organized addressing different tasks so that there are moments to inform, to think, to discuss, to decide, etc. Structuring of the situation is also aided by introducing pauses and changes of rhythm in the dynamics or intonation of verbalizations to facilitate the perception of steps of tasks or phases of the work. The teacher, with words or gestures, provides discriminative stimuli that enable identification of what is expected of the student at each moment.

(3) *Stimulating interaction among students* implies encouraging the exchange of contributions among students. Thus, problems are introduced that must be solved in teams or through group dialogue and with contributions from all: both correct and incorrect. When an individual contribution is directed to the teacher, it is returned to the group to be analysed and undertaken or rejected. In short, it is about stimulating cooperation, relations of solidarity, and mutual help among group members to solve problems or carry out the proposed tasks.

(4) *Managing attention by focusing on the relevant* is to direct the attention of the group to the relevant aspects of the dialogue or process by providing information (e.g.: "Listen, this is important..."), or through emphasis given to certain content with intonation or gestures and movements. Even when all contributions are accepted, attention is focused when selective references are made to those that maintain the thread of the discussion or offer interesting points of view regarding the activity or about the perception of the processes. Also, when information is reiterated, highlighting relevant aspects or when summaries are offered that filter the

accumulated information, eliminating irrelevant aspects. The idea is for the teacher to maintain the thread of collective discourse without moving on to new aspects before having resolved previous questions.

(5) *Opening of problems for another day.* The teacher ends each session proposing a reason for individual reflection, which will be the basis of work for the next day. Whenever possible, it will consist of a task that relates real life to what has been discussed in class or asks for examples of situations outside the classroom that require knowledge of how to do something that has been done in class. What is intended with this CMP is to encourage the reflection carried out in the classroom to continue in real life. The next day's session begins by reviewing if students have performed the task proposed at the end of the previous class outside the classroom. Regardless, if everyone has done it, if there is only one who has, that student becomes the centre of the activity and offers a contribution, even if briefly.

(6) *Flexibility in following the proposed task.* Although it seems contradictory, this pattern of interaction is complementary to that previously indicated as "analysis and structuring of the situation". It is true that the teacher has a plan, but this plan is followed with flexibility, adapting to the rhythm of the group, stopping at each point as necessary and without interrupting interesting dialogues "because there is something else to do". Everything that the teacher proposes is a consequence of the previous reflection without tasks happening one after the other without a common thread. There is no juxtaposition of tasks. This pattern of teacher behaviour is not the same as improvising or the opposite of "analysis and structuring of the situation", but rather its complement because the result of this analysis may be the need to not follow a "fixed" plan, but be flexible.

(7) *Facilitating an active-participatory environment in the classroom.* This interaction pattern responds to any action by the teacher that maintains students in an environment of almost constant activity, dialoguing, analysing, comparing contributions, or reflecting. This active and participatory environment is achieved when the majority of students are involved in the proposed activity or in the proposed reflection: speaking in the group, requesting to speak even if it is not granted, maintaining frequent visual contact with the person speaking, and participating. However, "participating"

does not always have to mean "speaking" or "acting", but rather someone who is carefully watching or listening with interest to the contributions of others following the thread. It is also demonstrating an active and participative attitude.

(8) *Facilitating the personal expression of each student.* In its current form, the teacher must convey to the entire group the importance of each and every one of its members being able to express themselves freely and to say what they think, with enough time to organize their ideas while knowing that their contribution will be accepted, although it may be discussed. In addition, it must ensure that this happens in the real classroom practice so that if someone needs more time to elaborate on their contribution, they will be able to have that time, stimulating the attitude of listening on the part of others. Even when a contribution is in the minority, even if a single student provides it, we show this pattern of interaction when we state with words or facts that the person has the right to make their arguments and to discuss them, including when they are wrong, and that is the final conclusion, even on the part of the person who initially proposed them.

(9) *Participation as an active member.* This guideline describes the role of the teacher as a member of the students when faced with the task challenge. The teacher gets "on the student's side" when solving the problem. The effective attitude is that of "colleague" rather than the director of the dynamic. The teacher shows an interest in solving the problem, a solution that, although it is assumed, it is not obvious that the teacher already has. The teacher's words and gestures embody the attitude of seeking to be a member of the group. There are factual expressions that confirm this attitude. The teacher does not appear as a depository of the truth so that when speaking, the discussion is settled, but rather as a stimulus so that the truth may be found among all. When the teacher talks, the issues are not settled, but open up and become complex. This entails being an "active" member, which makes this role compatible with the functions of dynamic management, synthesis realization, etc.

(10) *Addressing the personal needs of each student.* This pattern of interaction is implemented when the teacher, as far as is reasonable, addresses each personal cognitive problem, the specific difficulty of any

student, and each point of view. Even when the dynamics demand agility and may only be considered a point of view, it will be done in a personal way (e.g.: "Let's think about what so-and-so tells us..."). When a subject or small group is not convinced with the majority opinion, even when it is correct, some time is spent analysing the minority opinion so that cognitive conflicts that occur are not treated in a depersonalised way. The teacher makes sure that each subject covers all the stages of the process (with brief questions, opinion polls, etc.), avoiding differences by voting on and considering all the arguments without having heard them before.

(11) *Stimulating positive self-concept.* This entails that the activity developed and the intervention of the teacher is focused to increase in the students a positive self-concept and a high level of satisfaction with the cognitive experience carried out. We can stimulate positive self-concept when: a) the reinforcement emitted has a "personal" character and is thus perceived by the receiver so that, although it is dispensed in a group manner, the subject feels like its recipient; b) the student positively assesses their role and/or contribution within the group, expressing it through words or gestures; c) the student shows signs of understanding their present and/or future possibilities to face similar situations to the proposal; d) the teacher analyses together with the student how to be able to overcome a situation (it is necessary to distinguish between the process analysis focused on the perception thereof and the one that stimulates self-concept, with orientation to the person) and e) the teacher appreciates the contribution, even if it is wrong, as an assessment of effort and participation.

(12) *Creating an entertaining environment in the classroom.* This regards the activity of the group being developed in an entertaining, pleasant, or fun atmosphere; closer to informal extracurricular activities (sports workshops, leisure time, or expression) than to the more rigid formalized behaviour characteristic of the academic framework. The student enjoys the proposed activities and does not accept them as a school obligation anymore. In the classroom environment, there is a mixture of interest, effort and relaxation. The more it interrupts the student's expectations about what is a school task, the better, as it facilitates the incorporation of those who consider themselves "bad students" into the task. For students who consider themselves as "good"

at playing and "bad" at studying, the tasks proposed should be more like a game than a study activity.

(13) *Reinforcement of cognitive behaviour higher than the baseline.* This pattern of interaction is implemented when publicly acknowledging and positively reinforcing any behaviour or contribution of a student or group of students that shows a cognitive level higher than the initial one, even when the difference is minimal in absolute terms. To be effective, reinforcement must be immediate or very close in time to reinforced behaviour. It is also important to note that it is necessary to avoid the use of material reinforcements, thus replacing them with others of a social nature. A gesture, a look, a verbal expression of assessment is usually sufficient. On the other hand, it should be an "informed reinforcement", that is, accompanied by an explanation of why this recognition is dispensed. This concept of reinforcement is not totally identical to that formulated by the psychology of learning; in this case, it fulfils a triple cognitive function: a) informing the subject about the appropriateness of their behaviour, b) stimulating a positive self-concept of the student and c) creating an effectively rewarding classroom environment. It is not a question of saying that what is wrong is good, but rather always seeing the positive.

(14) *Stimulating explanatory thinking.* When we say that teachers should incorporate this CMP into their repertoire of interaction guidelines, we mean that they should not be simply satisfied with the contributions of the students but should encourage that these are accompanied by reasons and arguments. Through action, teachers seek the explanation of each reasoning by asking the question "why" of the contributions made and not accepting interventions without an explanation, however simple they may be. This entails avoiding contributions with a justification of "just because", but rather arguments must be provided for or against the contributions, with the dialogue oriented to the correctness or not of said arguments and not to the correctness or not of the contributions that are justified or to the students who make them.

(15) *Stimulating the appearance of cognitive conflicts.* The teacher must make the proposed stimuli and tasks to be perceived as problems to be solved, characterized by: a) providing a solution, b) being interesting, and c) implying contradictory points of view. In this way, cognitive conflicts are

facilitated by the appearance of different points of view between: teacher and student, student and student, or groups and groups. When this happens, the teacher does not provide the "correct solution" but returns the group to the disagreement for its resolution. Even when these differences of opinion do not appear among students, the teacher may provoke the appearance of cognitive conflicts presenting counter-suggestions for the points of view presented by a subject/group. This encourages the group to adopt a critical attitude and discusses the contributions, not validating them until they have been contrasted with alternative points of view. Contributions are not accepted without analysis, even if elementary.

(16) *Focusing the activity towards the processes.* When the intention is to improve thinking skills, what is relevant to the activity is the analysis of the process followed or the identification of the strategy to be followed. Focusing the activity towards the processes responds to the statements: "how to do it", "this is what you have done", "how you will do it". The process-oriented activity is distinguished from the task-oriented activity in that the objective pursued is a clear perception of the cognitive strategy to be used, dominating its nuances and generalizing its applicability, with success being secondary to the proposed task. In the task-oriented activity, the objective is a good result for which there may be eventual process analysis but with instrumental value. It does not mean that the results are not important, but that good results are achieved when procedures and thinking strategies are adequate. In spite of this subsidiary value of the processes in relation to the results, when what is intended is to stimulate development and learning, we must teach "processes".

(17) *Successive approximations. Moulding.* This entails accompanying the student to the objective little by little, step by step, so that the establishment of a higher cognitive level is carried out by successive approximation and not all at once, especially when there is a great difference between what subjects knows how to do alone and what they should know how to do. In these cases, stages are sequenced between the initial situation and the objective, and, at each moment, the learning stage proposes the next stage that the student is capable of learning. The teacher does not expect a student to go from knowing nothing or doing everything wrong to knowing everything and doing everything well, but that the student will be taken from

the level of current competence to that required little by little, through stages, gradually approaching the final objective. At the same time, the progress made is recognized and reinforced.

(18) *Verbal presentation of thought models. Modelling.* When quality contributions do not arise in the group or students come to an obstacle in the task, the teacher, in its role as active partner, takes the place of the student and vocalizes a reflection to solve some cognitive conflict raised or to analyse some stage of the process so as to be able to move forward. The teacher acts as a model for the students formulating "substitute" thoughts for deficient or poorly elaborated thinking, not as speech or exhibition, but as an expression of the thought aloud (framed with the corresponding gestural support). The teacher presents a "scaffolding" or cognitive scheme from which students can develop their own. The teacher does not teach what needs to be done, but rather performs it, and in doing so, offers cognitive models, cognitive ways of approaching problems, which the students will end up imitating.

(19) *Stimulating alternative thinking.* The teacher must stimulate divergent creative thinking through the search and contrast of different solutions to the problems posed. Although a good conclusion has been made, the alternative arguments are left to be examined and analysed before deciding which is the best. The teacher asks "in what other way..." and/or asks for examples that do not conform to the assumption considered. Their interventions do not systematically close the discussion, but open the topic's nuances or branches, increasing their level of complexity and slowing down the process.

(20) *Increasing information input.* Just as photographic films do not have the same sensitivity and some need more exposure time, some students also require increased formulation of relevant information. Therefore, this characteristic of the teacher's interaction style consists of cyclically repeating the formulation of the problem, the accumulated information, and the analysis of the process followed up to a given moment. The input is also increased when explaining things in different ways, examples and counterexamples of what is being discussed are offered. The teacher's performance also fits into this CMP when asking the students to explain in

their own words or give examples of what they are talking about. The dynamics become slower and more reiterative.

(21) *Performing distancing tasks.* It is about relating, whenever possible, what is happening inside the classroom with what usually happens in the lives of students outside the classroom. Consequently, the teacher attempts to make the reality or phenomenon studied be represented in a code different from the original and that the facts are considered as such, while transcending them, finding invariants, principles, or general laws therein. The teacher attempts to move from the anecdote to the category.

CMPs are not independent entities, but each is intimately related to the others, forming a systemic network of stimulating patterns that defines the style of dialogical interaction. The adoption of one of the indicated interaction patterns encourages the implementation of the others and, in turn, each new pattern of acquired interaction reinforces the previously existing ones. Although this can be said of all the CMPs with respect to each of the others, it is, nevertheless, true that clearer relationships may be found among some patterns, either because one is the foundation of others or because it improves their acquisition or performance (Mora, & Aguilera-Jiménez, 2016).

In Figure 1, the interrelations among these patterns of dialogical interaction are represented graphically.

When we described the research process from which the CMP emerged, we said that we started with the analysis of interactions recorded on video by teachers that had a different degree of impact on the improvement of their students' learning and development. This means that we found teachers who spontaneously implemented a dialogical style of interaction in the classroom, while others did not, or those did to a lesser extent. One might wonder then if "dialogical teachers" are born or made.

Well, the good news is that the guidelines of dialogical interaction that we have defined as CMP may be learned and, therefore, must be learned. This has been shown in different training courses in which the study and deepening of the CMP are combined with the video recording of sessions in which teachers try to implement them and which are later analysed, discussed, and commented on by the group.

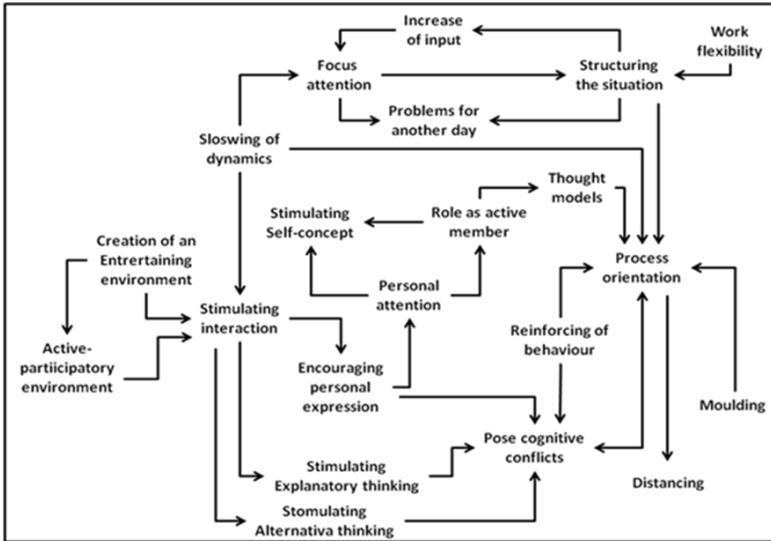


Figure 1. Relationship among Cognitive Mobilizing Patterns (Mora & Aguilera-Jiménez, 2016, p. 19)

These training sessions are held on a monthly basis so that they may be completed during a school year and in which they do not address all the CMPs at the same time, nor are they studied in the order described above, but rather are interspersed CMPs of the three blocks indicated in table 1, in a sequence such that successful implementation of the first ones encourages the appearance of the following ones, as shown in Figure 1. In each session, three of these interaction patterns are studied.

This training is essential since CMPs are not sufficient in all teachers, including those clearly committed to educational innovation. Thus, we believe that it is not an exaggeration to say that CMPs are not part of the usual repertoires in the majority of good teachers (e.g. they tend to state that the role of the teacher is to have the last word in the event of discrepancies among students, which is contrary to what is suggested with the CMP "posing cognitive conflicts"). The reasons for this are diverse. On the one hand, the contents of each pattern do not always coincide with the previous ideas that

teachers have about them. For example, educators may believe that they are encouraging interaction among students because they are made to work in groups. However, stimulating interaction is not only talking and acting together but also requires analysing one's own thoughts and those of others while adequately addressing the cognitive conflicts that this generates. Or, teachers may think that they are correctly developing dialogue in the classroom when what is observed is merely a succession of independent contributions without corresponding interactions. The mistake is to assume that because students "feel as a group", that they are learning as a group (Hattie, 2017, p. 133).

A second reason is that many of the patterns that characterize a dialogical style of interaction go against the usual professional practice. For example, the benefits of the "slowing" pattern are undeniable, because when the teacher introduces a work rhythm that is as slow as possible, impulsivity is reduced, more time is available to analyse problems correctly and aspects of the process are perceived-with a faster pace they would go unnoticed. However, it is common to find teachers in classrooms who are in a hurry; because, at times, they think that in order for the students not to get bored, they have to change their activity frequently; in others, because you have to finish the entire agenda of the subject

Finally, a third reason has to do with disguised institutional resistance to change in educational actions. Aguilera-Jiménez (1991) studied the reasons behind the abandonment of certain programs by some teachers and found that institutional impediments were the main cause rather than personal reasons (such as lack of interest, feeling of incompetence, or stress caused by demanding work). In effect, institutions tend to reproduce the known and are always afraid to change, no matter what is publicly stated.

Table 2

Content of the training sessions and order in which the CMPs are studied (Mora & Aguilera-Jiménez, 2016, p. 24)

Block	CMP according to the type to which they belong		
	Class management	Class environment	Processes or strategies
I	Slowing of dynamics		
	Structuring the situation		
		Active-participatory environment	
II	Stimulating interaction		Reinforcing of behaviour
			Stimulating explanatory thinking
III		Encouraging personal expression	
	Focus attention		Pose cognitive conflicts
IV		Role as active member	
			Process orientation Moulding.
V		Personal attention	Thought models
			Stimulating alternative thinking
VI		Stimulating self-concept	
	Problems for another day		Increase of input
VII		Creation of an entertaining environment	
	Work flexibility		Distancing

Discussion and Conclusions

A key element of interactive teaching (Alabart, 2015; Mercer et al., 2017), or dialogical teaching (Alexander, 2001; 2008), that responds to the principles

of dialogical learning (Aubert et al., 2008) is the style of interaction that teachers adopt with their students and the language used in the classroom. Not all interactions, or any form of language, develop thinking and encourage learning, but rather it requires dialogic interactions based on exploratory speech (Mercer, 2017) and a conversational style (Hargreaves, 2017), as opposed to the scheme "Initiation-Response-Evaluation (IRE)" (Cazden, 1991).

Therefore, we understand that it is not enough for teachers to know SEAs and implement them in any way, but rather that explicit training is needed in the guidelines that define a dialogical interaction style along with an exploratory use of language. It must not be assumed that all teachers demonstrate them in their professional performance, and their use cannot be left to chance, but rather must be ensured through systematic training.

Transforming education means transforming teachers. In order to implement adequate interactive teaching based on the dialogic conception of learning, it is not enough to increase the number of interactions or the diversity of the interactions, but it is also necessary to increase the quality of these interactions so that they progress as much as possible towards dialogical interactions while moving away from power interactions. Therefore, in the classroom, teachers must develop a style of dialogical interaction that provides quality to these interactions and that can be present throughout the school day affecting both communicative exchanges with students and those between some students and others. However, a prior issue to identify the keys that characterize that style of interaction, is the need to find ways to increase the quantity and quality of interactions among the peer group in the classroom (Hargreaves, 2017, p. 51).

Our proposal of CMPs indicates the characteristics that define this interaction style. These are guidelines for dialogic interaction that arise from the observation of classrooms where good results are obtained (Aguilera-Jiménez & Mora, 2004; 2012) and that coincide with the criteria that underlie SEAs (INCLUD-ED Consortium, 2009; 2011).

Other authors have also subsequently indicated characteristics that define the dialogic interaction style, some of which coincide with the CMPs. Thus, for example, Hargreaves (in Alabart, 2015) highlights the need to “stimulate explanatory thinking”, “encourage personal expression”, “pose cognitive

conflicts”, “*slow the class pace*”, “*stimulate interaction among students*”, “*adopt a role as a member by teachers*”, “*stimulate alternative thinking*”, “*create an active and entertaining classroom environment*”, “*address the particular needs of each student*” and “*prioritize thought processes*” (p. 50, 51, 52, 53).

Álvarez (2016), on the other hand, highlights the need to “*stimulate explanatory thinking*” (p. 32), “*pose cognitive conflicts*” (p. 31), “*slow the class pace*” (p. 31, 33), “*stimulate interaction among students*” (p. 31), “*take on a role of active partner*” (p. 31, 33), “*encourage personal expression*” (p. 31, 32, 33), “*address the needs of each student*” (p. 32-33), “*prioritize thought processes*” (p. 31), “*present thought models*” (p. 33), “*focus attention*” (p. 33), and “*stimulate a positive self-concept*” (p. 31).

Mercer (2017) points out some basic rules that must be present in the dialogical interactions that also point towards CMPs:

- a) Ideas may be criticized, but not people; b) if you disagree with another, explain why the idea is not correct by stating your own opinion and arguing it; c) discuss all possible alternatives before deciding, and d) it is necessary to create a context and conversational environment that encourages children to be fully engaged (p. 30, 35).

García-Carrión (García-Carrión) also offers arguments that point to the CMP when it analyses what facilitates participation of all students in transformative interactions of the Dialogical Literary Gatherings.

These CMPs respond to the characteristics of passionate and inspired teachers mentioned by Hattie (2017). Among the contributions in his work on “*visible learning*” (Hattie, 2017; Hattie & Yates, 2018) about what quality teaching and expert teaching are, he makes many references to what we have referred to as CMP. Thus, these authors refer to what we have termed as slowing of class dynamics (Hattie & Yates, 2018), analyse and structure the situation, stimulation of interaction among students (Hattie, 2017), focusing attention, flexibility in following the work plan, facilitating a participatory environment in the classroom, facilitating personal expression, participation as an active member, addressing the needs and demands of each student, stimulating a positive self-concept, creating an entertaining environment in

the classroom, informed reinforcement, stimulating the appearance of cognitive conflicts, focusing activity towards thought processes, moulding, modelling and increase of input of information (Hattie, 2017; Hattie & Yates, 2018).

If this is so, what do CMPs contribute to other proposals such as those cited? Two things: first, they constitute a systematization of the performance criteria that characterize a style of dialogical interaction. Regardless of whether the set of CMPs may be extended, modified, or nuanced, it constitutes an organized set of guidelines for action that, responding to the principles of dialogical learning, encompass three fundamental axes in educational action: a) management of work in the classroom, b) more cognitive focus towards improvement of thinking skills and strategies, and c) a more affective and motivational dimension specified in the proposals for the creation of a classroom environment that facilitates dialogical interactions.

Secondly, as we have pointed out above, that the CMPs include a proven proposal for the training of teachers in these dialogical interaction guidelines based on documents prepared for this purpose (Mora & Aguilera-Jiménez, 2016), as well as video recordings that are analysed by teachers in training, analysis of documents and video recordings that are made as a dialogical pedagogical collection so that "how" these sessions are developed is another training element added to the previous two.

In short, CMP constitute an organized set of dialogical interaction patterns that contribute to increasing the quality of classroom interactions and, to that extent, to promote dialogical learning by optimizing the results obtained through SEAs (INCLUD-ED Consortium, 2009; 2011). Interaction guidelines that, furthermore, are capable of being taught to teachers.

However, we must keep in mind that these CMP arise from an investigation on the effectiveness of a program to teach to think. It would be necessary to carry out new investigations to confirm its relevance in the SEAs indicated in INCLUD-ED, both in the interactions of the teacher and in those of the collaborating volunteers, to create the conditions that guarantee the success that Siles and Puigdemívol (2019).

References

- Aguilera-Jiménez, A. (1991). ¿Por qué los maestros abandonan la administración de los programas de enriquecimiento cognitivo: dificultades institucionales en su aplicación? *I Simposium Nacional sobre Programas de Enseñar a Pensar*. Granada.
- Aguilera-Jiménez, A., & Mora, J. (2004). Interaction and Cognitive Development: Cognitive Mobilizing Patterns (CMP). *Psychology in Spain*, 8(1), 17-27. <http://hdl.handle.net/11441/39845>
- Aguilera-Jiménez, A., & Mora, J. (2012). Pautas de interacción en el aula y desarrollo cognitivo: los 'Patrones de Movilización Cognitiva'. *Apuntes de Psicología*, 3(1-3), 369-382. <http://www.apuntesdepsicologia.es/index.php/revista/article/view/419>
- Alabart, M. A. (2015). Linda Hargreaves, Profesora emérita de la Universidad de Cambridge: hay que dar tiempo a las criaturas para pensar. *Aula de Innovación Educativa*, 246, 50-53. <https://www.grao.com/es/producto/linda-hargreaves-hay-que-dar-tiempo-a-las-criaturas-para-pensar-as01578185>
- Alexander, R. J. (2001). *Culture and pedagogy: International Comparisons in Primary Education*. Blackwell.
- Alexander, R. J. (2008). *Towards Dialogic Teaching: Rethinking Classroom Talk*. Diálogos.
- Álvarez, C. (2016). El Valor Pedagógico del Diálogo en el Aula. Condiciones y Estrategias para Potenciarlo. *Religión y Escuela* 304, 30-33. <http://hdl.handle.net/10902/10990>
- Aubert, A., Flecha, A., García, C., Flecha, R., & Racionero, S. (2008). *Aprendizaje Dialógico en la Sociedad de la Información*. Hipatia.
- Cazden, C. B. (1991). *El discurso en el aula. El lenguaje de la enseñanza y del aprendizaje*. Paidós.
- Flecha, R., Gómez, J., & Puigvert, L. (2001). *Teoría Sociológica Contemporánea*. Paidós.
- García-Carrión, R. (2017). ¿Qué facilitó que casi todo el mundo participara en el diálogo? Interacciones y transformaciones en Tertulias

- Literarias dialógicas En N. Mercer, L. Hargreaves & R. García (Eds.), *Aprendizaje e Interacciones en el Aula* (pp. 53-73). Hipatia.
- Hargreaves, L. (2017). “Yo misma no podría haberlo hecho mejor”. Niños y profesores aprendiendo de las interacciones en clase. En N. Mercer, L. Hargreaves & R. García (Eds.), *Aprendizaje e Interacciones en el Aula* (pp. 37-52). Hipatia.
- Hattie, J. (2017). *Aprendizaje Visible para Profesores. Maximizando el impacto en el aprendizaje*. Paraninfo.
- Hattie, J., & Yates, G. (2018). *El Aprendizaje Visible y el Estudio de sus Procesos*. Paraninfo.
- INCLUD-ED Consortium. (2009). *Educational Success in Europe. Bruselas: European Commission*. Directorate General for Research. <http://creaub.info/included/publications/>
- INCLUD-ED Consortium. (2011). *Actuaciones de éxito en las escuelas europeas*. Ministerio de Educación, Cultura y Deporte. Subdirección General de Documentación y Publicaciones. <http://orientacion.catedu.es/wp-content/uploads/2014/10/actuaciones-de-exito-en-las-escuelas-europeas.pdf>
- Mercer, N. (2017). La importancia Educativa del Habla. En N. Mercer, L. Hargreaves & R. García (Eds.), *Aprendizaje e Interacciones en el Aula* (pp. 15-35). Hipatia.
- Mercer, N., Hargreaves, L., & García-Carrión, R. (2017). *Aprendizaje e Interacciones en el Aula*. Hipatia.
- Mora, J. (1991). *Evaluación del Programa Comprender y Transformar*. [Tesis doctoral no publicada. Universidad de Sevilla].
- Mora, J. (1998). *El Programa ‘Comprender y Transformar’. Bases, Metodología y Evaluación*. Reguera/Repiso.
- Mora, J., & Aguilera-Jiménez, A. (2016). *Patrones de Movilización cognitiva: Pautas para una interacción dialógica en el aula*. Editorial de la Universidad de Sevilla.
- Mora, J., & Mora-Merchán, J. (1998). *Comprender y Transformar. Materiales para la Educación Primaria*. Reguera/Repiso.

- Mora, J., & Saldaña, D. (1999). *El Programa Comprender y Transformar. Materiales para la Educación Secundaria*. Consejería de Educación y Ciencia de la Junta de Andalucía.
- Siles, B., & Puigdemívol, I. (2019). Aceleración del Aprendizaje para combatir las desigualdades. En I. Puigdemívol, C. Petreñas, B. Siles & Jardí, A. (Eds.). *Estrategias de apoyo en la escuela inclusiva*. Graó.
- Valls, R., Prados, M. M., & Aguilera-Jiménez, A. (2014). El proyecto INCLUD-ED: Estrategias para la inclusión y la cohesión social en Europa desde la educación. *Revista Investigación en la Escuela*, 82, 31-43. <http://hdl.handle.net/11441/39613>

Antonio Aguilera es Profesor Titular del Departamento de Psicología Evolutiva y de la Educación de la Universidad de Sevilla con docencia en la mención de Educación Especial del Grado en Maestro de Educación Primaria.

María del Mar Prados es Profesora Titular del Departamento de Psicología Evolutiva y de la Educación de la Universidad de Sevilla impartiendo docencia de Psicología de la Educación en el Grado de Maestro de Educación Primaria.

Contact Address: Departamento de Psicología Evolutiva y de la Educación. C/ Camilo José Cela, s/n. 41006, Sevilla, España.

Email: agujiim@us.es