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# Raquel Interviews Isolda who Interviews Raquel: A Conversation about Dialogue

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*In this paper we characterize a mutual interview between two teachers, Raquel and Isolda, about the concept of dialogue in mathematics education. These teachers have developed a collective practice in a supervised teaching practice course on mathematics based on teacher-students dialogue. The interview was important to know what each teacher thought about the concept. This knowledge was used to design the course. Here we present a definition of mutual interview based both on the concept of dialogue (by Alrø and Skovsmose, and Bohm), and the concept of interview (by Kvale and Brinkmann), as well as the dialogue experience between Raquel and Isolda. This definition also includes dialogic acts and the actions of seeing, thinking, and constructing common knowledge together.*

## **A Research on Dialogue in Pre-Service Mathematics Teacher Education**

Dialogue is something that is done with the other. In the educational context, assuming a dialogical stance means that the teacher and the students share the talk, that is, the speech is not monopolized by one party. It is a political stance. Considering equity in dialogue, everyone has the right to express his/her own perspectives. Being engaged in dialogue with the other means listening to him/her, asking the other, being interested in what the other says. Can talking about dialogue with the other also be like that?

This paper describes a conversation in an interview format between Raquel and Isolda, two teachers and researchers of mathematics education, interested in teacher-students dialogue to promote learning. Raquel and Isolda are the authors of this text. It is important to clarify that the interview is part of the research Raquel has been

developing on the dialogue between prospective mathematics teachers and their students at schools in the context of a supervised teaching practice. In this text, when we talk about the interview we will be referring to ourselves as Raquel and Isolda. In some moments, however, the first person singular will be used to make Raquel's reflections and clarifications about the research explicit.

Understanding the process of learning to be engaged in dialogue by the prospective mathematics teachers is the central objective of the research. It is difficult for them to establish an open interaction with students in order to ask questions, understand their responses, and use them in the construction of concepts (Almeida & Fernandes, 2010; Moyer & Milewicz, 2002). Being aware of this difficulty and believing that dialogue may promote learning, I think that some actions could be performed in order to make these prospective teachers feel more comfortable about an open interaction in mathematics classes. Therefore, in a supervised teaching practice course in the University where I teach, I have planned some activities with the supervisor teacher (Isolda) about dialogue in mathematics education. Before the prospective teachers started their class planning, they were engaged in dialogue activities. These activities involved the concept of dialogue in moments of reflection, planning, and implementation. This was the environment where the production of research data took place.

In that context, I acted as a supervisor teacher, as I have always been. My acting, however, was different from what I usually performed. At that moment, I assumed the position of the researcher and I was Isolda's collaborator. How the dialogue activities influenced the prospective teachers' pedagogic decisions was an important aspect of the research. Those activities belonged to a collective practice executed by Isolda and myself. In this context of research and practice, I investigated my own collective practice.

Jarvis (1999) calls the professional who develops research on his own practice a practitioner researcher. According to this author, the practitioner researcher knows what works in his/her practice, he/she feels comfortable in relation to the knowledge, skills and attitudes from his/her practice, and knows what problems should be investigated. In the context of my research, I assumed the position of practitioner researcher, and Isolda that of the practitioner. The two teachers are professionals who work in the same area, the supervised teaching practice courses, and therefore are practitioners. Throughout my practice,

I often reflect on my actions to assess what needs to be maintained or modified. “Practice is both a site and an opportunity for learning, and reflective practice is a necessary approach to learning how to become an expert practitioner” (Jarvis, 1999, p. 70). Because I reflect on my own practice, I consider myself a reflective practitioner. As a result of this reflection, there were issues of concern related to the investigation that I have been developing. Therefore, besides performing actions of my own practice, I reflected, in a systematic way, about them and their effects on the prospective teachers’ decisions.

A collective practice has several elements and among them a collaborative planning of actions and some ideas shared by the actors of this practice. Such common ideas may emerge in various ways, but in this paper we will highlight a special instrument to see what the involved people think about a special subject. It is a mutual interview between Raquel, the practitioner researcher, and Isolda, the practitioner.

## **Raquel and Isolda in a Mutual Interview**

Once the planning and the implementation of dialogue activities were made by Raquel and Isolda (i.e., they would work together), it was not conceivable or ethical to impose one’s ideas about dialogue over the other. Rather, there would have to be a proximal discourse for both teachers in order to talk to the prospective teachers about dialogue. Thus, before planning the dialogue activities in detail, the need to know what each teacher understood by dialogue in mathematics education arose. Therefore, Raquel and Isolda arranged a mutual interview about dialogue.

Let us now introduce both teachers properly. Raquel is the researcher who has been developing the present investigation and the collaborator of the supervised teaching practice course. Isolda is the supervisor teacher of this course and who has collaborated with the research. Raquel and Isolda are researchers of mathematics education, they have been working at the same higher education institution, are supervisor teachers, have developed many projects together in mathematics education, and, also importantly, they are friends.

The interview had two aims: to know what each teacher understood about dialogue in mathematics education, and delineate common

aspects in these perspectives. It was a mutual and open interview implemented by email. It was mutual, because the two teachers posed and answered questions. The intention was not only to know what the teachers thought about a particular subject, but also to make the teachers' perspective explicit. Raquel and Isolda were, therefore, interviewers and interviewees. The interview was open because there was not a protocol of questions to be followed. The electronic environment facilitated the recording of questions posed, answers provided, specific dates, and waiting time for answers.

The interview had three rounds of questions and answers. In the first round, the teachers elaborated and sent their questions to each other. Each teacher answered questions taking her time, according to her availability, amid daily tasks. The questions were formulated, initially, according to the curiosity of each teacher about what the other thought. The answers informed the other about a subject, in this case the *dialogue*, showing a personal perspective.

In the second and third rounds, besides this curiosity, the questions were formulated based on the answers provided by each teacher in the previous rounds. There was an interest in knowing more about a particular idea and going deeper into a perspective in order to know its origins and foundations. There was time to think about the answers and the new questions. The teachers might read the questions received and think about the answers or write some previous answer, which were on standby to be reviewed and modified at any time. Meanwhile, the teachers thought of new aspects of those answers and supplemented them. These reflective comings and goings characterized the process of providing answers. All questions and answers were stored in a file on their computers, which made it easier to go back and forth improving what had been written earlier.

## **Dialogic Acts in the Mutual Interview**

Throughout the interview it was possible to notice some important actions that assured its development. Those actions are related to the concept of dialogue by Alrø and Skovsmose (2004), in the context of critical mathematics education. The authors have characterized empirically the dialogue between teacher and students, and among students, in terms of the acts that constitute the Inquiry Cooperation

Model: *getting in contact, locating, identifying, advocating, thinking aloud, reformulating, challenging, and evaluating*. That concept has been widely used in studies involving communication in mathematics education to promote critical learning, which involves both socio-political aspects related to mathematics, such as those related to the process of discovering mathematics ideas by the students. A recent example is the research by Alrø and Johnsen-Høines (2010) which analyses how prospective teachers put dialogue into action when they question the traditional ways of teaching and plan new possibilities of learning mathematics critically, showing competence to propose innovative strategies.

Some of those acts were also present in Raquel's and Isolda's mutual interview, as is the case for *getting in contact, locating, advocating, thinking aloud, reformulating, and challenging*. As we mentioned earlier in this text, in the first round of the interview, the questions showed the teachers' interest in knowing what the other thought about aspects of the dialogue; thus, Raquel and Isolda *got* the necessary *contact* to the development of the interview. Some of the following questions sought to improve their knowledge on a specific idea and know the details about it, since it represented some degree of novelty for the teacher who had asked the question. Deepening and better understanding a perspective are related to the dialogic act of *locating*. This process has permeated the whole development of the interview.

In the mutual interview, the act of *locating* can be illustrated by some moments, as when Isolda asked Raquel for an explanation about the idea that "engaging in a dialogue with the other involves listening carefully to what he says and posing questions." In responding, Raquel explained the concept of active listening, which means "asking questions and giving non-verbal support while finding out what the other is getting at" (Alrø & Skovsmose, 2004, p. 62), and defended its importance in the dialogue to promote learning. Another moment when the dialogic act of *locating* was in action was when Isolda, describing the teacher's talking in the dialogue, referred to some elements of Jean Piaget's learning theory. Interested in knowing more about those elements and their relationship with the dialogue, Raquel posed questions to deepen Isolda's ideas in the following rounds.

The dialogic act of *challenging* appeared in an implicit and explicit way in the conversation among the teachers. In an attempt to *locate* Raquel's perspective, Isolda proposed: "I would want to *challenge* you to make some assumptions on what are disciplinary and bureaucratic

questions.” Isolda also asked, “Which questions promote learning? Which questions are appropriate for dialogue?” The verb *to challenge* appeared explicitly in Isolda’s question. In moments before the interview, the types of questions that are posed in a mathematics class had been a point of reflection for Raquel. Isolda’s question was a special opportunity to rethink those kinds of questions. Even when the verb *to challenge* did not appear explicitly in the question, the teachers felt *challenged* to be clear and expose what they thought. Sometimes it was hard to explain something about which they had never written. An example of that was when Isolda asked Raquel to exemplify the dialogue related to the teaching of some mathematical concept. Before asking, Isolda did not know that looking for this example represented a *challenge* for Raquel, precisely because it was one of her uncertainties: when is a conversation considered a dialogue? Raquel used the context of solving equations to illustrate what she believed dialogue was, and, in the next round, she enlisted Isolda’s help by asking the question: “what would you call the conversation I described in the context of solving equations to discuss the student’s doubt?”

The actions of defending a perspective, agreeing or disagreeing with an idea, and arguing for or against it, are related to the dialogic act of *advocating*. Raquel and Isolda began the interview with individual ideas, certainties and uncertainties. As the rounds went forward, the teachers identified common ideas in their answers, as Isolda stated about the prospective teachers’ difficulty of engaging in dialogue with the students in their teaching practice: “I agree that it is difficult for prospective teachers to express and practice the dialogue in class. Which factor(s) do you think cause that difficulty?” Sometimes Raquel also agreed with Isolda. For example, when Raquel judged positively some ideas presented by Isolda by stating: “This idea of intentionality of dialogue is very good” and “The expression ‘enhance the dialogue’ is very good.” Raquel still summed up some ideas of both teachers: “We agree that talking and listening are important actions in the mathematical dialogue.”

The dialogic act of *thinking aloud* refers to the verbalization of reasoning to make a perspective public, thus allowing it to be investigated. In the mutual interview, Raquel and Isolda made their perspectives explicit, defended them in writing, and deepened their ideas through explanations and examples. While in a face-to-face conversation the act of *thinking aloud* refers to spoken verbalization,

in the mutual interview the quality “aloud” was related to a written explanation of perspectives.

In some questions, Raquel and Isolda paraphrased themselves in seeking to *locate* the perspectives and propose *challenges*. The teachers tried to reproduce what the other had said with their own words. The dialogic act of *reformulating* refers to this attempt to say again what was said by someone in order to know that the perspectives of each side are understood.

In explaining what each teacher meant by dialogue, Raquel and Isolda put many dialogic acts described by Alrø and Skovsmose (2004) into action. In the following section, we highlight common aspects of the teachers’ perspectives.

## The Creation of a Common Knowledge

In the first round of the interview, Raquel and Isolda made their initial perspectives on the concept of dialogue explicit. With the process of going deeper into the ideas, comparing thoughts, and agreeing and challenging each other, it was possible to see some common aspects between the perspectives presented. However, before presenting them, it is necessary to bring some ideas about dialogue.

Raquel agrees with the definition of dialogue as proposed by Alrø and Skovsmose (2004). The teacher states that dialogue is a kind of conversation with some characteristics (theoretical and empirical), which aims at critical learning. The theoretical characteristics include making an inquiry, running risks, and maintaining equality. In empirical terms, dialogue is characterized by eight dialogic acts that compose the Inquiry Cooperation Model previously discussed. Raquel pointed to the importance of listening carefully to what the other says and posing questions. In a further comment on that idea, Raquel explained the concept of active listening and established relations with the learning process.

In trying to understand what the other says to me, it seems that I go to meet him and do some intervention so that together we can go somewhere else, new for both. New to the other, because it seems that he has never been there, new to me, because I am going somewhere known to me, but with a different company

[...]. The teacher engaged in dialogue assumes a stance about what is learning mathematics and how the knowledge is constructed in the classroom. The concepts are not transmitted to the students, as given, but constructed with the students, considering their previous knowledge. The teacher will create an environment in the classroom to promote possibilities of doubting, questioning, and arguing. This teacher believes that the students have to express themselves, put their ideas in public.

When Isolda was asked to write about dialogue and mathematics education, she states that dialogue is:

an intentional exercise of talking and listening that occurs, producing actions of thought, reflection, and internal constructions. It can be planned with some definite purpose, such as to learn and teach. It is a didactic and pedagogical action, almost a teacher's conduct, which seeks to involve students in actions of thought, to develop or expand the understanding of a concept. The teacher's talking is questioning, and should promote the listening that produces internal operations, cognitive imbalances, assimilations, and accommodations.

From this response, Raquel asked Isolda to explain in more details her ideas about learning based on the theory of Jean Piaget. Therefore, in the following rounds of interview, Isolda refers to the stages of development and to expressions such as “imbalances” and “balances” in her examples of dialogue and other explanations. She says that, while the learning process is in action, one is operating consistently with previous concepts for the construction of a new concept. She still states that, “the mechanisms and constructions are internal and individual, but nothing happens without putting the structures of thought into action”.

Considering that Raquel and Isolda are different subjects, their speeches are also different. Each teacher has a career and some maturity in relation to her beliefs about mathematics education. While Isolda assumes Piaget's theory in her speech, Raquel is starting her career as a researcher and making her theoretical choices. Therefore, there would not be a single speech to the prospective teachers, but common aspects that emerged in the process of clarifying perspectives, which will be explained below.



For Raquel and Isolda, dialogue involves assuming a pedagogical stance related to the way that mathematics is learned by students. The teachers believe that knowledge should be discovered by students and not delivered to them. The students must act on the proposed activities and express their ideas and ways of thinking. They should be involved in actions of thought, relating previous knowledge to the situations that they are studying, in order to construct new knowledge. The teacher is the one who guides the process of discovery. Listening and talking are common actions to the teacher and the students. Asking and being attentive to what the other says are part of the dialogue and, therefore, people involved must listen actively. For Raquel and Isolda, the dialogue is intentional. It aims at learning.

Those common ideas emerged in the development of the mutual interview. What one teacher said influenced the other's response in some way. The process of creating a common knowledge is particular to a conversation as the dialogue (Bohm, 1996). For this author, the dialogue has a different sense from the one communication has. One of the senses mentioned by the author for communication is "to make something common, i.e., to convey information or knowledge from one person to another in as accurate a way as possible" (Bohm, 1996, p. 2). On the other hand, in the dialogue,

When one person says something, the other person does not in general respond with exactly the same meaning as that seen by the first person. Rather, the meanings are only *similar* and not identical. Thus, when the second person replies, the first person sees a *difference* between what he meant to say and what the other person understood (Bohm, 1996, p. 2, emphasis in original).

Therefore, Bohm believes that there is a difference between what is said by a person and what is understood by the other who listens. It is that difference that will make the dialogue go on. The first person who talks,

may then be able to see something new, which is relevant both to his own views and to those of the other person. And so it can go back and forth, with the continual emergency of a new content that is common to both participants (Bohm, 1996, p. 2).

Unlike every person trying to make his/her ideas common to the other person, in the dialogue, “the two people are making something *in common*, i.e., creating something new together” (Bohm, 1996, p. 2, emphasis in original).

In the mutual interview, each teacher made her initial perspective on dialogue explicit, but there was no intention to make this a true perspective, one that would predominate throughout the interview. “In a dialogue [...] nobody is trying to win” (Bohm, 1996, p. 7). Even trying to be as accurate as possible, it was necessary to return to the answers, ask again, and ask for more explanations and examples in order to understand the particular perspective. In this back and forth movements, common ideas to the two teachers began to emerge, i.e., “something that takes shape in their mutual discussions and actions” (Bohm, 1996, p. 3).

### **Raquel and Isolda in a Mutual *Inter-view***

The conventional interview is a meeting between two people where one of them, the interviewer, aims to obtain from the interviewee the necessary information on an issue (Lakatos & Marconi, 2010). In Raquel and Isolda’s conversation, on the other hand, the roles of interviewer and interviewee were not assigned to one or the other teacher. Both functions were assumed by the two of them who, more than obtaining information about what each one thought about dialogue, mutually exchanged and reflected on their perspectives. Kvale and Brinkmann (2009, p. 2) consider the interview as an interaction between two people, and literally, as “an inter view, an inter-change of views between two persons conversing about a theme of mutual interest.” The authors consider that in an interview the participants look at some subject together. The positions of interviewer and interviewee are assumed by different people, who see the object of an interview together. In the case of mutual interview, Raquel and Isolda looked and thought together about the ideas that were being clarified in the conversation. In order to illustrate that action of seeing and thinking together, we emphasize the moment when Raquel presented an idea, Isolda thought about it and then questioned Raquel who, in turn, thought again about the same idea or another aspect related to it. Therefore, there were common objects of reflection, which revolved around the concept of

dialogue, which was of mutual interest of the teachers.

Raquel and Isolda thought together about what they were talking about. It was possible to see that action occurred in two dimensions: interpersonal and intrapersonal. The interpersonal level refers to the act of thinking itself during the exchange of questions and answers. The intrapersonal dimension refers to each participant's action of thinking. As an example, let us consider Raquel's report. Initially, she did not imagine the ways that her thoughts would go, because it depended on the clarification of Isolda's perspectives and questions. Besides wanting to know what Isolda thought—the motivation to think together on the interpersonal level—Raquel wanted Isolda to know about her perspective. In order to make it clear to Isolda, Raquel needed to know what she herself thought about it, and in a clear way—the motivation to think together on the intrapersonal level.

In trying to answer one of Isolda's questions, Raquel was involved in an internal process of thinking critically by herself. While she talked to Isolda, she talked to herself, trying to clarify her certainties and uncertainties. Regarding what was uncertain, Raquel opted for the openness, because she knew that in doing so she would have a chance to talk about the issue to Isolda. Raquel changed moments of uncertainty into challenges, trusting that Isolda would perform an active listening. We highlight, therefore, the importance of thinking together on the mutual interview's interpersonal level, as it enables the creation of challenges on the intrapersonal level as listening to yourself, asking yourself, and respecting yourself.

The actions of seeing and thinking together, including the intrapersonal level, resulted in another important action of the mutual interview. Kvale and Brinkmann (2009, p. 2) consider the interview as “a construction site for knowledge”, which is “constructed *inter* the *views* of the interviewer and the interviewee.” *Inter* the *views* of Raquel and Isolda (i.e., in the interaction of the two teachers) a common knowledge was constructed. Such knowledge did not exist at the beginning of the conversation. There were two perspectives that began to be related as they were clarified and deepened. Some ideas were very close to both teachers, but others were unique to each one. Thus, some of Raquel's conceptions made sense to Isolda and vice versa. Each teacher has incorporated the other teacher's ideas in her speech. Therefore, the interaction made it possible to point to common aspects about dialogue, about learning, and about mathematics education.

The mutual interview between Raquel and Isolda about dialogue was characterized by the actions of seeing, thinking, and constructing common knowledge together. Other more specific actions were also present at the talk of the teachers. This is the case of dialogic acts of *getting in contact*, *locating*, *advocating*, *thinking aloud*, *reformulating*, and *challenging*. Both the specific and general characteristics of the mutual interview refer to the concept of dialogue by Alrø and Skovsmose (2004). Specifically, the action of creating common knowledge together is associated with the definition of dialogue by Bohm (1996). Considering that characterization, we believe that the mutual interview was, in fact, a *dialogue*. A special reason is that Raquel and Isolda were mutually interested in their perspectives, and did not try to impose their opinion on each other. That interest was expressed in terms of *active listening*. Raquel and Isolda carefully welcomed the questions and answers, and kept in touch by posing new questions.

Clearly the mutual interview between Raquel and Isolda cannot be characterized exactly in the same way as the dialogue by Alrø and Skovsmose (2004), since, for these authors, that concept aims at critical learning of mathematics. The teachers had not intended to learn mathematics, but to learn about dialogue with each other and construct together a new common knowledge. However, the way that Raquel and Isolda mutually posed and answered questions is similar to that concept of dialogue.

Based on theoretical concepts cited in this text and on my own experience with Isolda, we propose a definition of *mutual interview* as: a dialogue between people interested in a subject of mutual interest, who listen actively to each other and assume the roles of both the interviewer and the interviewee, and is characterized by general actions of seeing, thinking, and constructing common knowledge together, as well as by specific dialogic actions of getting in contact, locating and deepening, advocating, thinking aloud, reformulating, and challenging.

## Final Remarks

Being engaged in dialogue with the other, especially in the context of mathematics education, is, above all, an act of mutual respect and equity. The one who talks deserves to find someone who listens and

shows interest in what is said. That was the case of the mutual interview between Raquel and Isolda. The teachers were able to find out with more details about their perspectives: the other's perspective and their own. Considering the intrapersonal level of thinking together, the process of clarifying ideas was permeated by a sincere and deep self-reflection. This respect for oneself is essential to respect and help the other, the task of every teacher. Once Raquel and Isolda would work in partnership in a supervised teaching practice course, it would not be ethical to impose one's perspective about dialogue over the other. The mutual interview reinforced the respect and trust that the teachers had already felt for each other.

In this paper, based on the experience with Isolda, the concept of interview by Kvale and Brinkmann, and the concept of dialogue by Bohm and by Alrø and Skovsmose, we presented a definition of mutual interview. In contrast to the conventional idea of an interview as a professional meeting between interviewer and interviewee, in which the first obtains information from the second, the mutual interview is a dialogue that aims to know the perspectives of those involved and construct a common knowledge together. This construction process occurs in a dialogic interaction full of actions taking place with the other and which maintains the contact between the participants, particularly because of the active listening.

The mutual interview between Raquel and Isolda was already predestined to be a dialogue from its beginning. Although Raquel has realized this fact just during the interview, Isolda, in the first round, finished her answers by saying: "That is, to begin the conversation, the dialogue!"

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