# Thinking Together in the UK and Mexico: Transfer of an Educational Innovation

Rupert Wegerif SOUTHAMPTION UNIVERSITY, UNITED KINGDOM

Julieta Perez Linares
UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO, MEXICO

Sylvia Rojas-Drummond
UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO, MEXICO

Neil Mercer
OPEN UNIVERSITY, MILTON KEYNES, UNITED KINGDOM

Maricela Velez
UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO, MEXICO

#### **ABSTRACT**

The Thinking Together educational approach was first developed in the UK to promote the use of exploratory talk in primary classrooms. The approach was then adapted and applied to the very different context of Mexican state primary education. This paper compares the program in Mexico with the program in the UK and concludes that, despite that fact that the relationship between teacher's practice and the approach was much closer in the UK than Mexico, the program appeared to have very similar positive effects on individual reasoning and on the capacity of children to collaborate effectively in groups.

#### INTRODUCTION

Classroom interaction is embedded within particular cultural and linguistic contexts. Yet, increasingly, innovations in classroom interaction that have been developed in one country are being applied in other countries. The focus of this paper is on a transfer of the Thinking Together educational approach from its roots in the UK to the different context of Mexico. "Thinking Together" has strong roots in educational traditions in the UK that go back to the nineteen sixties. It involves promoting a type of talk considered to be effective for thinking and learning that was first described by Douglas Barnes in the nineteen seventies and called "exploratory talk" (Barnes, 1976: Mercer 1995). Group work and oracy have been a part of the UK primary curriculum since the influential

Plowden report of 1967. The Thinking Together program was first developed in the UK to promote the use of exploratory talk as an integral part of teaching and learning within primary classrooms. The Mexican educational context is very different. Historically there has been little interest in either group work or oracy. This is reflected both in the curriculum and in the physical layout of classrooms which all have desks in straight rows facing the front. To apply the Thinking Together program to the Mexican context was therefore something of a challenge. In this article we describe how the program needed to be adapted to fit the Mexican context. We also explore similarities and differences in the impact of the program. However, before we can compare and contrast implementations of this educational program we need to say a little more about it.

Principles of the Thinking Together Approach

Behind the Thinking Together approach lies the educational theory of the Russian psychologist Vygotsky, that an important way in which children learn to think individually is through first learning to reason with others in dialogues. Exploratory talk is educationally effective talk in which participants pool ideas, opinions and information, thinking together aloud to create meanings, knowledge and understanding. Achieving exploratory talk depends on the willingness of all participants to adhere to some basic rules, or "ground rules." In classroom situations, ground rules for talk can be created and agreed by the class. These ground rules are then applied by groups talking and solving problems together in different areas of the curriculum. Collaborative

learning supported by computers is one context for the use of exploratory talk within the curriculum. Each classroom develops its own set of ground rules but these are variations of the main ground rules suggested by the developers of the approach. These are that:

- All relevant information is shared openly.
- Each group member should be actively encouraged to contribute to the discussion.
- Everyone should listen to others attentively.
- Each suggestion should be carefully considered.
- Group members are asked to provide reasons for ideas and opinions.
- Constructive challenges to ideas are accepted and a response is expected.
- Alternatives are discussed before a decision is taken.
- The group works together with the purpose of reaching agreement.

The group, not the individual, takes responsibility for decisions made, for success achieved or for problems that may occur (Dawes, Mercer and Wegerif, 2000).

Working closely with primary teachers, the UK research team produced a series of "Talk Lessons" to teach these ground rules and to apply them within normal curriculum teaching and learning. The main focus is on developing children's use of language as a tool for reasoning and constructing knowledge. The Talk Lessons encourage teachers to create a "community of enquiry" in their classrooms in which children are guided in their use of language as a tool for both individual reasoning and collaborative problem-solving.

There have been several experimental implementations and evaluations of the Thinking Together approach in the UK. The first systematically evaluated and published study was part of the doctoral research of Dr. Rupert Wegerif who was supervised by Professor Neil Mercer and worked in collaboration with teacher/researcher, Lyn Dawes (Wegerif, 1996: Wegerif and Mercer 1997: Wegerif and Dawes, 1997). This work served as a pilot study for the larger UK government (ESRC) funded study called the Talk, Reasoning and Computers (TRAC) project which ran from 1996 to 1998. Since the end of that project there have been several more funded studies, RATTLS, 1998 to 2000 (funded by Milton Keynes Local Education Authority), Thinking Together in Maths and Science at Key Stage 2, 2000 to 2002 (funded by The Nuffield Foundation), Thinking Together at Key Stage 1, 2002 to 2004 (funded by Esmee Fairbairn) and Thinking Together at Key Stage 3, 2002 to 2004 (funded by Milton Keynes Local Education Authority). In addition to these evaluated projects the Thinking Together approach has been brought into classrooms through a book of classroom materials (Dawes, Mercer and Wegerif, 2000), numerous talks to educationalists and guidelines to teachers written for the government authority responsible for the UK curriculum (e.g. QCA, 2002). In 1995 the British Council agreed to support a research link between a research team in the UK and a research team in the psychology faculty of UNAM in Mexico City. As part of this link, Sylvia Rojas-Drummond and her team decided to adapt the Thinking Together approach in the UK and apply it in Mexico. To support this, a Thinking Together book of materials (Dawes, Mercer and Wegerif, 2000) was translated into Spanish and adapted to the cultural and educational context.

Key details of the two implementations are given below. These are taken from the TRAC study in the UK (Mercer, Wegerif and Dawes, 1999: Wegerif, Mercer and Dawes, 1999) the doctoral pilot study in the UK (Wegerif, 1996) and the study in Mexico (Rojas-Drummond, Perez, Velez Gomez and Mendoza, 2002).

Comparing the Implementation of Thinking Together in the UK and Mexico

**Design.** In both cases the study was designed as a field experiment. In the UK three experimental classes, each in a different school, were matched with a control class of the same age group in another local state school. There were pretests, an intervention lasting 12 weeks in total and then postests. The control classes had the same observations and tests as the experimental classes but no intervention program.

In Mexico the design was similar except that the intervention lasted five months (22 weeks) and both the experimental classes were in one school.

Participants. The TRAC study involved 180 children in total, aged 9 and 10 years old (year 5), in three state middle schools in and around the city of Milton Keynes. This is an area of high mobility. Of the original 90 in the experimental classes there were only 60 children remaining at the posttest. The three control classes had about 90 children and, in a similar way, this reduced to 64. For the purpose of the tests and many of the exercises in the intervention program the children were required to work together in mixed gender groups of three (plus one or two groups of two if numbers did not divide by three). These groups were organized by the class teacher so as to include a range of ability in each. There were in total 23 target groups and 25 control groups in the TRAC study. In each class one group was selected as representative of the class by the class teacher. This group was video-recorded.

In Mexico 84 children were involved in the study. These were from 10 to 12 years old (fifth and sixth grades), in two public primary schools in Mexico City. The schools were nearby and equivalent in socio-economic status (relatively low). As in the UK the classes were divided into mixed gender and mixed ability groups. In each condition three groups of three were selected as representative of the class and video-recorded.

**Intervention.** The TRAC intervention program is described fully in a book for teachers that was written out of the project, Dawes, Mercer and Wegerif (2000). In the project, nine lessons were delivered by teachers, each designed to last for about one hour and to focus on one or more of the ground rules of exploratory talk which were outlined earlier. The first few lessons deal with skills such as listening, sharing information and co-operating, while later lessons encourage children to make critical arguments for and against different cases.

The use of the ground rules was taught to the children through explicit modeling by the teacher, coaching their use in whole group and small group discussions and giving opportunities for their use by the children working in small groups without the teacher. The explicit modeling phase involved the teacher at the front of the class illustrating the ways in which she (the teachers in the UK were all women) wanted the children to talk together. Asking "why?", using "because" to give reasons for statements, asking other children what they think, reaching agreement before making a final decision. A key lesson in the program involved eliciting the ground rules for the children in their own words. This was the third lesson after the children had all had some practice in collaborative activities. In a guided discussion the teacher drew from the class the kind of rules that they think should be used in group work. The list that resulted was then put on the wall in large letters. Although each of the three classes studied produced a different set of ground rules they were all similar to the ground rules for exploratory talk. A key principle of the program was for the teachers to use these ground rules as much as possible in all their teaching with the class.

In Mexico the core program was developed through adapting the published Thinking Together lessons described above. The Mexican program also included extra materials, games, texts, objects to carry out experiments, activity cards, answer sheets and some software. This program was delivered in one lesson a week over a period of five months. On the whole the lessons were delivered by members of the research team working with the class teachers.

Whereas in the UK all the lessons were delivered by normal class teachers in their normal classes, in Mexico the setting was different. In the experimental school a special room was adapted to suit the needs of the intervention program. The room was fitted with modular furniture and equipment, including computers.

#### Differences in Implementation

Oracy has had a place in the UK curriculum since the Plowden Report (1967). "Speaking and Listening" is a part of the "English" strand in the national curriculum. There is no such equivalent in the Mexican curriculum.

In UK primary schools group work is common. How to teach with small group work is part of normal initial teacher

training and in-service training. This is not the case in Mexico. In Mexico teachers found the methods used difficult to integrate with their normal teaching.

Despite the fact that some group work is advocated in the Mexican national curriculum, talk between pupils in Mexican classrooms is still largely seen by teachers as a sign of insufficient discipline. According to research most teachers in Mexican state primary schools have a mainly transmissional view of teaching and learning (Rojas-Drummond & Alatorre, 1994; Peon; Rojas Drummond, in press; Mercado del Collado, 1996). The Thinking Together intervention program is based on a social constructivist view of teaching and learning that is widely held by UK teachers and was certainly shared by the teachers involved with the project.

The research team in the UK was based in a School of Education. The university researchers either had experience as school teachers themselves or considerable experience of working closely with school teachers as teacher trainers. These researchers therefore found it easy to establish a close working relationships with the teachers on the team who were referred to as "teacher-researchers." This model of research-partnership is described in Mercer (1995, chapter 6). In Mexico the research team was based in a psychology faculty and the team were mainly research students. Some of the team had experience as school teachers but most did not. Nonetheless a research-partnership was established with at least two teachers who appreciated the goals and methods of the project.

The classrooms in Mexico were physically laid out with desks in rows, making it difficult to support group-work. The research team found it necessary to equip and run a separate classroom within the school area. This classroom had tables and many resources for group work. However, the physical separation of the space in which the project was run symbolized the separation of the project from the normal teaching and learning in the school.

Comparing Results of the Thinking Together Program in the UK and in Mexico

Quantitative Test Results. We have included the results of another recent study which used exactly the same tests as the Mexican study. This study was with 107 children, aged 9 and 10, in the UK. The Thinking Together approach was used over an entire school year.

Raven's non-verbal reasoning tests were used in two forms, the Standard Progressive Matrices and the Coloured Progressive Matrices (Raven 1998a, 1998). These "non-verbal" tests are designed to be culture neutral and are scored completely mechanically. Extensive details of cross-cultural studies are given in the Raven manual (Raven, Raven and Court 1998a) emphasizing the lack of any linguistic influence on the delivery of the test or the scoring of the test. This was one of the

reasons for choosing this test. Another reason is that it correlates highly with "academic achievement" and with "g" (Richardson, 1991). Look-up tables provided in the Raven manuals (Raven, Raven and Court, 1998b, 1998c) allowed us to convert CPM to SPM scores. SPM scores could be divided in half to bring them to equivalence with the tests scores in the Mexican study. These studies also ran over different time periods. This means that the effect of normal increase in individual score over time needs to be taken into account. This can be done using tables for age-related norms in the UK and USA provided by the Raven manual. This shows an average 4 SPM point increase between age 9.5 and 10.5 and an average 2 point increase between age 11 and 12. Tables 1 and 2 take these factors into account in comparing all the scores.

Overall the quantitative results of the Mexican study are similar to those of the UK studies and suggest that, when natural increase with age is discounted, the Thinking Together approach reliably leads to gains on reasoning tests of between 5% and 10% for individuals and between 10% to 15% for groups. This effect currently appears to be independent of the length of the intervention. This is perhaps not surprising as the initial ten lessons and ground rules taught have been the same for all the intervention studies regardless of the total length of time of the project.

TABLE 1

Mean Scores of the Experimental Triads in the UK pilot and the Mexican Study\*

	Pre-test	Post-test	Gain		
UKTRAC	20.72	22.43	1.71		
<b>UK Pilot</b>	17.81	22.39	4.58		
<b>UK Nuffield</b>	20.08	22.62	2.42		
Mexico	20.64	23.87	3.23		

<sup>\*</sup>adjusted for normal increase over time

Mean Scores of the Experimental Individuals in the UK Pilot and the Mexican Study\*

**TABLE 2** 

	Pre-test	Post-test	Gain		
UK TRAC	19.00	21.19	2.19		
UK Pilot	16.95	17.94	0.99		
UK Nuffield	16.26	17.90	1.52		
Mexico	18.12	19.02	0.90		

<sup>\*</sup>adjusted for normal increase over time

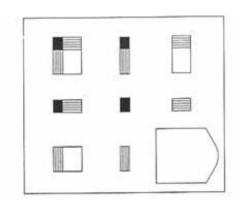
**Discourse Analysis.** In each country some triads were selected as representative of the class and video-recorded talking together around the tests. However, quite different methods were used to analyze changes in the talk of those groups. In order to compare the two sets of findings we have applied the Mexican method of analysis to some of the UK data and the UK method of analysis to the Mexican data.

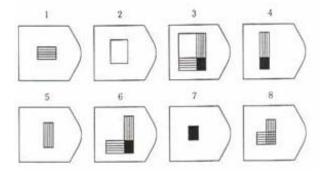
An Illustration of the UK Method of Discourse Analysis Applied to the Mexican Data

The discourse analysis in the UK always began with an episode of talk, usually an episode in the post-test compared to one in the pre-test. To illustrate taking a similar approach to the Mexican data we will explore two episodes: pre-test talk around one problem in section E which the triad failed to solve, followed by the same triad's post-test talk around a very similar problem which they managed to get right. In the UK, study groups did the same test before the intervention and again afterwards. In the Mexican study the groups did one half of the divided SPM Raven test in the pre-test and the other, equally difficult half, in the post-test. This design meant that they did not encounter exactly the same problem

# FIGURE 1

### Raven's Problem E4

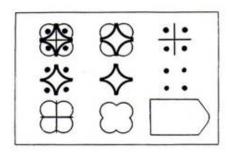


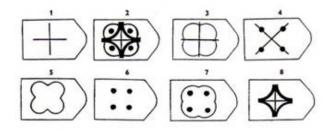


in the post-test as in the pre-test but the underlying logic of question next to each other in the test was the same. This similarity can be seen by looking at the illustrations of questions in Figure 1 for Matrix E4 and Figure 2 for Matrix E5.

#### FIGURE 2

#### Raven's Problem E5





Commentary. In the pre-test we see Luis assumes a certain leadership in telling Georgina that it is her turn to think now. He is implying that she has been taking a back seat. Georgina responds with an expletive but she does as she has been told and gives a suggestion as to the answer. There is no explicit reasoning here. Georgina points at the solution on the page. Maurice points at an alternative. Without discussion or reasoning they agree on Georgina's suggestion. Luis comments that they are thinking well. This comment suggests that he is assuming the role of group leader.

The questions in section E of the Raven SPM are the hardest in the test and cannot be solved so easily. The answer agreed by the group is in fact the wrong one in this case.

In the post-intervention talk around a very similar problem, question E5, we see a change in roles. Georgina spontaneously takes the lead with explicit reasoning about the problem. She acts as a kind of tutor to the others throughout, pointing them to the features of the problem that they need to focus on. Together they work out the solution. This time they get the answer right.

Our interpretation of the difference between these two episodes is informed by our knowledge of both the video tapes and our reading of the full transcriptions of the preand post-intervention talk of this group. Applying the UK method we sought features in this episode that could be used as a basis for a comparison of all the pre- and post-test talk of this group and perhaps be generalizable to the other groups in the Mexican study.

At first sight the features in the language that make the post-test talk more successful are similar to those that were found to be important in the UK (see Wegerif and Mercer, 2000), such as the use of long utterances made up of chains of clauses in order to provide evidence and reasons. We also see the use of "porque" with explicit reasons. However, when we looked further we found Spanish terms being used for problem-solving whose English equivalents were seldom used by the children in the UK. We found that "entonces" was used in the post-intervention talk by all the groups in Mexico. The English translation "therefore" or "thus" was not used at all in the UK. The word "so" was used infrequently to carry the same meaning but not often enough to be used as a key indicator of exploratory talk. The term "pero" was also used more in Mexico than its English translation, "but," was used in the UK.

In the analysis of the UK data of children talking around Raven's test the measure was set at utterances which when transcribed produced 100 or more characters of ascii text. When we tried to apply this measure there were too few instances to make it a useful way of discriminating between speakers. Instead we decided upon the measure of 70 characters or more.

The method applied in the UK is flexible. It can follow up any hypothesis suggested by an interpretation of episodes. In this case it seems that the only girl in the group is being contained by the two boys in the pre-intervention and her role switches to become more dominant in the post-test. Computer analysis of the text can be used to test this hypothesis. Breaking down key features in terms of who was speaking reveals some evidence for the hypothesis of a changing role. Although the number of times Georgina speaks

#### **TABLE 3**

#### Pre-test: Matrix E4

#### Luis, Georgina and Maurice on Raven's problem E4

	Spanish	English				
Luis	Ahora tú piénsale, Georgina	Now you think, Georgina				
Georgina	Tú estupida	You stupid				
Luis	(ríe)	(laughs)				
Georgina	A ver // ¿el tres?	Let's see, number three				
Luis	El tres	Number three				
Georgina	¿El tres?	Three?				

remains proportionately fewer than her two male partners in the post test, she has more long utterances. These long utterances contain explicit reasoning about how to solve the problem. Looking at the context of these long utterances reveals that she was indeed taking a lead in the post-test in suggesting and justifying solutions adopted by the group.

The change in Georgina's role was associated with a marked shift toward more explicit exploratory talk in the group as a whole and also towards greater success in solving the problems. The score of this group increased from 21 in the pre-test to 27 in the post-test.

Focusing in on each of the six questions that this group got right in the post-test, having failed to solve very similar problems in the pre-test, revealed that Georgina's change in role was significant to the greater success with the problems.

**TABLE 4** 

Post-test: Matrix E5

Luis, Georgina and Maurice on Raven's problem E5

	Spanish	English
Georgina	Aquí le quitan los puntitos y la esta // la cruz. (señalando el primer renglón)	Here they take out the little dots and this // this cross (pointing to the first row).
Maurice	No pero pérate, no, no queda.	No, but wait, no, no, doesn't fit.
Luis	No. Aguanta.	No. Hold on.
Maurice	No.	No.
Georgina	Vamos viendo la secuencia: aquí tiene así, quitan la equis y los puntitos (señalando de nuevo el primer renglón). Aquí ya no, aquí (señalando).	Let's look at the sequence: here it is like this, they take out the 'x' and the little dots (pointing again to the first row). Here there are no more, here (pointing).
Luis	Aquí le quitan sólo los circulitos.	Here they take out only the little circles.
Georgina	Ajá, los circulitos // y esa parte, como la estrellita, nada más (señalando la primera columna).	Yeah, the little circles // and this part, like the little star, nothing else (pointing to the first column).
Maurice	Sería este, míralo (señalando).	It would be this, look at it (pointing).
Luis	Lo que le quitaron.	What they took out from it.
Maurice	Sería este, porque mira va así, así (señalando la opción 1).	It would be this, because look, it goes like that, like that (pointing to option number 1).
Georgina	¿Pero cómo?, si no tienen puntitos.	But how?, if they don't have little dots.
Luis	No tiene puntitos. Quedaría nada más la cruz.	It doesn't have little dots. There would remain nothing else but the cross.
Georgina	Ajá // sí, por lo que le quitaron.	Yeah // yes, because of what

**TABLE 5** 

Analysis of Indicators of Exploratory Talk for Group 1

	Pre-Test				Post-Test					
	long his	Chion The	Ses Ses	o x	// <sub>0</sub> ×	long 7	Enton	oces of	SOFOI S	/6 ×
Georgina	81	2	0	0	4	99	8	3	2	7
Luis	103	2	0	0	3	124	5	1	3	5
Maurice	87	1	0	1	4	120	3	0	1	7
Totals	271	5	0	1	11	343	16	4	6	19

In four of the six problems it was her explanations (using long utterances and reasoning terms such as "entonces") that led the group to solve the problem.

Each group of children can, to some extent, establish their own culture in which particular words may be used more than others. Nonetheless, we applied the key indicators that we had found for the first Mexican group, GLM, to the other two groups to see if they held.

Group 2, like Group 1, had two boys and a girl. Here there was little clear evidence of any increase in the indicators of exploratory talk and yet their joint score on the test increased by four points out of thirty. However, as with Group 1, the indicators suggest that the one girl in the group, Azucena, shifted her role to take more of a lead in the problem solving. When we applied the UK method to focus on the four questions that they failed to solve in the pre-test when they solved similar questions in the post-test, this shift in role was confirmed. In the pre-test there was more disputational talk when trying to solve these four problems. At times answers were disputed by Azucena but written in by the boy who had the pencil and the answer sheet. As with the first group this disputational style did not favour the girl. In the post-test there was less dispute and more reasoning contributions from the only girl (Azucena) in the group. Although the quantitative evidence was not strong, the qualitative analysis therefore did suggest that a shift in the style of talk, connected to a shift in the role of Azucena, lay behind the increase in the test score.

The third group was made up of three girls. One girl, Teresa, did most of the talking in the pre- and in the post-test. She already used reasoning words and indicators in the pre-test and the number of these indicators increased in the post-test. The score did not increase much partly because it was already high in the pre-test.

The Thinking Together program is intended to encourage more able and articulate children to tutor the others. A key ground rule is to ask other members of the group, "What do you think?" In this way a leadership role in the group can

they took out from it.

become the role of creating space for others to talk – a sort of group facilitator role. In most, but not all, of the UK groups the question "What do you think?" coached in the program is found in the talk of the children. This was not the case in the Mexican data (we searched all groups for questions with "piensas" or "opinas" and found nothing at all). Certainly the program in Mexico did not manage to convert Teresa's dominance into help for others in her group.

## Applying the Mexican Approach to the UK data

In Mexico a coding analysis was applied to the talk used around each problem. The coding was based on types of talk analysis (Mercer, 1995: Wegerif and Mercer, 1997a). The three main types of talk are Cumulative (sharing but uncritical talk); Disputational (unconstructive conflict); and Exploratory talk (described above). When analyzing the data, the Mexican team saw the need to make a further distinction between what they call Incipient Exploratory and Elaborated Exploratory

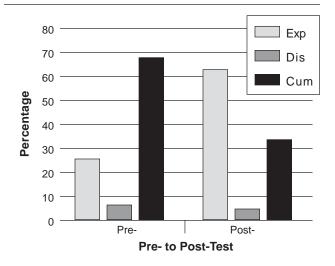
atory talk. The first category is for exploratory talk that is "not very consistent nor very prominent" in the way children talk, whereas the latter indicates Exploratory talk that is "more consolidated and sophisticated" (Rojas et al, 2001).

Analysis using this method showed an increase in Exploratory talk and a decrease in Cummulative talk. This method was useful because it was used to demonstrate a "Zone of Proximal Development" in the talk. The shift to exploratory talk mainly occurred in those problems that were neither too easy not to need it nor too difficult for it to make any difference (Fernandez, Wegerif, Mercer and Rojas-Drummond, 2002).

We applied the same approach to analyze a sample of the UK data. We chose two groups from the UK pilot study because the tests used in the pilot were very similar to those used in Mexico.

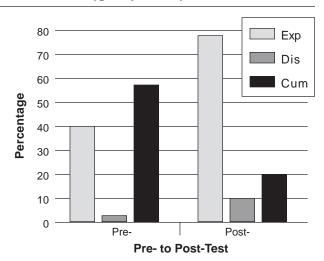
This graph, shown in Figure 3, is very similar to that produced from the Mexican study in Figure 4 (Rojas et al 2001). It shows a large percentage shift from cumulative talk in the pre-test to exploratory talk in the post test.

# Results of UK Pilot: Percentage Change in Types of Talk by Problem



#### FIGURE 4

# Results of Mexican Study: Percentage Change in Types of Talk by Problem



#### DISCUSSION

The Raven's test score results of the projects in Mexico and the UK look similar. There were also similarities in the use of some key words such as "porque" in Spanish and "because" in English. However, some of the language used was different. "Entonces" (therefore), which is a common word in Mexican Spanish was used by the children in the post-test in Mexico as a tool to help them solve the problems. No equivalent was found being used in the UK data. Whereas "because" works back from a conclusion to refer to the evidence for it, 'therefore' does the opposite, working from evidence to a conclusion. However, it was not apparent from the transcripts that these different word choices implied different strategies for solving the problems.

The qualitative analysis of data in the Mexican study suggested that gender was an issue. In the two boy and one

girls groups, the program appeared to encourage a shift in the role of the one girl in the group from being a little subordinated towards taking on a more leading role in the joint problem solving. Both cumulative and disputational talk focuses on social identities more than on the task or on the shared reasoning. Gender identity is therefore very important in these types of talk. In Mexico, perhaps more than the UK, gender identity suggests that boys are more likely to see themselves in a leadership role than girls. Exploratory talk focuses away from identity onto the quality of shared reasoning (Wegerif and Mercer 1997a). Our hypothesis is that the ground rules designed to support a shift in focus from identities to shared reasoning made it easier for girls to speak and for boys to listen to them and to follow their lead.

#### SUMMARY AND CONCLUSION

Several interesting new findings emerged in the Mexican study. One of these was the significance of gender and the possibility that the Thinking Together approach is particularly empowering for girls in Mexico. This finding is already stimulating more research on gender and exploratory talk in the UK. More research on this topic is also needed in Mexico.

One major source of the differences in the implementations was the difference in the educational systems. Another important factor connected with this was the difference in the culture of primary teachers. These differences may make it difficult to sustain the innovation after the initial funding runs out in Mexico, although, as always with questions of sustainability, much depends on the political climate. One strategy that the Mexican research team have adopted is to

make sure that those responsible for setting the curriculum are aware of their findings and to argue from this evidence for the need for changes in the curriculum.

Several of the key differences between the two implementations indicate a program that has roots in the history and culture of education in one country, the United Kingdom, being transplanted to a very different environment where it does not have the same natural supports within the culture. In the light of the differences in the implementation of the program it is perhaps surprising, and certainly interesting, that the results of the project in Mexico closely mirror those in the UK. This suggests that innovative approaches to improving the quality of classroom interaction can cross cultural divides.

## Address correspondence concerning this article to:

Rupert Wegerif
School of Education
University of Southampton
Highfield, Southampton
SO17 1BJ
United Kingdom
r.b.wegerif@soton.ac.uk

#### **REFERENCES**

- Barnes, D. & Todd, F. (1978) *Discussion and Learning in Small Groups*. London: Routledge & Kegan Paul.
- Barnes, D., From Communication to Curriculum. Penguin, Harmondworth (1976)
- Dawes, L., Mercer, N., & Wegerif, R. (2000). Thinking together: A programme of activities for developing thinking skills at KS2. United Kingdom: Questions.
- Edwards, D, and Mercer, N. (1987) Common Knowledge: The development of understanding in the classroom. London: Methuen/Routledge.
- Fernandez, M., Wegerif, R., Mercer, N., Rojas-Drummond, S. (Fall 2001-Spring 2002). *Journal of Clasroom Interaction*. 2, 40-54
- Mercado del Collado, R. El habla en el aula como vehiculo del proceso de ensenanza-aprendizaje en una escuela primaria en Mexico. Madrid, 1996: Tesis Doctoral en Psicologia Evolutiva y de la Educacion.
- Mercer, N. (1995). The Guided Construction of Knowledge: talk amongst teachers and learners. Clevedon: Multilingual Matters.
- Mercer, N. (1996b). Socio-cultural perspectives and the study of classroom discourse. In C. Coll & D. Edwards (Eds.) Teaching, Learning and Classroom Discourse. Madrid: Infancia and Aprendizaje.
- Mercer, N. and Fisher, E. (1993) How do teachers help children to learn? An analysis of teachers' interventions in computer-based activities. *Learning and Instruction Vol.* 2, pp. 339-355.
- Mercer, N., Wegerif, R., y Dawes, L. (1999). *Children's talk and the development of reasoning in the classroom.*
- Peón, M., & Rojas-Drummond, S. (in press). Promoción de habilidades argumentativas en niños de primaria. In R. Barriga (Ed.), *Mitos y realidades de la escuela primaria*. El Colegio de México. México.
- Plowden Report (1967) *Children and their primary schools*. Vol 1. Report. London: HMSO.
- Raven, J., J. C. Raven, and J. Court. (1998a) *Manual for Raven's Progressive Matrices and Vocabulary Scales. Section 1: General Overview*. Oxford: Oxford Psychologists Press.
- Raven, J., J. C. Raven, and J. Court. (1998b) *Manual for Raven's Progressive Matrices and Vocabulary Scales. Section 2: Coloured Progressive Matrices*. Oxford: Oxford Psychologists Press.
- Raven, J., J. C. Raven, and J. Court. (1998c) *Manual for Raven's Progressive Matrices and Vocabulary Scales. Section 3: Standard Progressive Matrices*. Oxford: Oxford Psychologists Press.
- Raven, J. (1998a) *Coloured Progressive Matrices*. Oxford: Oxford Psychologists Press.

- Raven, J. (1998b) *Standard Progressive Matrices*. Oxford: Oxford Psychologists Press.
- Richardson, K. (1991) Reasoning with Raven in and out of context. *British Journal of Educational Psychology 61* (2):129-138.
- Rojas-Drummond, S, Peon, M., Martinez, M (2001) *Talking* for reasoning among Mexican primary school children.

  Paper given at the 9<sup>th</sup> European Conference of Research on Learning and Instruction, Fribourg. Switzerland.
- Rojas-Drummond, S., & Alatorre, J. (1994). The development of independent problem solving in pre-school children. In N. Mercer, & C. Coll (Eds.), *Explorations in Socio-cultural Studies*, *Vol. 3: Teaching, Learning and Interaction*, Madrid: Infancia y Aprendizaje. 161-175.
- Rojas-Drummond, S., Fernández, M., & Vélez, M. (2000). Habla exploratoria, razonamiento conjunto y solución de problemas en niños de primaria. In *La Psicología Social en México*, Vol. VIII, México: Asociación Mexicana de Psicología Social, 403-410.
- Wegerif, R. & Mercer, N. (2000). Language for Thinking: A Study of Children Solving Reasoning Test Problems Together. In H. Cowie, & G. Aalsvort (Eds.), Social Interaction and learning and instruction: The meaning of discourse for the construction of knowledge. United Kingdom: Earli and Pergamon, 179-192.
- Wegerif, R. (1996). Using computers to help coach exploratory talk across the curriculum. In M. Kibby & J. Hartley (Eds.), *Computer Assisted Learning: Selected Contributions from the CAL 95 Symposium*. Oxford: Pergamon.
- Wegerif, R. and Dawes, L. (1997). Computers and Exploratory Talk: An Intervention Study. In Wegerif, R. and Scrimshaw, P. (Eds.), *Computers and Talk in the Primary Classroom*. pp. 226-239. Clevedon: Multilingual Matters
- Wegerif, R., & Mercer, N. (1997a). A dialogical framework for researching peer talk. In R. Wegerif & P. Scrimshaw (Eds.), *Computers and Talk in the Primary Classroom*. Clevedon: Multi-lingual Matters.
- Wegerif, R., & Mercer, N. (2000). Language for thinking: In H. Cowie & G.van der Aalsvort (Eds), *Social Interaction in Learning and Instruction* (pp. 179-192). Oxford: Pergamon.
- Wegerif, R., and N. Mercer. (1997b). Using computer-based text analysis to integrate quantitative and qualitative methods in the investigation of collaborative learning. Language and Education, Vol. 11. 4
- Wegerif, R., Mercer, N., & Dawes, L. (1999). From social interaction to individual reasoning: An empirical investigation of a possible socio-cultural model of cognitive development. *Learning and Instruction*, 9, 6, 493-516.