

Influence of a catalan peer tutoring programme on reading comprehension and self-concept as a reader

Marta Flores and David Duran

Psychology, UAB, Bellaterra, Catalunya, Spain

This study relates to the results obtained in the development of reading comprehension (RC) and self-concept as a reader in students who participated in *Llegim en parella* (*Reading in pairs*), a Catalan peer tutoring programme. The research combines a quasi-experimental design with the use of comparison groups and pre-tests/post-tests for both variables; a qualitative approach is adopted by analysing the interactions in order to detect influencing factors. Statistically significant results were obtained for all students in terms of RC but only for student tutors in relation to reading self-concept. The factors involved in the improvements identified in RC are: reading strategies, scaffolding in inferential and deep comprehension questions. Regarding self-concept, the tutor's own role, his involvement with their tutees' progress, reading aloud and the metacognitive reflection processes, are all factors that enable us to explain the improvement in the tutor's reading self-perception. The positive influence of peer tutoring on the development of reading competence through this programme is clearly evident.

Peer tutoring

Peer tutoring is a cooperative learning method based on the formation of student pair groups involving a tutor and a tutee with an asymmetric relationship. The pair has a common and shared goal that has to be achieved within an interactive framework previously planned by the teacher (Duran & Vidal, 2004). Peer interaction, conveniently structured by the teachers, is an important learning driving force. The provision of adapted and personalised educational aids in order to enable both partners' to progress is a good source of learning.

Depending on the participants' age, we can distinguish between *Cross Age Tutoring* and *Same Age Tutoring* (Topping, 1998). In terms of role continuity, Fantuzzo, King and Heller (1992) distinguish between fixed tutoring (tutor and tutee do not change roles) and reciprocal tutoring (in which role alternation is promoted). The benefits of peer tutoring are evident and widely recognised. On the one hand, tutors' own learning process is aided by the specific task of teaching other students (Cortese, 2005; Roscoe & Chi, 2007; Duran, 2014). On the other hand, tutees profit from the adapted and personalised aids that tutors offer them (Robinson, Schofield & Steers-Wentzell, 2005).

Reading competence

Reading can be understood as an interactive process between the reader and the text (Solé, 2001). The reader, an active subject who has some previous knowledge, specific abilities and motivation for reading, faces a text that in turn contains a specific intent, structure and level of difficulty. This generates a series of expectations that allow him to construct the meaning of the text (Aarnoutse & Schellings, 2003).

Reading competence is a key skill developed throughout our lifetime and which provides us with vital tools for the development of our thinking and allow us to become self-sufficient in the literate culture in which we are immersed. According to PISA (OECD, 2009), reading competence is defined as the ability to understand and use written texts in order to achieve our own objectives and to develop knowledge and the potential to participate in society by means of reflection and involvement as a reader.

Thus, it is important to foster the development of autonomous readers, able to handle any type of text. Formal and explicit teaching of reading strategies in the classroom, including monitoring understanding, cooperative learning and the formulation of questions with prompt answers, is therefore essential (Jiménez & O'Shanahan, 2008; Law, 2011).

Reading self-concept

Self-concept as a reader is relevant for the development of reading competence, as we know that both self-concept and academic motivation generate positive attitudes towards school work and participation (Green et al., 2012). Additionally, reading self-concept (RSC) is linked to academic achievement (Dabbagh, 2011). From the enriched reciprocal effect model point of view (Fantuzzo, Tighe & Childs, 2000), we can confirm the mutual influence between academic self-concept and achievement, enhanced by other psychosocial and familiar variables.

Metacognition plays an essential role in forming competent readers (Baker, 2008). Involving students in their own understanding process contributes to their improvement (Susar Kirmizi, 2010). Involving students through metacognitive reflection processes and awareness of what these processes entail allows for self-concept modifiability (Esnaola, Goñi & Madariaga, 2008) towards reading and can result in reconfiguration and modification of their RSC (Esnaola, Goñi & Madariaga, 2008).

Peer tutoring and reading

Several reviews and meta-analyses highlight the effectiveness of peer learning at enhancing reading performance and other non-academic traits such as self-esteem at various stages of education (Ginsburg-Block, Rohrbeck & Fantuzzo, 2006; McMaster, Fuchs & Fuchs, 2006). Moreover, recent research studies highlight the impact of peer tutoring on the development of key aspects of reading competence: comprehension, speed, precision, fluency and self-esteem (Miller, Topping & Thurston, 2010; Oddo, Barnett, Hawkins & Musti-Rao, 2010; Topping, Miller, Thurston, McGavock & Conlin, 2011). Other research also emphasises the importance of teaching reading comprehension (RC) strategies explicitly (via activation of previous knowledge, predictions, verification of hypotheses, identification of main ideas, monitoring and regulating RC, and identifying text types and genres),

and involving students in RC through interaction (Van Keer, 2004; Van Keer & Verhaeghe, 2005).

In terms of reading, positive results obtained in relation to the development of some key aspects—such as comprehension, fluency, motivation and attitudes towards reading—are evidenced in various specific programmes based on peer tutoring: *Read On* (Topping & Hogan, 1999); *Scotland Reads* (Topping, 2006); *America Reads Challenge* (Wasik, 1997); *Reading Together* (Hattie, 2006); *The Peer Tutoring Literacy Program* (Chipman & Roy, 2006) or *Buddy Reading* (Shegar, 2009).

Llegim en parella (Reading in pairs)

Llegim en parella is a Catalan educational programme aimed at improving reading competence through peer tutoring. In order to achieve this goal, we work with learning tasks that structure pair interaction during work sessions. The project lasts 12 weeks, structured in two weekly 30-min sessions, which are in turn divided in three parts. Firstly, a joint reading of the text (Topping, 1998) and supervised repeated reading (Oakley, 2003; Therrien, Wickstrom & Jones, 2006); secondly, a comprehension verification stage through reading strategies of anticipation, regulation and control; and thirdly, at the end of the reading, application of strategies through literal, inferential and deep comprehension of the text (Solé, 2001). For reading, the reading aloud technique used is the *PPP—Pause, Prompt and Praise* (Wheldall & Colmar, 1990), which yields positive results in terms of reading skills improvement (Burns, 2006). Every four sessions, a self-assessment task has to be completed by all students in order to prompt them to reflect on their own learning process and the progress made, as well as on the role development and the activities that are going to be carried out (Duran et al. 2011).

Method

Objectives

The research objectives are to explore the changes that are produced in RC and in RSC through participation in the *Reading in pairs* programme and to find out which factors explain these changes. For this reason, hypotheses about students' improvements in both constructs and in all tutoring situations (tutoring type and students' role) are suggested.

In order to enrich the quantitative data resulting from the tests, the following research questions were formulated:

- What in the pair's interaction can be identified as key to effecting changes in RC and at what precise moments?
- What in the pair's interaction can be identified as key to effecting changes in RSC and at what precise moments?

Compared with previous studies, this research stands out for using a sample with a high number of participants, and with sufficiently long sessions to enable us to observe changes to the variable under study (particularly in RSC, as a dimension of self-esteem). Furthermore, pair interaction was analysed over a large number of sessions, and a specific instrument to measure RSC was utilised.

Participants

The participants were 577 students (aged between 9 and 12 years) and 20 teachers from 10 primary schools in Catalonia (Spain). The groups in the sample were mixed in terms of gender, as per the usual distribution in Catalonian schools (48.63% girls), and they were also equally distributed in terms of age. In this way, we were able to control the gender and age variables, which were not study objectives in this research. The schools were representative of the context, both in terms of their ownership type (public/subsidised teaching centres) and the area where they were situated (urban/rural). They were also within the average range in terms of results in the diagnostic tests carried out by the Department of Education in Catalonia. All the required ethical procedures were followed in order to obtain all relevant consents to undertake the research.

The sample of students was divided into an intervention group (IG), consisting of 441 students, all of whom took part in the *Reading in pairs* programme between 2009 and 2011; and a comparison group with 136 students. Both groups included students from each of the schools, and it was the latter, and not the researchers, who decided which class groups would take part in the programme and which would not, based on their own internal organisational reasons.

The comparison group was made up of students of the same gender and age as the IG. In the comparison group (CG), peer tutoring was not implemented during the intervention period; however, they worked on their RC using the same Activity Sheets as those students in the IG.

In the IG, the teachers from each centre chose their preferred peer type for the programme, so there were 345 students who took part in fixed tutoring and 96 in reciprocal tutoring.

Instruments

- Reading comprehension evaluation questionnaires in Catalan (pre-test and post-test): *ACL 3r-6è*. (Català, Comes & Renom, 2004). The questionnaires were made up of between seven and ten texts of between 24 and 36 items, with a Kuder–Richardson reliability of 0.83.
- *QALect* Questionnaire about RSC (pre-test and post-test). This questionnaire was compiled using previous research on reading self-image (Flores & Duran, 2013). It was made up of 12 items with the same structure: a wording and a *Likert* type answering scale (five categories). The exception was the second item, which was evaluated descriptively and was made up of a wording and a list of multiple answers (all of which were valid). The theoretical structure was based on two dimensions: affective factors that were linked to reading (emotional and motivational); and factors related to knowledge and metacognitive regulation strategies, which made up every process of reading. Once the questionnaire was prepared, we proceeded to perform content and construct validation and to determine its reliability. For the content validation, an expert judgement was performed. Five judges, all of whom were educational psychologists and reading experts, were provided with the questionnaire's theoretical foundation and assessment criteria, which included a number of different dimensions: structure, theoretical foundation, statements and number of items, levels of difficulty and composition. The

expert judgement resulted in 95% agreement between judges according to the Kappa index (Cohen, 1960). The final version of the questionnaire incorporated the judges' suggestions for improvement. For the construct validation, an exploratory factor analysis with a sample of 95 students was carried out. The structure with two factors was a good characterisation of the way in which these items were grouped (Bartlett's test $X^2 = 203.09$; $p < 0.01$). Thus, it was possible to confirm that the results of the factor analysis did indeed validate the questionnaire as a construct. Finally, we calculated the reliability index for each factor; the α indicators from Cronbach ≥ 0.70 showed that there was good internal consistency regarding the questionnaire factors. Some QALect items were: *Do I enjoy reading? Do I understand a piece of news when I read it? When I finish reading a text, can I explain its main idea? Do I feel pleased when I read?*

- Audiovisual record: analysis of the interaction from a subsample of 20 randomly chosen pairs over three sessions (at the beginning of the programme, in the middle and towards the end), representing 12.5% of the total number of sessions in which each pair took part. In total, 60 work sessions were analysed.
- Focus groups: these took place at the end of the experience with all the students who participated in the audiovisual record and all the teaching staff. Four focus groups took place, with 10 students in each (five tutors and five tutees). The chosen dimensions were aimed at assessing the use of peer tutoring in the development of reading competence (evidence of improvement in both tutors and tutees, identification of gaps, scaffolding, learning opportunities and metacognitive reflection).

Procedure

A multiple-methodology design was adopted, as recommended in this field of study (Johnson & Onwuegbuzie, 2004), in order to be able to identify quantitatively any changes—if at all—and explain them qualitatively. The quantitative approximation, with a quasi-experimental design based on a pre-test/post-test type with non-equivalent comparison groups, enabled us to identify the changes that took place in each of the parameters under scrutiny: RC and RSC. Qualitative approximation, through the analysis of a pair's subsample process, helped us to recognise the moments of collaboration and processes responsible for the changes detected.

The quantitative data was analysed using SPSS Statistics 17, and linear mixed models for repeated measures were used to examine differences between groups (group \times time interaction) and roles, over time (role \times time interaction). Models were adjusted by age. Post-hoc comparisons were performed (p -values were corrected using Bonferroni's correction).

The analysis was based on a category system we developed taking into account the two parameters that are to be analysed in this research; the interactivity analysis proposals by Colomina, Onrubia & Rochera (2005), and the cognitive and metacognitive strategies, which foster reading competence within the framework of peer tutoring by De Backer, Van Keer & Valcke (2012). The Atlas.ti v6.2 software was used to analyse the interactions, the data collected from the focus groups and the final tests.

Results

Results from the quasi-experimental study

Table 1 shows the results obtained in the RC and RSC variables, after performing a linear mixed model for repeated measures in order to verify, firstly, the differences between groups (CG and IG) over time (group \times time interaction) and secondly, the differences observed in the IG taking into account the roles performed over time (role \times time interaction). Models were adjusted by age. Post-hoc comparisons were performed (p -values were corrected using Bonferroni's correction).

No statistically-significant differences were observed between the groups (CG vs IG) in the pre-test ($p=0.246$). It was thus confirmed that there were no differences between the two groups in the sample.

In terms of the analysis within groups (pre vs post), no statistically significant differences were observed in the CG between the pre and post-tests ($p=0.011$), but in

Table 1. Results of reading comprehension and reading self-concept in comparison group and intervention group.

Parameter	Group	Time		F	p	d
		Pre M SD	Post M SD			
RC	Comparison $N=136$	53.15 (23.32)	56.88 (23.32)	6.52	0.01	0.16
	Intervention $N=441$	49.87 (29.19)	58.76 (29.19)	120.10	<0.01	0.30
	Intervention tutors $N=172$	61.81 (22.69)	69.97 (22.69)	66.55	<0.01	0.36
	Intervention tutees $N=173$	42.20 (25.39)	52.04 (25.39)	97.31	<0.01	0.39
	Intervention reciprocal $N=96$	52.70 (22.73)	61.17 (22.73)	39.80	<0.01	0.37
RSC	Comparison $N=136$	66.70 (17.03)	67.28 (17.03)	.316	0.57	0.03
	Intervention $N=441$	67.04 (21.42)	69.39 (21.42)	16.60	<0.01	0.11
	Intervention tutors $N=172$	68.39 (16.92)	71.72 (16.92)	11.50	<0.01	0.20
	Intervention tutees $N=173$	63.47 (18.81)	65.22 (18.81)	3.18	0.08	0.09
	Intervention reciprocal $N=96$	71.61 (16.85)	73.31 (16.85)	1.68	0.20	0.10

RC, reading comprehension; RSC, reading self-concept.

contrast, statistically significant differences in the IG were found between the pre and post-test ($p < 0.001$).

The second part of this section (RC) in Table 1 gives the results of the linear mixed model referring to role development in the IG. Here, the analysis within groups (pre vs post-test) showed a statistically-significant improvement in all three groups ($p < 0.001$). For the RC variable, the effect size in the IG was moderate in all the situations under study.

In terms of RSC, a parallel analysis of the data obtained was performed.

In the analysis between groups (CG vs IG), no statistically significant differences were observed between groups in the pre-test ($p = 0.869$). In the analysis within groups (pre vs post-test), no statistically significant differences between the pre and post-test were observed in the CG ($p = 0.574$), but we did observe statistically significant differences between the pre and post-test in the IG ($p < 0.001$). The statistically significant improvements shown by the IG indicate that participation in the *Reading in pairs* programme offers learning opportunities that foster the development of RSC.

Further analysis of the IG results show differences according to tutoring type. In the analysis within groups (pre-test vs post-test), a statistically significant improvement between the pre and post-test was observed in the tutors' group ($p = 0.0001$). However, the differences observed in the tutee group and the group under reciprocal tutoring were not statistically significant ($p = 0.075$ and 0.195 , respectively), despite the fact that both groups showed some small progress in this variable between the pre-test and the post-test.

The fact that in reciprocal tutoring students have only half the time to develop each role, and that in one of these two roles the RSC improvement was not shown to be significant (this will be verified later), may possibly mean that the RSC progress in reciprocal tutoring is minimal and, thus, not significant from a statistical point of view.

The effect size of RSC in the tutors' group was calculated to be rather small, an issue that prompts us to enquire about the causes, by analysing the process and identifying possible situations and factors that promote significant improvement in RSC.

Taking into account the quantitative results obtained for both variables, we can now proceed to show the results of the process analysis.

Reading comprehension: process analysis results

For the process analysis, we designed a category system that enabled us to analyse and interpret the data obtained from the different theoretical proposals that were mentioned in the introduction. In order to assess the reliability of this system, we implemented an interjudge test. 25% of the total number of audiovisual records were analysed by three experts. The values obtained—whether from the *Pearson's coefficient* (r) that are close to 1, or from significance levels lower than 0.01—showed that the category system is indeed reliable.

This system was designed following the sequential structure on which the *Reading in pairs* programme sessions are based. Its design was also informed by a number of authors' findings from research into RC and its strategies and principal skills (Cassany, Luna & Sanz, 1993; Solé, 2001); and it was further complemented by contributions from other researchers who link cognitive and metacognitive reading abilities within the framework of peer tutoring (De Backer et al., 2012). Consequently, this proposal is made up of three clearly differentiated segments of interactivity; pre-reading activities, those that take place during the reading itself and finally, those carried out after the reading of the text.

Most of the categories were prepared and graded according to the scaffolding processes that occurred between the students during the pair interaction. This is why the categories are detailed in full and go from exclusive intervention by the tutor, at one extreme, to autonomous intervention by the tutee, at the other. Intermediate situations describe different degrees of participation by the two pair members (tutors and tutees): tutor and tutee link their ideas in order to produce a single answer; tutor and tutee put their ideas together but with less input from the tutor; the tutor asks a question and the tutee answers directly without any further help.

The results show the actions that have been recorded in each of these segments. A larger number of actions can be seen after the after-reading segment (63.85%), followed by the pre-reading segment (almost 20% of the records). From these results, we can deduce the huge importance of pre-reading and after-reading work in the development of RC.

We will now explain in detail the segments of the dimensions and categories that allow for the classification of the observed actions.

The pre-reading segment dimensions (Table 2) that accumulated most actions are in order of importance: activation of previous knowledge (32.63%), motivation (26.95%) and text exploration (23.40%), all of which are key dimensions for the development of RC, as previously stated.

The three dimensions that calibrate the interaction between tutor and tutee in terms of their participation are highlighted (text exploration, activation of previous knowledge and generating hypotheses and predictions). It can be seen that the category that accumulated the highest frequency of utterances (around 50%) in the three aforementioned dimensions was 'tutor asks a question and the tutee answers it directly' (1.2.4, 1.3.4, 1.4.4). This category requires limited cognitive effort, as neither the tutor nor the tutee need any other stimulus in order to answer the question. However, in the cases of 1.2.2, 1.3.2, 1.4.2 and the 1.2.3, 1.3.3, 1.4.3, both roles face a greater cognitive challenge as a shared answer needs to be constructed from clues and/or the connection of ideas. These two situations (1.2.2 + 1.2.3, 1.3.2 + 1.3.3 and 1.4.2 + 1.4.3) create a more enriching learning experience because of the cognitive challenge that they generate and produce levels of around 50%, equalling the previous situation.

The importance of stimulating motivation for this initial segment before starting a reading and the limited level of teacher intervention, which evidences the pairs' autonomy in this segment under analysis should be emphasised.

In the second segment, while reading (Table 3), a completion of nearly 100% of the suggested readings was recorded, both for joint reading (JR: 59/60) and PPP reading (PPPR: 58/60) for all pairs. This highlights the importance of reading together to facilitate a fluid decoding of the text and thus enable better text comprehension. In this regard, we noted that more than half the pairs rigorously performed the type of reading that requires active listening, with a high level of attention and concentration. This allowed the tutee to read the text without difficulty with limited guidance from the tutor. However, we noted that nearly half the readings were not actually carried out observing these criteria. This issue will be discussed later.

Moreover, in PPP reading, performances from all the categories were recorded, with the largest number of those in the 2.2.3 category. The use of the PPP technique focused on the categories (2.2.2, 2.2.3 and 2.2.4) according to the varying level of scaffolding that the tutee required. The number of actions accumulated in these categories rose to almost 60%. It is also seen that almost 20% of the tutees were able to correct their own mistakes without intervention from the tutor. It is likely that by reading to an audience, as happened in this

Table 2. Frequency distribution regarding dimensions and categories from segment 1: pre-reading.

1. Pre-reading	<i>f</i>	%
1.1 Activation of motivation: AM	38	26.95
1.1.1 Tutor starts the activity	38	100
1.1.2 Tutor and tutee start the activity	0	0
1.1.3 Tutee starts the activity	0	0
Subtotal	38	100
1.2 Text exploration: TE	33	23.40
1.2.1 Tutor's direct answer	0	0
1.2.2 Tutor and tutee negotiate answer	10	30.30
1.2.3 Tutor gives clues and tutee answers	6	18.18
1.2.4 Tutor asks questions and tutee answers	16	48.48
1.2.5 Tutee's direct answer	1	3.03
Subtotal	33	100
1.3 Activation of previous knowledge: APK	46	32.63
1.3.1 Tutor's direct answer	1	2.17
1.3.2 Tutor and tutee negotiate answer	13	28.26
1.3.3 Tutor gives clues and tutee answers	9	19.57
1.3.4 Tutor asks questions and tutee answers	23	50
1.3.5 Tutee's direct answer	0	0
Subtotal	46	100
1.4 Generating hypotheses and predictions: GHP	22	15.60
1.4.1 Tutor's direct answer	0	0
1.4.2 Tutor and tutee negotiate answer	5	15.63
1.4.3 Tutor gives clues and tutee answers	10	31.25
1.4.4 Tutor asks questions and tutee answers	17	53.12
1.4.5 Tutee's direct answer	0	0
Subtotal	22	100
1.5 Teacher intervention: TI	2	1.42
1.5.1 Query raised by both partners (tutor and tutee)	0	0
1.5.2 Query raised by tutor	2	100
1.5.3 Query raised by tutee	0	0
1.5.4 Direct and spontaneous by the teacher	0	0
Subtotal	2	100
Total	141	19.53

dimension, tutees become much more aware of their own mistakes than when reading individually and that they correct themselves automatically, which boosts the processes of control and autonomous regulation of reading.

In the last segment, after reading (Table 4), the most important dimension by far corresponds to solving comprehension questions after reading the text, and which focus on thinking and in depth understanding. In this dimension, frequencies of over 90% are seen

Table 3. Frequency distribution regarding the dimensions and categories from segment 2: while reading.

2. While reading	<i>f</i>	%
2.1 Joint reading: JR	59	49.17
2.1.1 Tutor and tutee read and listen to each other actively	32	54.24
2.1.2 Tutor reads and tutee listens to it	1	1.69
2.1.3 Tutee reads and tutor listens to it	0	0
2.1.4 Tutor and tutee don't listen to each other	26	44.07
Subtotal	59	100
2.2 PPP Reading: PPPR	58	48.33
2.2.1 Tutor corrects the mistake directly and tutee incorporates correction	34	17.17
2.2.2 Tutor marks the mistake, pauses, gives some clues and tutor and tutee correct it together	27	13.64
2.2.3 Tutor marks the mistake, pauses, gives some clues and tutee corrects it	55	27.77
2.2.4 Tutor marks the mistake, pauses and tutee corrects it	31	15.66
2.2.5 Tutee corrects himself/herself	39	19.70
2.2.6 Tutee reads without making any mistakes	12	6.06
Subtotal	198	100
2.3 Teacher intervention: TI	3	2.5
2.3.1 Query raised by both partners (tutor and tutee)	0	0
2.3.2 Query raised by tutor	2	66.67
2.3.3 Query raised by tutee	0	0
2.3.4 Direct and spontaneous by the teacher	1	33.33
Subtotal	3	100
Total	120	16.62

PPP, Pause, Prompt and Praise.

from all three categories that record situations of interaction between tutors and tutees with different scaffolding levels (3.2.2, 3.2.3 and 3.2.4).

The category that shows the highest number of actions is that in which the tutee answers the tutor directly (3.2.4); although the other two together (3.2.2 and 3.2.3) total 57% of the recorded interventions. As discussed in the 'before reading' segment, these categories pose a higher cognitive challenge, as answers are conditional on the joint construction of ideas by both partners by working out clues and/or through linking ideas. This data enables us to confirm the importance of scaffolding processes between students who participate in peer tutoring and to value their influence on the improvement in RC that was detected in the quasi-experimental study.

Reading self-concept: process analysis results

The analysis is structured in the same segments to the RC. The largest amount of recorded actuations occurs in the final segment of the didactic sequence: the *after reading*.

Table 4. Frequency distribution regarding the dimensions and categories from segment 3: after reading.

3. After reading	<i>f</i>	%
3.1 Hypotheses and predictions verification: HPV	18	3.90
3.1.1 Tutor's direct answer	0	0
3.1.2 Tutor and tutee negotiate answer	4	22.22
3.1.3 Tutor gives clues and tutee answers	2	11.11
3.1.4 Tutor asks questions and tutee answers	11	61.11
3.1.5 Tutee's direct answer	1	5.56
Subtotal	18	100
3.2 Solving comprehension questions: SCQ	394	85.47
3.2.1 Tutor's direct answer	6	1.52
3.2.2 Tutor and tutee negotiate answer	106	26.90
3.2.3 Tutor gives clues and tutee answers	118	29.95
3.2.4 Tutor asks questions and tutee answers	135	34.26
3.2.5 Tutee's direct answer.	5	1.27
3.2.6 Tutor gives some clues or wrong answer	9	2.28
3.2.7 Tutor doesn't correct a wrong answer	15	3.82
Subtotal	394	100
3.3 Identification of principal ideas: IPI	18	3.90
3.3.1 Tutor's direct answer	1	5.55
3.3.2 Tutor and tutee negotiate answer	9	50
3.3.3 Tutor gives clues and tutee answers	6	33.34
3.3.4 Tutor asks questions and tutee answer	2	11.11
3.3.5 Tutee's direct answer	0	0
Subtotal	18	100
3.4 Solution of the tutee's comprehension queries: CQ	11	2.39
3.4.1 Tutor doesn't know the answer	5	45.45
3.4.2 Tutor's direct answer	3	27.28
3.4.3 Tutor and tutee negotiate answer	1	9.09
3.4.4 Tutor gives clues and tutee answers	1	9.09
3.4.5 Tutor and tutee exchange ideas in order to answer the query	1	9.09
3.4.6 Tutee's direct answer	0	0
Subtotal	11	100
3.5 Teacher intervention: TI	20	4.34
3.5.1 Query raised by both partners (tutor and tutee)	1	5
3.5.2 Query raised by tutor	13	65
3.5.3 Query raised by tutee	0	0
3.5.4 Direct and spontaneous by the teacher	6	30
Subtotal	20	100
Total	461	63.85

Note: HPV = hypotheses and predictions verification; SQC = solving comprehension questions; IPI = identification of principal ideas.

Table 5 shows the categories analysed during the first segment and relating to work environment and to task evaluation.

Very few actuations directly related to the creation of a safe and calm work environment actually took place, and when they did, they were initiated by either one of the pairs indistinctly. The audiovisual records also evidence the existence of a relaxed and mutually trusting working atmosphere. This is confirmed via teacher interventions in the focus groups, as shown in the succeeding text:

Tr (12): At the beginning, the first day, the youngest ones were really embarrassed, but then it was excellent.

Tr (16): There are two things that I liked the most: what I was saying before about the complicity between the pair members, who generally get on well, and also the child's motivation, the student's motivation to develop the project... when we were doing the Reading in pairs project they were feeling enthusiastic and highly motivated to work on it.

Regarding the evaluation of the quality of the task, we can see that the only interventions recorded were those in which the tutor valued the tutee's work in a positive way.

In segment 2 (Table 6), an increase in the total number of frequencies recorded (17.13%) can be seen. Both dimensions are related to the tutor's model reading, so the tutor is deemed a competent reader (83.05%) and is evaluated by his partner through the process of active listening. The other dimension that is being valued in this segment is, once again, the task's quality evaluation. As was previously evident, the evaluations were all positive and were produced by the tutors for the tutees. We can distinguish between actuations related to the tutors' general evaluation during the tutees' initial reading (2.2.2) and the tutors' partial evaluations during the tutees' initial reading with the PPP technique (2.2.5).

Table 5. Frequency distribution depending on dimensions and categories from segment 1: pre-reading.

	<i>f</i>	%
1. Pre-reading		
1.1 Work environment creation: WEC	6	13.95
1.1.1 Tutor starts the activity	2	33.33
1.1.2 Tutor and tutee start the activity	2	33.33
1.1.3 Tutee starts the activity	2	33.34
Subtotal	6	100
1.2 Tasks' quality evaluation: TQE	37	86.05
1.2.1 Tutor dismisses tutee's attitude and/or answer with some negative gesture/expression	0	0
1.2.2 Tutor praises tutee's attitude and/or confirms his answer with some encouraging gesture/expression	37	100
1.2.3 Tutee dismisses tutor's attitude and/or answer with some negative gesture/expression	0	0
1.2.4 Tutee praises tutor's attitude and/or confirms his answer with some encouraging gesture/expression	0	0
Subtotal	37	100
Total	43	6.57

Table 6. Frequency distribution depending on dimensions and categories from segment 2: while reading.

2. While reading	<i>f</i>	%
2.1 Tutor model reading: TMR	59	52.68
2.1.1 Tutor reads correctly and tutee listens to him/her with interest	49	83.05
2.1.2 Tutor reads correctly and tutee gets distracted	4	6.78
2.1.3 Tutor reads with some mistakes and tutee listens to him/her with interest	6	10.17
2.1.4 Tutor reads with some mistakes and tutee corrects him/her	0	0
2.1.5 Tutor reads with some mistakes and tutee gets distracted	0	0
Subtotal	59	100
2.2 Tasks' quality evaluation: TQE	53	47.32
2.2.1 Tutor dismisses tutee's reading	0	0
2.2.2 Tutor values on a positive way tutee's reading	12	22.64
2.2.3 Tutee dismisses tutor's reading	0	0
2.2.4 Tutee values on a positive way tutor's reading	0	0
2.2.5 Tutor praises tutee's efforts	41	77.36
Subtotal	53	100
Total	112	17.13

This data is related to that given in Table 3, 2.2 dimension, PPP reading. Tutors' positive praise of tutees for their efforts in correcting mistakes during the reading, with differing levels of support, was relatively low (around 22%). This might be a compromising element in the positive construction of the tutee's RSC, as it may appear as if the tutor does not value the efforts made by the tutee when correcting mistakes and improving reading quality.

In the third segment (Table 7), the distribution of the actuations realised in three different categories can be seen. With regard to the task's evaluation dimension, results again show the tutors' positive evaluation of the tutees, as was seen in previous segments.

Concerning the dimension relating to tutees' expressive reading, we can observe that the tutors corrected the tutees' mistakes as though it were an initial reading. Because this was a final expressive reading, in such instances, the tutors should have listened actively and only pointed out improvements made in relation to the initial reading and not highlighted the mistakes that the tutees kept making, as could be seen happening in 60% of the recorded cases (3.2.1). This is evidence that the tutees' reading quality is still not optimal and that it can complicate the perception of reading competence and, therefore, have a negative effect on the construction of RSC in this group of students. In terms of the pair's self-assessment dimension, we can observe a greater record of actuations that are related to the construction of RSC. As has already been pointed out, becoming aware of their own reading competence, being able to recognise their own weaknesses and achieving improvements, could all directly affect the development of students' self-concept. The self-assessment that took place every four reading sessions showed a high number of actuations, which prompted pairs to think about their achieved progress and their prospects for improvement.

Table 7. Frequency distribution depending on dimensions and categories from segment 3: After reading.

3. After reading	<i>f</i>	%
3.1 Tasks' quality evaluation: TQE	130	26.05
3.1.1 Tutor dismisses tutee's attitude and/or answer	0	0
3.1.2 Tutor praises tutee's attitude and/or confirms his answer	130	100
3.1.3 Tutee dismisses tutor's attitude and/or answer	0	0
3.1.4 Tutee praises tutor's attitude and/or confirms his answer	0	0
Subtotal	130	100
3.2 Tutee's expressive reading: TER	47	9.42
3.2.1 Tutee reads, tutor listens and intervenes in case of any query/mistake	28	59.57
3.2.2 Tutee reads (with some difficulties) and tutor listens without taking part	9	19.15
3.2.3 Tutee reads and corrects himself/herself automatically	0	0
3.2.4 Tutee reads the text correctly (intonation, pronunciation, rhythm and fluency)	10	21.28
Subtotal	47	100
3.3 Pair's self-assessment: PSA	322	64.53
3.3.1 Pre-reading: pair's acting evaluation	60	18.63
3.3.2 While reading: evaluation from the use and proficiency of reading strategies from tutee	90	27.95
3.3.3 After reading: tutee's comprehension evaluation	45	13.98
3.3.4 Tutee's expressive reading	15	4.66
3.3.5 Tutor's acting evaluation	90	27.95
3.3.6 Improvement objectives and proposals: pair	14	4.35
3.3.7 Teacher's intervention	8	2.48
Subtotal	499	100
Total	499	76.30

Conclusions

The quantitative results obtained enable us to confirm that all the students who participated in the *Reading in pairs* programme showed a significant improvement regarding the evolution of their RC, at a general level and also depending on the tutoring type (fixed or reciprocal) and the role performed (tutor or tutee) in fixed tutoring. These results match international research that also links observed improvements in peer tutoring and reading contexts (McMaster et al., 2006; Miller et al., 2010; Topping et al., 2011). In the process analysis, we were able to confirm that the segments from pre-reading and after reading contribute to creating a space for communicative exchange, which may have positively influenced RC development (as evidenced by the high frequency recorded in pre-reading: text exploration, activation of previous knowledge and generating hypotheses; and after reading, solving comprehension questions).

Agreeing with Roscoe & Chi (2007), we confirm that the scaffolding processes in which the students participated may have fostered the construction of knowledge and may have aided improvement in RC. In the tutors' case, this fact might be explained by the use of complex strategies of selection, breaking down and reasoning. These strategies seek to help tutees' with text comprehension, by giving them meaningful and relevant examples to try

to promote reflection and the elaboration of coherent answers, which are well adjusted to the demands of text comprehension.

Moreover, other factors that have been identified through the analysis of interaction in this segment, which may have contributed in a positive way to RC development, are joint reading (Topping, 1998), PPP reading (Burns, 2006), repeated reading (Oakley, 2003), all of which are essential for improving reading fluency and correction, and supervised repeated readings (Therrien et al., 2006), which are also encouraged within the *Reading in pairs* programme. Given the aforementioned text, and the fact that in some cases students were not completing the assigned reading tasks, it is of paramount importance to reinforce initial and continued training throughout the programme.

Additionally, the quantitative results regarding RSC that confirm statistically significant progress for all the students who participated in the programme, are in line with other prior research revising some aspects related to self-concept and self-esteem improvement in peer learning contexts (Ginsburg-Block et al., 2006) and other research in the peer tutoring and reading field (Miller et al., 2010; Topping et al., 2011). Statistically significant improvements in tutors' RSC were demonstrated. Some of the factors that may have contributed to this development are the following. Firstly, the actual act of performing the tutor's role (Robinson et al., 2005), which may have positively reinforced RSC because the tutors were valued as reading models by their peers and so reinforced their reading competence and positive attitude, as the focus group data showed. Secondly, tutors made a positive contribution to the improvement in their tutees' RC. Thirdly, the completion of reading aloud tasks with active listening by the tutee was identified during the interaction analysis of the while-reading segment (joint reading, PPP reading). And finally, the metacognitive reflections developed with other students, in this case, with the tutees during the pair self-assessment, which are a key element for the training of competent readers (Baker, 2008; De Backer et al., 2012).

With regards to the evolution of RSC in both the tutees and the students who took part in the reciprocal tutoring mode, the challenge remains. Teachers will most likely need to help tutees to become aware of their progress as readers and make internal attributions (predominantly their own effort) for their improvement. Again, the teacher's role in helping tutees to become aware of their reading improvement is key, as they create room for reflection, and by evaluating the tutors, they also highlight each tutee's individual progress.

Practical contributions

In our view, the results obtained in our study make an important contribution to educational practice, as they offer evidence of the advantages of using peer tutoring as a valid methodology, which offers significant pedagogical benefits in a diverse class. Furthermore, our research promotes the use of peer tutoring as part of a wider programme aimed at improving reading competence amongst students. Finally, we explain how interactions between student pairs in a structured relationship (tutor and tutee) can produce actuations of scaffolding and metacognitive help, which in turn offer greater learning opportunities for all students.

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Marta Flores Coll is a PhD Postdoctoral teacher from the Educational Psychology Department from the Universitat Autònoma de Barcelona (UAB). She worked as a school teacher and has developed several teachers' training activities. She published some educational research chapters and articles. She is a member of the UAB's Peer Learning Research Group (GRAI). Website: <http://grupsderecerca.uab.cat/grai/en>. Her research interests include peer learning, peer tutoring and cooperative learning.

David Duran Gisbert is a PhD assistant professor from the Educational Psychology Department from the UAB. He developed international training activities for teachers and has published books and articles about educational innovation and research. He is the GRAI's coordinator. His research interests include peer learning and inclusive education.

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Address for correspondence: Marta Flores, Psychology, UAB, Bellaterra, Catalunya, Spain. E-mail: marta.flores@uab.cat