Article

Peer tutoring for improvement in rhythm reading fluency and comprehension

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Abstract

Peer tutoring in music education is an under-researched but burgeoning area of study. This study aims to assess the effects of the same-age peer tutoring project *Ritmos en dos* on rhythm reading fluency and comprehension. For this purpose, 24 students from the third grade of secondary education participated in the project. This research utilises a mixed-methods sequential explanatory design, combining (a) a pretest-posttest control group design, with (b) a qualitative study to understand the possible quantitative changes using the interactivity analysis model. Results confirm our hypotheses that students' participation in the project improved their proficiency across rhythm reading fluency and comprehension. Regarding fluency, quantitative results show a significant improvement for the experimental group, but not for the control group; in comprehension, both groups show gains, but statistically significant differences favour the experimental group in the final comprehension level. Findings reveal different actions that might explain these improvements identified in the interaction between students. Regarding fluency, these actions were mainly related to pulse constancy and reading accuracy while in reading comprehension, students were found to carry out syntactic analysis and metacognitive reflection. Implications suggested from this study point to initial training and cooperative interaction as key elements to be tackled.

Keywords

Cooperative learning, music reading, peer tutoring, rhythm reading, rhythm reading comprehension, rhythm reading fluency

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Introduction

Rhythm is defined as the organised sequence of temporal structures linked to notation and rest in music (Fourie, 2004). According to Laing (2007), teaching rhythm is a key component in many other aspects of music learning. It is strongly asserted that reading rhythm in music is one of the most important aspects in the development of sight-reading (Laing, 2007; McPherson, 1994), defined as the ability to interpret symbols or other musical terms in a limited time, where these symbols must be quickly perceived and anticipated by musicians, while they simultaneously play them on their instruments (Stauffer, 2005). A fluent musical performance that involves reading skills requires performing musical symbols automatically and nimbly (Hansen & Bernstorf, 2002).

Reading fluency has been widely addressed in the field of literacy (Hitchcock et al., 2004; Kourea et al., 2007; Mercer et al., 2000; Walley, 1993). However, reading fluency in the field of music reading has been scarcely tackled. Fluent readers in music are defined as those people who can read the musical symbols from a text with speed and accuracy. Hansen and Bernstorf (2002) suggest this is achieved through demonstrating a high level in phonological and phonemic awareness, sight identification, orthographical awareness, and the use of effective strategies. According to Stauffer (2005), the learning of basic rhythm patterns and practice in sight-reading is the key for the development of fluency, since the internalisation of basic rhythm patterns would facilitate the faster and more accurate reading of complex ones. Waters et al. (1997) point to two hypotheses that might explain the processing skills underlying sight-reading in expert musicians: (a) the perceptive abilities to recognise music structures faster than novice readers, which have been addressed in several studies (Goolsby, 1994; Lehmann, 1999; Ricquier, 1991; Waters et al., 1997), and (b) the knowledge of certain music structures, which is closely linked to the analysis and comprehension of music (Molina, 2006).

Bautista and Pérez-Echeverría (2008) suggest three levels underlying the processing of musical symbols: (a) processing of explicit information, that is, the visual identification of notational elements in the text, such as title, author, clef, notes and rests; (b) processing of implicit information, that is, the identification of patterns and trends underlying the musical discourse and (c) conceptual relations, that is, the connections based on the global analysis of the text structure, considering prior knowledge related to the content presented, such as the composer's idea, the style or the historical context in which the piece was composed (Casas & Pozo, 2008). Analysis seems to have a key role in the comprehension of music (Molina, 2003, 2006; Ortega, 2005), that is, in the processing of implicit information and the identification of conceptual relations.

In literacy and music, reading is an active, reflective and interactive process between the reader and the text, where the reader's prior knowledge, objectives and expectations play an important role in the meaning construction (Solé, 1992). In line with this definition of reading, the analysis of the text seems to be inseparable from the analysis of one's thoughts, emotions and actions towards the comprehension of the text. For example, Rogers (1996) found statistically significant differences in the reading skills of students from first and second graders who highlighted rhythmic notations using different colours. According to Pozo et al. (2001), the use of a strategy involves the intentional and deliberate activation of conceptual, procedural and attitudinal knowledge to reach a goal according to a previously established plan.

The topic of learning strategies in the field of music education has been tackled in recent years (Alsina, 2007; Aramberri, 2005; Monereo, 1997). Monereo (1997) argues that the basis of strategic learning is the possibility of reflecting on the more appropriate conditions to emit a sound or to play a piece of music, which involves metacognitive processes connected to rhythm reading fluency and comprehension. The concept of metacognition was initially formulated by Flavell (1976), who defined metacognition as the knowledge and regulation of cognition, considering two key components: (a) metacognitive knowledge, understood as the knowledge or beliefs about the factors or

variables referring to one's own cognition or to the cognition of others, and (b) metacognitive experiences, that is, those conscious cognitive or affective experiences that occur when the person applies knowledge and evaluates its relevance and effectiveness (Flavell, 1979, 1987) Monereo (1997) suggests that metacognitive skills might be developed in activities that emphasise conscious reflection on the decisions that students make before, during and after the performance of the activity. Those decisions are conditioned by the knowledge, beliefs, and control over three kinds of variables, related to the person, the task and the strategies (Aramberri, 2005; Flavell, 1979, 1987). Regulatory strategies may occur in the different forms of regulation: self-regulation, co-regulation, and socially shared regulation, as explored by De Bruin (2018) in the context of improvisational skills in music.

The relevance of rhythm in music education has been reflected in the development of different teaching proposals that focus on fostering the learning of rhythm reading (Brown & Chesnutt, 2001; Conway, 2003; Dalby, 2005; Laing, 2007; Rogers, 1996; Strouse, 2007; Whaley, 2004). However, few proposals or studies consider interaction between students for learning rhythm reading (Inzenga, 1999; Kaplan & Stauffer, 1994; Stauffer, 2005). Although humans listen, play and create music with others, teaching music – especially in higher levels of formal education – seems to have clung to the transmission of content, repertoire, and skills between teacher and learner in individual settings (Gaunt & Westerlund, 2014).

Peer learning has been widely addressed in different areas (i.e., science, languages and mathematics) and educational stages (from early school to university), with plenty of evidence of success reported (Johnson & Johnson, 2010), as well as difficulties that might emerge in practice (Sharan, 2010). However, peer learning is scarcely used in formal music education settings, whereas informal settings are based on the participation in groups of peers, with similar levels of expertise (Green, 2008). Moreover, most of the proposals that consider peer learning do not seem to be planned according to cooperative bases (Johnson & Johnson, 2010), since they show a low degree of organisation of the interaction between students. The focus of this study is a peer tutoring project, where interaction within a pair of students is organised between tutor and tutee (Topping et al., 2015).

In the field of music education, not many studies refer to peer tutoring (Alexander & Dorow, 1983; Darrow et al., 2005; Johnson, 2017; Madsen et al., 1988; Sheldon, 2001). Few same-age tutoring practices or projects are reported in research in this field. Most studies, which are about cross-age tutoring practices or projects, point to the benefits for tutees. As regards tutors, although Alexander and Dorow (1983) did not find statistically significant differences in the music performance of beginning band students that took the role of tutors, benefits for tutors were identified in other studies and settings, in terms of music learning (Darrow et al., 2005), and in terms of social skills and commitment to learning (Madsen et al., 1988). These results in the music field are in line with research findings on the potential of learning by teaching in any area in peer tutoring situations (Duran & Topping, 2017). In Roscoe and Chi's (2007) literature review on tutors' learning, the authors suggest that two activities might foster tutors' learning: explaining and questioning. Although the activity of explaining offers potential learning opportunities for the tutor, this learning potential will be determined by the way the tutor deals with knowledge: knowledge-building actions will offer better learning opportunities than knowledge-telling actions (Roscoe & Chi, 2007). According to these authors, this learning potential is tightly tied to the activity of asking and answering complex questions within the dialogue between the tutor and the tutee, especially when these questions require integrating new and prior knowledge, reorganising mental models, generating inferences and carrying out metacognitive self-monitoring (King, 2008). Peer tutoring seems to foster this kind of interaction, where students collaborate to construct knowledge (Duran & Monereo, 2005). The IRF (Initiation-Response-Feedback) sequences which characterise most of the interactions between a teacher and a group of students can take different forms in situations of interaction between a small number of students. In these situations, feedback is followed by phases

of collaboration, in which participants develop a joint action to build knowledge (Duran & Monereo, 2005). The conditions that determine the learning potential of peer tutoring – that is, opportunities for explaining and questioning – point to the need for planning and organising peer tutoring situations carefully, as suggested by Sheldon (2001) in the field of music education.

In practice, the elements responsible for the efficacy of peer tutoring are (a) preparation of material to carefully structure the relationship between tutor and tutee, (b) initial student training on the tasks from each role, (c) time to settle the proper functioning in class, (d) monitoring by the teacher and (e) offering feedback on the progress (Topping et al., 2017).

The lack of research and practice referring to peer tutoring – especially same-age tutoring – in the field of music education might be due to the predominance of teaching and learning practices that mainly focus on the relationship between teachers and students. This study will focus on *Ritmos en dos* – which could be translated into English as *Rhythms in two*. It is a same-age peer tutoring project developed to improve rhythm reading competences, which was implemented in a state secondary school from Alajuela, Costa Rica. The benefits shown by peer tutoring in other areas encourages research and practice in the field of music education. This study might shed some light on the potential of peer tutoring in music education, as well as point to specific elements to be considered to make the most of this method for teaching and learning music. The aims of this study are (a) to assess the effects of the project *Ritmos en dos* on rhythm reading fluency and (b) to assess the effects of the project *Ritmos en dos* on rhythm reading comprehension.

Hypotheses and questions

As regards the first aim – to assess the effects of the project *Ritmos en dos* on rhythm reading fluency – the following hypothesis and question were formulated:

> *Hypothesis*: Students' participation in the project *Ritmos en dos* will improve their rhythm reading fluency.

> *Question*: What actions within the pairs might explain the possible changes in rhythm reading fluency?

When it comes to the second aim – to assess the effects of the project *Ritmos en dos* on rhythm reading comprehension – the following hypothesis and question were formulated:

> *Hypothesis*: Students' participation in the project *Ritmos en dos* will improve their rhythm reading comprehension.

> *Question*: What actions within the pairs might explain the possible changes in rhythm reading comprehension?

Methods

Intervention project

Ritmos en dos is a same-age peer tutoring project developed to improve rhythm reading competences. The interaction between a tutor and a tutee is structured through activity sheets that are worked on by the pairs for 21 sessions. An activity sheet consists of these different sections:

1. Initial analysis of the text, which contains before-reading reflective questions on the general features of the rhythmic exercise, comprehension issues and types of strategies to overcome them.

2. Rhythmic reading, which includes tutor reading, joint reading and tutee reading, where an adaptation of the reading technique *Pause, Prompt and Praise* (Wheldall & Colmar, 1990) is used.
3. Assessment of the rhythm reading, which contains after-reading reflective questions to analyse the rhythm reading carried out by the tutee and to find points of improvement and strategies for improvement.
4. Complementary activities, in which students might put into practice in real situations some of the conceptual and procedural contents worked on.

Research design

This research utilises a mixed-methods sequential explanatory design (Creswell, 2015), combining (a) a pretest-posttest control group design to detect changes in students' rhythm reading fluency and comprehension with (b) a qualitative component utilised to clarify and provide finer-grained understanding of the quantitative results, by means of the interactivity analysis model (Coll et al., 2008; Colomina et al., 2001). This model considers two levels of analysis: a first level, focused on the articulation of teachers' and students' actions around a task or learning content, and a second level, focused on the meanings negotiated and constructed by participants through their discourse (Coll et al., 2008; Colomina et al., 2001). The first level takes segments of interactivity as unit of analysis, defined as specific ways of organising the joint activity, characterised by certain patterns of actions between the teacher and the students through an internal cohesion, which fulfil specific instructional functions (Coll et al., 2008). The second level takes messages as unit of analysis, understood as the expression of a unit of information that cannot be broken down into more elementary units without losing its communicative potential in the context where it was stated (Coll et al., 2008). This mixed-method approach accommodates enquiry seeking understandings of peer learning as a more process-oriented approach (Dillenbourg et al., 1996). According to Dillenbourg et al. (1996), empirical studies have started to focus less on the effectiveness of peer learning methods in comparison to other forms of interaction. These authors state that the third generation of research on peer learning has begun, focusing on trying to understand why people learn in peer learning processes when interacting with others (Rodríguez et al., 2000).

Sample

The project *Ritmos en dos* was implemented in a state secondary school from Alajuela, Costa Rica. The sample of this study consists of 24 students from the third grade of secondary education, aged between 14 and 16 years, who worked in pairs during the implementation of the project *Ritmos en dos*. Pairs were created based on the pretest results on rhythm reading competences. The 12 students with the highest marks took the role of tutors of the 12 students with the lowest marks, who became tutees (e.g., student 1 with student 13, student 2 with student 14, and so on). The control group consisted of another 24 students from the third grade of secondary education from the same school, aged between 14 and 16 years. Students from the control group participated in a teacher-centred training project in rhythm reading, with the same objectives and contents that were worked on with the experimental group. All participants and their parents were informed about the research and gave their consent to participate.

Instruments

The following instruments were used for the study:

- Rhythm reading test, which was used as a pretest and posttest, consists of two different rhythm reading exercises, with three initial questions on the understanding of each exercise. Test–retest reliability method was used, obtaining $r = 0.650$ and $p = .001$ in the Pearson correlation coefficient, values that show a moderate positive correlation. Assessment criteria were classified between fluency (10 points) and comprehension (5 points). The content validity of the assessment instrument was assessed using 10 content experts.
- Video recordings of six pairs, from three different sessions during the implementation of the project *Ritmos en dos*: one at the beginning, one in the middle, and one at the end. Five segments of interactivity were identified, corresponding to the stages of a session: initial analysis of the text, tutor reading, joint reading, tutee reading and final reflections. From the two dimensions of rhythm reading targeted in the aims of this study – fluency and comprehension – ad hoc categories were defined (Tables 1 and 2). To assess the reliability of the resulting category system, four previously trained researchers analysed 20% of the total data – that is, four sessions. The values obtained from the Pearson correlation coefficient, which are above 0.7 in all cases, show that the category system is reliable.

Table 1. Definition of ad hoc categories related to rhythm reading fluency.

Unit of analysis	Category	Definition and example
Reading accuracy	Exemplification	The tutor reads the whole exercise, notes rhythmic patterns that he or she thinks that might be challenging for the tutee. *Example*: Look, those notes sound like ta, ta, and so on.
	Anticipation of difficulties	The tutor suggests anticipating some of the text difficulties while reading. *Example*: Remember, ocular coordination. When you read you have to anticipate that in the following bar there is a *piano* and the intensity decreases.
	Manual signs	The tutor uses gestures so that the tutee can connect those gestures with the notes that have to be read. *Example*: Look, there is a *piano* there and intensity decreases. If you want, I can move my hand down a bit then.
	Highlighting notations	The tutor clearly underlines, circles or marks the notations or rhythmic patterns that require higher accuracy. *Example*: You made a mistake there (pointing at the passage). I am going to circle these notes so that you are aware of your mistake when you read them again.
	Suggesting to repeat	The tutor suggests that the tutee repeats a part of or the whole rhythmic exercise. *Example*: You made a mistake in the fifth bar. Let's repeat it again, starting at the fourth bar.
	Pause at mistakes	The tutor identifies a mistake and asks the tutee to stop and try to identify the mistake. *Example*: Let's see, let's stop here (pointing at the passage) because you made a mistake.
	Prompts	The tutor gives a hint to the tutee to make him or her reflect on his or her own actions and find the solution himself/herself. *Example*: I am going to give you some hints: look at the first and second bar, which are the same.

(Continued)

Table 1 (Continued)

Unit of analysis	Category	Definition and example
Pulse constancy	Speed regulation	The tutor helps the tutee to know the appropriate tempo for reading, using verbal suggestions or marking the pulse at the beginning or during the whole exercise. *Example*: Ok, now you are going to read on your own. (The tutee reads while the tutor beats time during the whole exercise)
	Pause at mistakes	The tutor identifies a mistake and asks the tutee to stop and try to identify the mistake. *Example*: Let's see, let's stop here (pointing at the passage) because you made a mistake.
	Prompts	The tutor gives a hint to the tutee to make him or her reflect on his or her own actions and find the solution himself/herself. *Example*: I am going to give you some hints: look at the first and second bar, which are the same.

Table 2. Definition of ad hoc categories related to rhythm reading comprehension.

Unit of analysis	Category	Definition and example
Syntactic analysis	Inducing syntactic analysis	The tutor suggests that the tutee does an initial analysis of the exercise structure, or shows him or her certain connections between notes, rhythmic patterns or other notations. *Example*. Before reading the exercise, look, there are some bars which are similar. For example, bars 1, 2, 5 and 6. Have a look at bars 3 and 4 as well, which have the same notes but inverted, I mean, the last note of bar 3 is the first note of bar 4.
Metacognitive reflection	Identification of strategies, mistakes and difficulties	The tutor induces the tutee to reflect on his or her own actions, identifying issues, mistakes, points of improvement for future sessions and possible strategies to improve the rhythm reading comprehension. *Example*: Which bars or notes do you consider that were more difficult for you and what strategies could you use to reach a better understanding?

Table 3. Differences in rhythm reading fluency between pretest and posttest.

	Mean pretest	Mean posttest	Z	p
Experimental group	5.12	7.08	−3.563	0.001
Control group	5.29	5.08	−9.14	0.361

Results

The presentation of results is organised based on the two objectives of this study: (a) to assess the effects of the project *Ritmos en dos* on rhythm reading fluency, and (b) to assess the effects of the project *Ritmos en dos* on rhythm reading comprehension. Each objective consists of a hypothesis and a research question.

First aim: effects on rhythm reading fluency

Hypothesis: students improve their rhythm reading fluency. The comparison of initial levels between the experimental group and the control group shows no statistically significant differences, which means that they are comparable. Results show that there is a statistically significant improvement between pretest and posttest for the experimental group, whereas the control group shows no significant differences (Table 3).

Question: what actions within the pairs might explain the improvement in rhythm reading fluency? As regards the first level of analysis, which takes segments of interactivity as a unit of analysis, results show that tutee reading is the segment of interactivity with the highest number of messages related to rhythm reading fluency (223), followed by joint reading (134), tutor reading (79), final reflections (18), and initial analysis of the text (16) (Table 4).

About the second level of analysis which takes messages as unit of analysis (Table 4), results show that the categories which obtained the highest frequencies when it comes to rhythm reading fluency are *Speed regulation* (193), *Manual signs* (78), *Highlighting notations* (51), *Suggesting to repeat* (51), *Exemplification* (46), *Pause at mistakes* (29), and *Anticipation of difficulties* (20). Although within fluency-related categories, the one with the highest frequency belongs to the unit of analysis *Pulse constancy* (194), *Reading accuracy* gathered a larger number of messages (276).

Second aim: effects on rhythm reading comprehension

Hypothesis: students improve their rhythm reading comprehension. The comparison of initial levels between the experimental group and the control group shows no statistically significant differences, which means that they are comparable. Results show that there is a statistically significant

Table 4. Messages related to rhythm reading fluency in segments of interactivity.

Unit of analysis	Category	Initial analysis	Tutor reading	Joint reading	Tutee reading	Final reflections	Total
Reading accuracy	Exemplification	0	24	3	17	2	46
	Anticipation of difficulties	8	0	4	4	4	20
	Manual signs	0	12	22	44	0	78
	Highlighting notations	8	2	16	20	5	51
	Suggesting to repeat	0	0	14	34	3	51
	Pause at mistakes	0	0	12	17	0	29
	Prompts	0	0	0	1	0	1
	Subtotal	16	38	71	137	14	276
Pulse constancy	Speed regulation	0	41	62	86	4	193
	Pause at mistakes	0	0	0	0	0	0
	Prompts	0	0	1	0	0	1
	Subtotal	0	41	63	86	4	194
Total		16	79	134	223	18	470

Table 5. Differences in rhythm reading comprehension between pretest and posttest.

	Mean pretest	Mean posttest	Z	*p*
Experimental group	2.33	4.12	−4.069	0.001
Control group	2.37	2.95	−3.500	0.001

Table 6. Messages related to rhythm reading comprehension in segments of interactivity.

Unit of analysis	Category	Initial analysis	Tutor reading	Joint reading	Tutee reading	Final reflections	Total
Syntactic analysis	Inducing syntactic analysis	31	0	1	1	1	34
	Subtotal	31	0	1	1	1	34
Metacognitive reflection	Identification of strategies, mistakes and difficulties	0	0	0	0	30	30
	Subtotal	0	0	0	0	30	30
Total		31	0	1	1	31	64

improvement between pretest and posttest for both the experimental group and the control group, although the experimental group shows a higher final comprehension level and more progress between pretest and posttest (Table 5).

Question: what actions within the pairs might explain the improvement in rhythm reading comprehension?

As regards the first level of analysis, which takes segments of interactivity as unit of analysis, results show that initial analysis of the text and final reflections are the segments of interactivity with the highest number of messages related to rhythm reading comprehension (31), followed by tutee reading (2) and joint reading (2). No messages related to comprehension were identified in tutor reading (Table 6).

About the second level of analysis, which takes messages as unit of analysis (Table 6), results show that the categories which obtained the highest frequencies when it comes to rhythm reading comprehension are *Inducing syntactic analysis* (34), and *Identification of strategies, mistakes and difficulties* (30).

Discussion

The results confirm our hypothesis that students improve their rhythm reading fluency and comprehension through participation and musical skills development derived from the project *Ritmos en dos*. As regards fluency, the comparison between pretest and posttest shows a statistically significant improvement for the experimental group, whereas the control group shows no significant differences. When it comes to comprehension, both groups show statistically significant differences when comparing pretest and posttest, that is, both peer tutoring and teacher-centred practice seem to be effective to improve students' rhythm reading comprehension. However, the group participating in the peer tutoring project shows a higher final comprehension level and more progress between pretest and posttest.

The striking question emanating from this study is why participating in a peer tutoring project improves students' level of rhythm reading fluency and comprehension. The interactivity analysis model identified actions around the task between tutors and tutees that could explain this improvement. As regards rhythm reading fluency, data obtained from the analysis indicate two types of actions that were more frequently carried out by students, related to speed regulation – pulse constancy – and the exact pronunciation of each note – reading accuracy. These types of actions are in line with Hansen and Bernstorf (2002), who define fluent music readers as people able to read a text with constant speed and precision in the reading of the symbols. About speed regulation, three different tutors' strategies were identified: (a) to beat time during the whole exercise, (b) to start with an initial count that establishes the tempo to help the tutee contextualise the reading of notation and (c) to use verbal comments to suggest that the tutee should regulate the speed of his or her reading.

Concerning reading accuracy, several actions done by students to improve in this area were identified. The most frequent actions were manual signs or gestures that tutors used to help tutees to connect those movements with the exact moment in which a certain note had to be read. Three different tutors' main strategies were identified: (a) to play the rhythm with the hand simultaneously to the tutee's reading, trying to emphasise the most difficult notes, (b) to try to make the tutee connect certain hand movements with the intensity suggested by the dynamics and (c) to try to make the tutee connect the exact moment in which certain notes had to be read with the up and down hand movements when beating time. These strategies are in line with Dalby's (2005) suggestions for the teaching of music rhythm, where the pertinence of using rhythmic movements that can be connected to the metre and the type of rhythm is highlighted. These kinds of movements might also recall what Brown and Chesnutt (2001) suggest about the possibility that students can associate the division of beats through small foot movements, in which downward movements would represent the first accents of the bar and upward movements would represent the final accents.

These results show that students acting as tutors were able to carry out teaching actions that literature considers to be appropriate for teaching and learning rhythm reading fluency. Initial training of the students and the one-to-one interaction structure might have enabled tutors to offer personalised and quality pedagogical help that led tutees and tutors themselves to improve their rhythm reading fluency. If tutors are provided with tools to offer quality help to their tutees, they can have opportunities for learning by teaching; and at the same time, tutees can learn thanks to receiving personalised help (Duran & Topping, 2017).

When it comes to rhythm reading comprehension, data obtained from the analysis indicate two types of actions that were more frequently carried out by students, related to inducing the analysis of the exercise structure – syntactic analysis – and to the identification of strategies, mistakes and difficulties – metacognitive reflection. Regarding syntactic analysis, two different tutors' actions were identified: (a) to suggest doing an initial analysis of the general structure of the rhythmic exercise based on pre-established criteria in the activity sheet – metrics, tempo, length, dynamics, rhythmic patterns and possible difficulties, and (b) to anticipate these instructions in the activity sheet to show the tutee, under a certain analytical basis of musical syntaxis, some potential rhythm reading comprehension issues, relations between patterns, trends in the rhythmic discourse and possible strategies that might help him or her better understand some elements before reading. These before-reading analytical actions might also explain the improvement in rhythm reading comprehension. Thanks to that initial analysis, students could identify patterns and trends underlying the rhythmic discourse. In line with Molina (2006), analysis seems to become the main tool to access the comprehension of musical phenomena. Before-reading analytical actions were underlined as key for the improvement of sight-reading (Stauffer, 2005) and for the access to implicit processing of music notation (Bautista & Pérez-Echeverría, 2008; Casas & Pozo, 2008), which are closely related.

Concerning metacognitive reflection, at the end of each session, all pairs carried out actions related to the reflection on their own practice. These reflection episodes were led by the tutor, who induced the tutee to assess his or her reading performance, not by offering already-constructed suggestions, but by making questions to help the tutee reach his or her own conclusions. The activity sheet contains two questions to trigger this reflection process: (a) *Which bars were more challenging? Why?* and (b) *What aspects could you improve to develop your competences in rhythm reading?* Metacognitive reflection might also explain students' improvement in rhythm reading comprehension. Unfortunately, reflection episodes were only identified at the end of the sessions, but not throughout them. That is, metacognitive actions were identified in form of reflection on action (Schön, 1983), but not in form of reflection in action (Schön, 1983) or during the planning stage (Zimmerman, 2002). As McPherson (1994) suggests for the improvement of sight-reading, continuous self-assessment is essential to identify mistakes by contrasting the visual information from the music sheet with the musical sounds emitted. The teacher's role would involve supervision and support to foster students' self-assessment along the peer tutoring process. In other words, the teacher has to promote that every pair of students uses co-regulation – through interactions that mediate negotiated regulatory work – and socially shared regulation – regulatory processes, beliefs, and knowledge constructed to a shared outcome (De Bruin, 2018).

Briefly, the statistically significant differences in rhythm reading comprehension might be due to the personalised attention established in peer tutoring, which more easily allows for analysis and constant reflection on the reading activity. In peer tutoring, the climate of confidence to express doubts and pose questions, as well as the possibility to personalise feedback and support, offered by the one-to-one relationship between the two students (Backer et al., 2012), could explain the advantages of peer tutoring over the help provided by the teacher when working with a large group of students. However, results suggest that *Ritmos en dos* was more effective in the improvement in rhythm reading fluency than in the improvement in rhythm reading comprehension. The features of the help given by tutors might explain the smaller effect in rhythm reading comprehension. Tutors usually offered direct help that provided an already-constructed answer to the tutee (i.e., exemplifying what to do), which deprived tutees from opportunities for reflecting and constructing their own knowledge through prompts and scaffolded support. Prompts were barely identified in the interaction within the pairs. Future studies should not only broaden the sample of pairs analysed but also focus on tutors' training to help them learn how to provide scaffolded and metacognitive help to tutees, which help them answer the three questions posed by Cagiltay (2006): *What did I do?, What am I doing?* and *What am I going to do next?*. Training should go in-depth in the different ways of providing help within the use of the reading technique *Pause, Prompt and Praise* (Wheldall & Colmar, 1990). These changes in the training might foster students' rhythm reading comprehension levels and might increase the number of actions related to metacognitive reflection and regulation of learning throughout the activity – not only at the end of the sessions.

In short, the results of this study suggest some relevant implications for music teachers. The students' huge improvement in rhythm reading fluency can be explained by the one-to-one interaction in peer tutoring, which offers each student an active audience who provides ongoing and adjusted feedback. This would not be possible in a class based on the interaction between a teacher and a large group of students. Therefore, there is a need for music teachers to learn how to use cooperative learning methods and techniques, which involves a change in the teacher's role. When students are in peer learning situations, the teacher has the chance to actively listen to their conversations and reasoning, to scaffold students' learning process and to immediately respond to requests for help (Duran et al., 2019). In addition to teachers' nuanced approaches to scaffolding, this study also highlights the need for teachers to be knowledgeable and adept at appropriately coaching students, as well as impactfully fading their influence and letting students demonstrate and articulate their growing confidence in music-making and reading competences.

Further research is needed to complement the conclusions presented in this article with other studies that further explore the use of peer learning strategies in settings of music teaching and learning. Research points to initial training on how to provide scaffolded help and at the organisation of interaction on a cooperative basis as essential conditions to hit the right note. The results of this study suggest that initial training and cooperative interaction should be specifically tackled in music education research to help shed some light on how students can help each other learn music.

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