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Help and Solidarity Interactions in Interactive Groups: A Case Study with Roma and Immigrant Preschoolers

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Abstract: Peer interactions in early childhood education play a key role in establishing the first structures of social relationships and foundations for future development. Engaging in social exchanges with different people enriches children's concurrent and future learning opportunities. Building on the importance of diversifying interactions, interactive groups (IGs) are a specific dialogue-based classroom organization format that creates an inclusive learning environment by allocating students to small heterogeneous groups with an adult volunteer per group. This classroom organization format has produced reported evidence of enhancing social cohesion and academic achievement, mainly in elementary education. However, its potential to foster positive peer interactions in Early Childhood Education among disadvantaged children remains unexplored. Therefore, this case study explores in depth the type and frequency of positive peer interactions in interactive groups in a preschool classroom serving mainly Roma and immigrant children with a very low SES. The results show that in this context, children acknowledge each other's work and provide help, guidance, and solidarity interactions when solving academic tasks. Our analysis reveals that children internalize the rules and functioning of the IG since those aspects emerge in their conversations during the activity. Implications for practitioners and policymakers are also discussed.

Keywords: interactive learning environments; interactive groups; positive peer interactions; early childhood education; help and solidarity interactions; Roma and immigrant children

1. Introduction

Early experiences in childhood are fundamental for children's social development. Specifically, peer interactions during this critical period are particularly important, since they are key elements in the construction of children's social, cognitive, and academic development (McCoy et al. 2017). Previous research has widely demonstrated that contexts that offer responsive, warm, and sensitive interactions benefit children's foundational social skills (Shonkoff and Phillips 2000). However, being exposed to poor interactions in early childhood may hinder children's opportunities to get the best start in life. This may affect especially to Roma and immigrant children who are usually overrepresented in low-performing classrooms with low-quality interactions (Heller et al. 2012). Frequently, they benefit less from high-quality teaching and learning and consequently struggle academically and show high dropout rates and school absenteeism (Alexiadou 2019). Therefore, it is necessary to explore educational settings that reverse this situation and promote successful learning for these groups. One asset in this

matter are the Interactive Groups, a specific dialogue-based classroom organization that creates an inclusive learning environment by allocating students to small heterogeneous groups with an adult volunteering in each group (Valls and Kyriakides 2013). Interactive Groups have reported evidence of enhancing social cohesion and academic achievement, mainly in elementary education and with underrepresented populations. However, its potential to foster positive peer interactions in Early Childhood Education (ECE hereinafter) among disadvantaged children remains unexplored.

Due to the key role that peer interactions play later in life and the potential that IGs have shown so far, this study seeks to respond to the following research questions: (a) What type of positive interactions takes place in IGs among young children with Roma and immigrant backgrounds in an Early Childhood Education?; (b) With what frequency do they occur? To answer these questions, classroom observations were conducted in a school located in a very low SES neighbourhood in Northern Spain, where most of the inhabitants are Roma and immigrants. The rationale for choosing this school is that despite the disadvantaged social and living conditions of the population in this area, the school has achieved high standards since 2010. Our findings show that IGs increase the number of opportunities for young children to engage in positive peer interactions. Particularly, this study reports the help and solidarity interaction frequently emerged when children are working in IGs. These results provide useful knowledge to inform the decisions and practices of ECE teachers as well as of policymakers based on research findings that contribute to impact positively in young children's school engagement and social relationships (Reyes et al. 2012). This could contribute to ending long-established education practices of segregation that Roma and immigrant children face since the earliest school years (Alexiadou 2019). Hence, tackling these inequalities in education is key to achieve the global goal of ensuring high quality ECE for all and to set the foundations for a better society.

2. Literature Review

Early childhood is an important period during which individuals establish initial structures of social relationships. Thus, children's socialization in the early years is a critical building block for their concurrent and future development. This process takes place through children's interactions with adults and peers while they participate in various activities (Booren et al. 2012). According to Haanpää et al. (2019), peer relationships also play a key role in infants' perceived life satisfaction; healthy or positive peer interactions might constitute a stronger predictor of wellbeing at early ages compared to sociodemographic factors, family income, or material deprivation. Particularly in the school context, young children's relationships with teachers and peers have the potential to anticipate school success. Children who have warm and positive relationships show higher achievement and higher social competence than children whose relationships are characterized by conflict (Bierman et al. 2009).

Overall, children's relationships with peers constitute the way in which they share their routines, their values, and experiences, thereby creating horizontal relationships where they learn new functions in ways that are less possible in the vertical dyadic interaction between an adult and a child (De Groot Kim 2005). When such interactions are weak or unsatisfied, research has pointed out some of the adverse consequences, including social isolation, loneliness, social rejection, or even bullying, along with a negative self-perception of social competence (Koster et al. 2009). Therefore, satisfactory, healthy, and positive peer interactions are more desirable. According to Koster et al. (2009), when studying peer group features in inclusive education, satisfactory peer interactions consist of those that include being an accepted member of a group, having at least one mutual friendship, and participating actively and equivalently in group activities. Indeed, the nature of the activity settings might support or constrain certain patterns of peer interactions. For instance, large groups have been shown to facilitate teacher–child interaction, whereas free choice or small groups promote peer interactions. According to Booren et al. (2012), children might have fewer opportunities or feel less comfortable engaging, conversing, and positively asserting themselves with their peers in settings that are primarily teacher-directed, such as large group activities. In contrast, children's interactions with

peers are more positive in child-directed settings, such as child-focused activities in small groups or free play, compared to a large group.

Therefore, children's participation in group activities could be boosted by certain types of group configurations, while other configurations could hinder it. For instance, ability grouping has been widely demonstrated to have long-lasting adverse consequences for the construction of strong social relationships. The literature on this matter has already evidenced how social stigmatization, lowered academic expectations, and decreased motivation are some of the effects that students in low-ability groups may experience (Chorzempa and Graham 2006), along with an undermined confidence and sense of engagement (Higgins et al. 2015; Roberts-Holmes and Kitto 2019). Students from minority backgrounds and low socioeconomic status are overrepresented in the low-ability groups (Boaler et al. 2000). In addition, when children are organized according to their ability (generally, as perceived by the teacher), social relationships across groups become difficult.

However, cooperative classroom atmospheres have reported healthier social attitudes towards peers of different abilities (Hallam et al. 2004). Cooperation, friendship, and social mixing are among the advantages that Tereshchenko et al. (2019) have shown when examining learners' attitudes towards mixed attainment grouping, along with greater self-esteem and positive attitudes towards school. Such cooperative contexts constitute an appropriate social scenario for children to incorporate empathy into their social relationship repertoire, as empathy is an important part of children's relational skills and a prerequisite for successful interaction with peers (Nergaard 2019). These kinds of social interactions were at the heart of the research conducted by Acar et al. (2017), who deeply explored the role of teacher presence and scaffolding in the nature of peer interactions in early childhood education (ECE). Acar et al. (2017) designed a coding scheme to gain a better understanding of the type of preschoolers' exchanges and whether they varied with the presence and support of the teacher. Specifically, they distinguished between positive peer interactions (such as acknowledging peers' work, offering guidance or seeking and providing help, expressing emotions, or following established rules) and negative peer interactions (such as competing with a peer or ignoring them). Their analysis of young children's exchanges concluded that the number of positive peer interactions was over two times higher in child-directed activities compared to adult-directed activities in preschool. The analysis also revealed that teacher social scaffolding, when it occurred, was associated with children's positive peer interactions. Therefore, although adult guidance and scaffolding play an important role in fostering young children's social development (Svetlova et al. 2010), the potential of peer interactions in that matter is also crucial.

Building on the importance of peer interactions and adult scaffolding, a specific classroom organization format, namely, Interactive Groups (IGs), has combined both aspects effectively to foster children's social development and academic achievements in many diverse contexts worldwide. In the IGs format, students are placed in small groups, which are always heterogeneous, ending with the idea of ability grouping. Each group has a different task to solve while being supported by their peers and by a non-teacher adult volunteering in each small group. After a specific time, each group moves to another task. At the end of the session, all the groups have performed all the tasks. The volunteer fosters the children's interactions, and the teacher coordinates the class and provides support when necessary (Valls and Kyriakides 2013). The IGs format is grounded in the dialogic learning approach (Flecha 2015), which is based on seven principles that guide interactions to achieve high-quality learning. The principles of solidarity and egalitarian dialogue are particularly relevant for achieving equity, learning, and inclusion. Furthermore, this dialogic approach, as part of a long tradition in education with many other scholars in the field of dialogic teaching and learning, has contributed improvements that have opened pathways towards the achievement of sustainable development goals in education (García-Carrión et al. 2020).

For instance, a recent study involving 442 elementary students showed that this specific interactive learning environment boosts elementary students' prosocial behaviour when considering help, solidarity, and friendship (Villardón-Gallego et al. 2018). Participants recalled how the IG format

helped them establish relationships of trust and friendship with those with whom they rarely interacted prior to the intervention. In the same vein, when Díez-Palomar and Olivé (2015) explored the types of interactions that take place within IGs when individuals come to a meaningful understanding of mathematics, help interactions were among the productive discussions in which elementary students were involved. Indeed, while children are working within IGs, they can help each other, which leads to them learning better (García-Carrión and Díez-Palomar 2015). Moreover, the IG format has been shown to be effective in promoting the bonds of solidarity and mutual help among native and immigrant students in high school (Valero et al. 2018) as well as among Roma students in elementary education (Flecha and Soler 2013). Indeed, this approach has particularly benefitted the education of Roma children, who face discrimination in school that leads towards high absenteeism and early school leaving (Kirova and Thorlakson 2015). According to Alexiadou (2019), Roma children often attend schools of poor quality, which implies that about 18% of Roma between 6- and 24 years-old, are placed in an educational level lower than that corresponding to their age, and often in segregated schools or classrooms. This reality has exacerbated the stereotypes and the deficit thinking approach towards the Roma, increasing the educational exclusion they have been suffering for centuries (Flecha and Soler 2013). Nevertheless, many efforts have been done to counteract this exclusion by creating supportive and inclusive learning contexts, such as IGs.

When considering earlier stages of education, such as ECE, only one study has been identified that explores the potential of the IGs format as a tool for inclusion in ECE (Aubert et al. 2017). The results of this study revealed that the IGs format benefits children and promotes their cognitive, social, and emotional development. This is especially important in regard to Roma and children with immigrant backgrounds because of the persistent social and educational inequalities they face starting in their earliest years (Vandekerckhove and Aarssen 2019). However, there has not been in-depth research on peer interactions in interactive groups. Due to the key role that the early years play later in life and the potential that the IGs format has shown thus far, this study aims to explore, in depth, the type of positive interactions and the frequencies with which they take place in IGs among young children with Roma and immigrant backgrounds in a school located in a very low SES area in Spain. Our hypothesis is that IGs foster solidarity and help interactions.

3. Materials and Methods

The instrumental case study design fitted the purpose of this research as it allows gaining a deep understanding of a specific social activity within its important circumstances (Stake 1995). Our study focuses on a preschool classroom. In this section, the school context, the participants, the procedure, the ethical considerations, and the data collection and analysis processes are described.

3.1. The School Context

The school is located in a very low SES neighbourhood in Basque Country, Northern Spain. The school serves children from 2 to 16 years of age, including elementary, primary, and secondary education grades. Most of the inhabitants are Roma and migrant people. Despite the disadvantaged social and living conditions of the population in this area, the school has achieved high standards since 2010. In 2013, the school received a national award for its status as a learning community, particularly for its emphasis on providing high-quality interactions among students and a highly diverse population to improve learning and social relationships. It is a community-based school where family and community members usually participate and volunteer in several activities, such as IGs. Organizing the classes into IGs is coherent with the school mission and vision, as those are oriented towards providing the best education to every single child.

3.2. Participants and the Classroom

The current study focuses on IG sessions within a classroom composed of 20 5-year-old students (10 girls and 10 boys), all of whom received free school meals. Of the 20 students, 53% were Roma,

20% were Moroccan, 15% were Pakistani, and 12% were Algerian. The teacher was Basque and had 11 years of experience in ECE; the school year when this study was conducted was her first time teaching at this school. In general, the teacher prepares the activities for the students to solve in IGs. Those tasks must be cognitively challenging. The students recite the ground rules for working together in groups just before starting, i.e., help each other, share the material, and tolerate no violence when doing the curricular tasks. These rules are agreed upon by all the children, the teachers, and the volunteers in an assembly every school term.

In brief, for each session of IG, there are 4 small groups of children with one volunteer each. Each group has approximately 10 min to solve a task, and then they move to the next table until they complete the rotation. The non-teacher adult is in charge of fostering peer interactions to solve the task by providing the support and help they might need. The language used in the classroom is Basque, since it is the official language of instruction in public schools. However, for all the children, Basque is the second or third language, since their mother tongue is Spanish or Arabic, among others, In the IGs, children and adults combined both Spanish and Basque.

Table 1 shows the composition of the small groups, which ensured the maximum possible heterogeneity by taking into account the children's skills, knowledge, cultural background, and gender.

Table 1. Group organization and gender of children.

Group 1	Group 2	Group 3	Group 4
Omar (m)	Zainab (f)	Araitz (m)	Amina (f)
Esther (f)	Fatima (f)	Mohamed (m)	Tarik (m)
Malika (f)	Jorge (m)	Miriam (f)	Hassan (m)
Maria (f)	Elisabeth (f)	Pedro (m)	Jon (m)
Juan (m)	Jose (m)	Vanesa (f)	Silvia (f)

All the names are pseudonyms.

3.3. Data Collection

A total of 10 classroom observations were conducted during the 2018–2019 academic year, particularly in November (1 session), January (3 sessions), February (2 sessions), March (3 sessions), and May (1 session). Peer interactions were observed and audio was recorded in each of the small groups, with the researcher (1st author) following all the groups and participating weekly in the class. Especially when the research involves young children, qualitative observation is one of the participatory methods that is more inclusive, respectful, and closely related to children's rights (Tisdall 2015). In May 2019, a discussion group was conducted in which the whole class and the researcher interacted with the children in Spanish (17 children attended that day) indicated that they were willing to participate, along with the lead teacher and coordinator. The aim of the discussion group was to check the preliminary results of the observations with the children. During this session, the results obtained during the analysis were shared with the children, and they were invited to share anecdotes or examples that could complement the information through questions such as "do you think you help each other in IG?", or "What happens in IG if someone breaks a rule?" and the following prompts "In IG I feel . . . ", "during IG, I get to know . . . .", "When I am in IG I always do . . . ".

3.4. Procedure

The aim of the study and its potential benefits were discussed with the head teacher of the school in October 2018. This information was shared with the ECE teacher team in a meeting held in November 2018. With the agreement of the classroom teacher, the coordinator, and the students' families, IG observations were conducted between November 2018 and May 2019. To do so, one researcher volunteered with the IGs during the Thursday morning maths sessions (9:30 to 10:45), during which class observations were audio-recorded with the children's assent. During those mornings, the researcher gathered with the teacher team early in the morning (8:30–9:00) to talk about

school life during the week and the tasks to be completed during the following IG session. After the IG session, the researcher and the teacher team shared their thoughts and impressions about the session.

3.5. Ethics

Ethical issues were addressed throughout in accordance with the European Early Childhood Education Research Association (EECERA 2015) Ethical Code. Deep respect for the rights of children was ensured by giving them a voice and the ability to participate actively in all the decisions and actions that affected them. Consequently, the researchers ensured that the children's participation was voluntary and not coerced by collecting informed consent from both the school and the families. In the case of the children, the researchers ensured their informed assent by explaining the details of the study and highlighting the key role that they could play in it (Truscott et al. 2019). The researchers reminded the students every day that they could withdraw from the study at any moment without any consequence. When a student did not want to be recorded, the researchers did not put the recorder at his/her table, and consequently, no audio recording was registered from this specific interactive group. This process required close attention to the nonverbal expressions and prompts of young children to ensure their ongoing willingness to be involved or to have their activities observed (Bitou and Waller 2017). The children showed a willingness to participate in the study and were committed as active agents in it (Cuevas-Parra and Tisdall 2019).

3.6. Data Analysis

This study followed a two-step analysis strategy to ensure a rigorous qualitative process. First, the audio recordings of the 10 sessions observed were listened to and transcribed verbatim, that is, 40 small group discussions in interactive groups. All the children's utterances were screened since these utterances were considered the unit of analysis. For the analysis, we used an adaptation of the coding scheme of positive peer interactions proposed by Acar et al. (2017). The original scheme included 12 categories, for verbal and for nonverbal interactions. Since the purpose of our study focused only on verbal interactions, the category "actively engaged" was excluded. In a second round, we clustered those 11 categories based on similar patterns of child interaction, resulting in the following 4 clusters: (1) Acknowledgment and interest in peers, (2) help and guidance interactions, (3) expresses him/herself, and (4) talks about the rules.

4. Results

A total of 797 children's interactions were audible, transcribed, and classified into the corresponding categories. This section is divided according to the four clusters specified in Table 2. As represented in Figure 1, the 'help and guidance interactions' category (442/797, 56%) contains the vast majority of the children's utterances, followed by the 'acknowledgment and interest in peers' category (163/797, 20%). The 'expresses him/herself' category (137/797, 17%) represents the third most-frequent cluster, followed by those utterances wherein the children recalled the rules of the IG during the activity (55/797, 7%). Extracts of the children's interactions are included for each cluster and presented in the following sub-sections.

Table 2. Adaptation of the coding scheme of positive peer interactions of Acar et al. 2017, p. 22.

Cluster	Positive Peer Interaction	Description
Acknowledgement and interest in peers	Simple acknowledgment	Child provides or receives simple acknowledgments; supports peers' statements; gains attention of peers; shows pride in peers.
	Shows interests in peers	Child imitates a peer's verbalization or shows interest in what the peer does.
	Joins and/or invites peers	Child verbally joins a peer (who is alone) in a specific activity or invites the peer to an activity; beginning/initial stage of play.
	Asks simple questions	Child asks a question to another peer; the question should not be a help-seeking question.
Help and guidance interactions	Helps (active)	Child provides explanation and/or information to a peer; provides help to a peer; offers help or shares materials that she/he was using; models behaviour; or indirectly helps peer accomplish or complete a task.
	Seeks or receives help (passive)	Child seeks or receives explanation and/or information from a peer; requests or receives help from a peer.
	Leads peers (active)	Child is leading a peer in an activity.
	Is led by peer (passive)	Child is being led by a peer in an activity.
Expresses him/herself	Expresses emotions	Child is expressing emotions
	Describes	Child describes what s/he sees, hears, wants, needs and/or does.
Talks about the rules	Follows the rule	Child recalls the rules and talks about them; child follows classroom rules; child follows the rules of the group activity
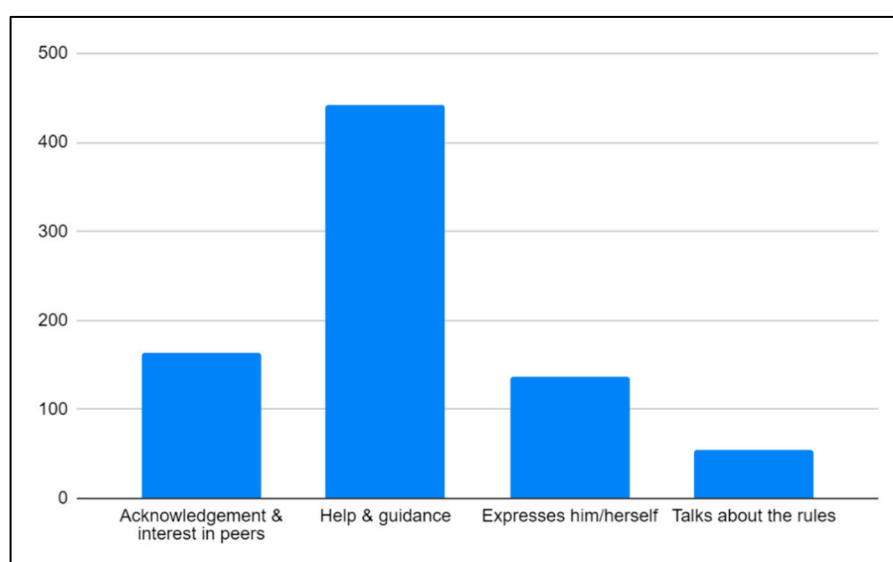
Figure 1. Positive peer interactions in interactive groups (IGs).

4.1. Acknowledgment Interactions and Interest in Peers

This cluster gathered references from the following categories: 'simple acknowledgement' (54/163, 33%), 'shows interest in peers' (53/163, 32%), 'invites or joins a peer' (33/163, 20%), and 'asks simple questions' (23/163, 15%). In other words, when a child provided or received acknowledgment from

peers in the IG—for example, supportive interactions or showing pride in a peer—such utterances were classified in this wider cluster, along with interactions reflecting an invitation to a peer to join one's work. Simple questions were also classified in this dimension, as they show interest in one another's opinions or experiences. Figure 2 details the categories of positive peer interactions included in this cluster.
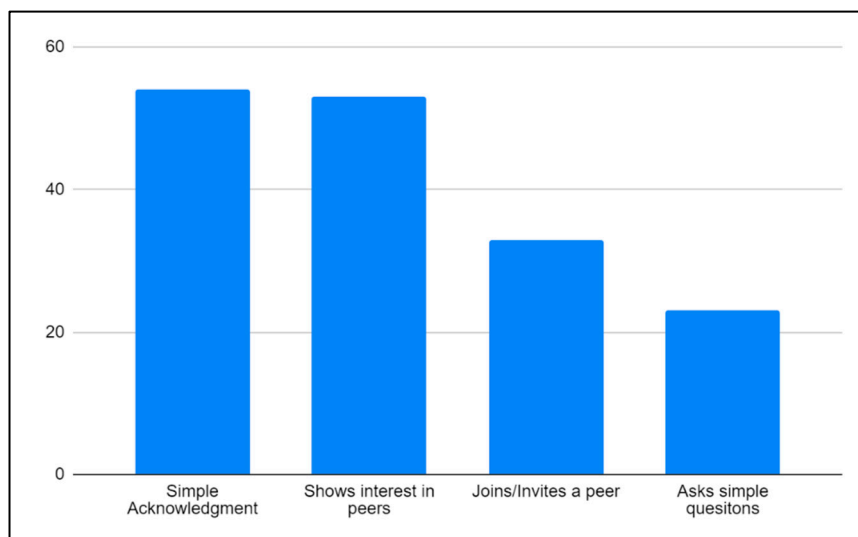

Figure 2. Categories and their frequencies within 'acknowledgment interactions and interest in peers'.

In this vein, the results showed frequent exchanges acknowledging peers' work or effort during the task: 54 interactions were included in the 'simple acknowledgment' category, resulting in 34% of the utterances in the 'acknowledgment interactions and interest in peers' cluster. Sometimes a single pupil acknowledged the effort of the entire group (e.g., "Hurray!"); other times, all the group joined together their encouragement to acknowledge a single peer's effort. For instance, the following excerpt details an interaction among Tarik, Jon, Hassan, and Amina. Amina had difficulties solving the task. When she finally solved the problem while being supported by her classmates, the group acknowledged her efforts as follows:

Tarik: "Come on, Amina!"
Jon: "Well done! Very well!"
Hassan: "Well, well!"
(14/02/2019. Session 8.1)

Across all the data analyzed, the phrase "Well done, very well" is used the most by the children to support each other in the IG task process. Indeed, the power of teacher expectations beginning in the early years is well known in the literature; thus, these interactions provide some insights into the power of children's expectations in preschool.

When peers showed interest in a classmate's work, we also considered this an indirect type of acknowledgment, for instance, when a child asked a question with a positive tone to highlight interest in a peer's work (e.g., Silvia: "Did you do this, Hassan?"). Other times, a peer's work was valued through a positive comparison between one student's production and that of another student (e.g., "Look, they are similar; mine and yours are identical.")

Twenty percent of the utterances coded under the 'acknowledgment interactions and interest in peers' cluster referred to 'joins or invites a peer'. For instance, when Gisela said "We can do it together" (24/01/2019_session 2.2), she was inviting Omar to join her in the task. Simple questions were exchanged within IGs 23 times.

4.2. Help and Guidance Interactions

This cluster grouped all the interactions that referred to providing explanations or information to a peer, providing help to a peer, offering help or sharing material that a student was using, or indirectly helping peer to complete a given task. This kind of interaction was identified 164 times (out of 442), resulting in 38% of the total interactions coded within the 'help and guidance interactions' cluster. In the same vein, interactions regarding seeking and receiving help were classified when children requested or received help for a peer, and this occurred 145 times, resulting in 32% of the total references within this cluster. These two categories were content-linked to offering guidance between peers; therefore, the utterances classified into the 'leads a peer' and 'is led by a peer' categories were also considered within the 'help and guidance interactions' cluster. These categories represent 28% of this cluster. Figure 3 offers an overview of the categories and their frequencies within the 'help and guidance interactions' cluster.
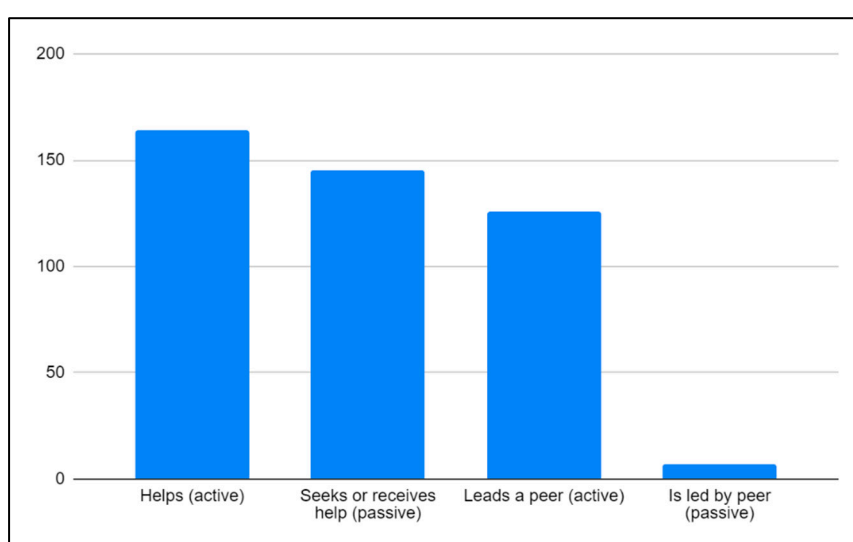

Figure 3. Categories and their frequencies within 'help and guidance interactions'.

4.2.1. Providing Help Interactions

References to offering help such as "Can I help you?" and "Do you need help?" were found in the children's dialogues, with a total of 164 interactions in the 10 sessions analyzed. In each of the 10-minute small group observations, these questions appeared up to 25 times. Sometimes a partner helped spontaneously by explaining to those who had difficulties with the task how to solve the task and supervising them. The process of providing these explanations and making such thoughts explicit increases the learning of both children, namely, those who explain and those who receive the explanation. The following excerpts illustrate some of the help offered during the IGs:

Silvia: "Hassan, can I help you? It is very easy, you'll see."
(28/03/2019_session 1.1)

Juan: "Malika, look, you can do it this way: 1-2-3-4 or this way: 1..2..3 and 4. Do you see there are two ways?"
(22/11/2018_session 3.2)

In IGs, students are not given roles as they are in other types of group work. In the previous excerpt, Juan helped Malika, but this helps is usually interchangeable since the dynamics of the IG format and the ground rules foster open and flexible interactions in which everyone is invited to contribute to the dialogue equally, opinions can be expressed and discussed, and help is fostered and promoted.

Often, peers' help serves as a scaffolding for understanding the task. The following excerpt details how Jon offered to help "give clues" and ask Tarik questions and how he guided and supported Tarik until he solved the problem:

> Jon: "May I give you any clues?"
> Tarik: "Yes."
> Jon: "Let's see . . . what do you think, this or this one?"
> Tarik: "This one."
> Jon: "Ok. And . . . this one . . . and that one are similar?"
> Tarik: "No."
> Jon: "So, why is there one yellow and here one green?"
> Tarik: "Because they are not alike."
> Jon: "Therefore, the yellow one . . . "
> Tarik: "Cross it out."
> Jon: "That's it!"
> (24/01/2019_session 2.3)

Interactions related to 'offering help' were observed in the groups when working together on the tasks (Tarik: "Hassan, can I explain it?" 02/05/2019_session 4.3), and those interactions appeared spontaneously or were requested by another child. However, help interactions were also observed when children offered some materials (Jon: "Why don't you also use my sheets because I have more" 07/03/2019_session 9.1) or gave prompts for completing a task (Amina: "Hassan, can I help you? Can I help you find your file?" 03/14/2019_session 7.1). Both when the children helped spontaneously and when the help was a response to a request, the analysis revealed that the interactions of offering help were not an isolated event during the IGs. Jon's words recorded reflect the basic idea of the IGs: "If you need help, we help you" (02/14/2019_session 8.4).

4.2.2. Seeking and Receiving Help

Students sought help to solve a task 145 times, resulting in 32% of utterances within the 'help and guidance interactions' cluster. Sometimes, the request was addressed to a specific peer who replied positively, as exemplified by the following excerpts:

> Hassan: "Jon, how is that?"
> (02/05/2019. Session 4.1)

> Fatima: "Zainab, can you help me?"
> Zainab: "Yes."
> (14/03/2019. Session 7.2)

> Fatima: "That's so difficult . . . Omar, can you help me with this?"
> (18/03/2019. Session 1.3)

On the other hand, the children also internalized the dynamics of asking for and receiving help. Maria, one of the girls, reflected on the importance of helping, especially for those who need it most:

> Malika: "Maria . . . Maria, help. I don't know."
> Esther: "Maria helps me."
> Maria: "No, I will help everyone. Because if not, if I help only one of you, then the other one will be mad at me, the time will pass, and we will not do anything. No, I must help. Therefore, I will do my work and help a little. Let us see, first the little one. Let's see, what do you want, Malika?"
> (28/03/2019. Session 1.2)

There were no interactions of asking for help that remained unanswered or unresolved, which indicates that the dynamic of the IG format fosters solidarity in such a way that no child is left behind.

4.2.3. Leading and Being Led by a Peer

During the IGs sessions, the children showed the tendency to offer supervision to a peer, whether someone verbally requested it or was simply quietly stumped and needed help. Due to the nature of the analyzed material (only audio, without video images), the researchers could only identify verbally expressed interactions of this nature, which were frequently closely related to actively providing help to a peer. Overall, 128 interactions of this kind were registered, resulting in 29% of the content within the 'help and guidance interactions' cluster. The following two excerpts exemplify how two pupils led a peer by providing guidelines for solving a task. The first example shows how Maria guided Esther through the task's stages. The second example shows how Silvia helped Hassan to figure out the task by solving together the composition of the number 8.

> Maria: "Esther, this is done, ok? Now, you keep going with the next."
> (28/03/2019_session 1.2)

> Silvia: "Hassan, you put 7 and I put 1."
> (28/03/2019_session 1.1)

4.3. Expresses Him/Herself

Describing one's actions and expressing one's emotions come together in the 'expresses him/herself" cluster. During IGs, the children were observed putting words to their actions. By doing so, they specified their thoughts and the steps they followed to complete the task they were involved in. Such statements were classified in the 'describe' category, as no peer interaction intention was identified. In other words, the children's utterances were categorized here when the purpose of such a statement was mainly to guide their own actions. Overall, 18% (137/797) of the total coded utterances were of this type. The following extracts are examples:

> Maria: "I thought we had to find the missing one, but I know this one is bigger. However, this one cannot be because its colour is different. Therefore, it indicates that this is not ... "
> (24/02/2019_session 2.2)

> Silvia: "This is brown because this is 8, and it has the same form as this 8."
> (22/11/2018_session 3.3)

4.4. Talks about the Rules

During the IGs, the children talked and remembered the rules previously agreed to in their groups. A total of 55 interactions talking about the rules were registered, which results in the children remembering some of the rules an average of five times during each IG session.

Helping, sharing, and reporting unfair situations or inappropriate behaviors were the rules agreed upon by the class. Helping each other was one of the rules that the group established from the very beginning, and as has been shown, this rule is a common practice during the IGs. This principle has been internalized by the children, and it emerged in the dialogue between peers, as shown in the following excerpts in which Maria and Fatima remembered that they must help each other solve the task and that this help can be given to any peer:

> Maria: "Well ... we have to help each other. We must help."
> (28/003/2019_session 1.2)

> Fatima: " You can help anyone or everybody. You can help her ... or her ... ."
> (24/01/2019_session 2.1)

The materials belonged to everyone, and everyone agreed to take care of them and share them. A reminder of this rule emerged at different times, i.e., when a child did not respect the materials

and especially when a child used manipulative materials. When a student reminded the group about the rule, the children in the group took a stand in supporting and respecting the rule. The following dialogue is an example of this, in which Vanesa and Mohamed reminded Pedro, who was monopolizing more strips than he needed to solve the task, that the material belonged to everyone and must be shared:

> Vanesa: "No, it's not yours, it belongs to everyone. You must share it because it belongs to everyone and is not only for you. They belong to everyone."
> Pedro: "It doesn't matter."
> Vanesa: "It matters. We have to share (…). It is for everyone."
> Mohamed: "Yes, it is for everyone."
> Vanesa: "So, listen, we have to share. (Put the material) in the middle, and that's it."
> (14/02/2019. Session 8.1)

Regarding the rule of reporting unfair situations or inappropriate behaviors, the children also agreed to always take a stand in favor of the victim and to consider those children who take a stand as brave and as heroes, thereby making them attractive in the group. The following excerpt details when Vanesa spoke aloud to denounce Araitz's attitude, who was misusing the material instead of focusing on the task. Vanesa complained by reflecting on that rule, and Araitz changed his behavior and refocused on the task:

> Vanesa: "Araitz, this is not for that, it's for doing the tasks. We are heroes, and heroes do not mistreat the materials that are mean for work. And I don't like that [what Araitz was doing then]. I enjoy having friends who share their things and who listen and respect the rules."
> (28/03/2019_session 1.4)

Disruptive behaviors that broke the rules were openly rejected. Thus, the space for dialogue and help offered by the IGs contributes to the internalization of positive attitudes to build and maintain an egalitarian space for dialogue in which everyone can learn and flourish.

5. Discussion and Conclusions

According to the analysis of peer interactions in interactive groups, our results show that preschool children mainly acknowledge and show interest in peers, provide and receive help and guidance, and internalize the rules, which they remind others about during group work. This specific classroom organization format appears to be fruitful in encouraging children to make their thoughts explicit, which is already shown to nurture early development (Vygotsky 1978).

The acknowledgment among children and their attempts to verbally value their peers' work or efforts to succeed in the task helps to create and maintain a highly motivating learning space in which every child is believed to excel. Thus, children's expectancies might have a positive impact on peers' academic and social performance, just as adult expectancies are already known to have such an impact (Rosenthal 1987). These acknowledgment interactions that highly value peers' doings might be aligned with the warm interactions that Bierman et al. (2009) suggested are related to school success.

Our findings show that the most frequent peer interactions during IGs are related to help and guidance. This outcome reveals the potential of this form of classroom organization to foster solidarity interactions among young children, even among those who might face greater challenges in education (Vandekerckhove and Aarssen 2019). In line with previous research, this study reveals that the IG format is an effective classroom organization for fostering core values, such as solidarity and empathy, through effectively promoting help and guidance interactions among peers (Díez-Palomar and Olivé 2015; García-Carrión and Díez-Palomar 2015). Moreover, these results show how the IG format promotes the bonds of solidarity and mutual help among disadvantaged preschoolers. This is consistent with previous research that has already demonstrated similar patterns with elementary and secondary students (Valero et al. 2018).

Based on the prominence of the help interactions we observed, we argue that the IGs format challenges the idea that immigrant children are not stimulated to ask other children for help or to give support to another child (Peleman et al. 2019). Indeed, seeking and providing help appear to be optimal scaffolds for the children to support each other in understanding tasks. As the participants of this study came from disadvantaged Roma and immigrant families, the findings related to the children's interactions that provided and sought help and guidance might support the findings of Chen et al. (2013), who concluded that adversities might increase children's solidarity behaviors. As the observed help interactions included not only academic support—scaffolding—and guidance but also help related to sharing materials, this study challenges previous conceptions about children's limitations to act on the knowledge of unequal distribution of material (Cowell et al. 2015).

Along with enhancing solidarity among young children, IG has been shown to promote empathy. According to Aubert et al. (2017), children who participate in IGs from ECE onwards develop much more empathy for their peers and are more attentive to another person's needs. The present case study broadens this previous knowledge by revealing that the IGs format not only fosters children's awareness of others' needs, but also encourages them to act by offering help and guidance to peers and being emotionally supportive, thereby bridging the gap between being empathic and acting empathically (Fehr et al. 2008). This interactive learning environment, which has already been shown to promote prosocial behavior, such as solidarity and friendship, creates a feedback loop in social situations, as students who have friends and who are socially accepted by their peers also tend to be more sociable, cooperative, and prosocial (Villardón-Gallego et al. 2018). Indeed, socially supportive environments where friendships flourish have been identified as a powerful protective tool for children to prevent violent situations (Rios-Gonzalez et al. 2019). For such spaces to succeed, an agreement about the rules is crucial.

Among the analyzed interactions, talking about the rules appeared to be intertwined with the discussions held in the IGs. This finding highlights the relevance of stabilizing and agreeing on the rules at the social level so that children to internalize them, as this specific school does in its assemblies. The process by which the rules emerge in children's dialogues has been evidenced in other research that analyses the use of exploratory talk (Mercer et al. 1999). In particular, Mercer et al. (1999) pointed out how the ground rules for exploratory talk operate with elementary students. For instance, when pupils share relevant information and seek to reach an agreement, the group takes responsibility for their decisions and enriches the pupils with reasons. In the case of IGs, the principles underpinning the activity are those within the dialogic learning approach (Flecha 2015). The principle of solidarity appears especially relevant for this particular case, as it surfaces during the vast majority of the analyzed interactions aimed at helping and when children recall the agreed rules and take an active stand for them. Thus, the IGs format emerges as a promising arena for children to train in core moral issues such as justice and the active defense of fundamental agreements.

Ultimately, the IGs format contributes to overcoming the potential negative effects that Roma and immigrant students might suffer in ability grouping, such as social isolation, loneliness, social rejection (Koster et al. 2009), social stigmatization, undermined confidence, and poor engagement (Chorzempa and Graham 2006; Higgins et al. 2015; Roberts-Holmes and Kitto 2019). By organizing the classroom into IGs, preschoolers become part of a dialogic learning context that fosters flexible interactions; that is, students are not giving a particular role to play in the group. In this context, everyone is encouraged to engage and work together by expanding, rather than restricting, the ways in which children can talk and think in school (Clark et al. 2003). This approach favors a strong foundation for establishing the first healthy structures of social relationships and therefore contributes to enhancing future development. Our results have implications for early-year classrooms located in highly disadvantaged areas, since this study might inform teachers regarding nurturing help and solidarity while also simultaneously fostering cognitive development when learning mathematics. Enhancing both dimensions at the same time becomes crucial in regard to vulnerable students (Melhuish et al. 2013). Although we acknowledge the uniqueness of every context, educational inequalities of

historically marginalised students follow similar patterns across different countries (Lampert et al. 2019). Hence, the results of the present study might be applicable across diverse geographical contexts. This is coherent with the benefits of IGs reported in many diverse disadvantaged contexts: From rural poor areas in Latin America (Soler et al. 2019), to schools serving students with special needs in diverse contexts in Spain (García-Carrión et al. 2018).

However, these implications might be limited by the nature of the current study, as it is focused on a single preschool classroom. Therefore, it would be interesting to contrast the obtained results with research that includes more groups in early childhood and in different contexts. In addition, as the present research is grounded on audio recordings of children's interactions, nonverbal interactions were not collected. As physical interactions are a common tool of communication in ECE, future studies could address this gap by considering both verbal and nonverbal interactions and thereby contribute by having wider insight into the nature of peer interactions within IGs. A more scientific approach to ECE might reveal the evolution and sustainability of the findings presented in this study and shed more light on the understanding of how practitioners could transfer the benefits of the IG format to diverse contexts.

Particularly in a highly challenging area, organizing early childhood classrooms into IGs is shown to increase the number of opportunities to engage in positive peer interactions. This approach implies useful knowledge to inform the decisions and practices of ECE teachers. Since research has shown that peer interactions become increasingly influential during middle childhood (Lin et al. 2015), offering early-year students the opportunity to experience positive peer interactions that lead to enhanced values such as solidarity can set the basis for better outcomes in middle childhood. Policymakers might find this case study useful for rethinking recommendations for grouping preschoolers, especially in highly disadvantaged schools that serve those who traditionally face more inequalities, such as Roma children and students with immigrant backgrounds. By providing an evidence-based picture of the affordances created by the IG format under which children exhibit help and solidarity among themselves, teachers, policymakers and citizens have a unique opportunity to increase the likelihood of every single child succeeding both educationally and socially. For this to happen, the political agenda in education should be based on what research has shown to be effective for the inclusion of these populations (Kirova and Thorlakson 2015). Indeed, evidence-based policies have demonstrated greater effectiveness, especially when it comes to overcoming long-established education practices of segregation in several schooling environments (Alexiadou 2019). The evidence presented in this paper might contribute to the nearly 50 years of child development research, which informs a wide array of early childhood initiatives that improve the life prospects of vulnerable children (Shonkoff and Fisher 2013). Educating our children starting in the very early years about solidarity behaviors in classrooms in which no one is left behind can be the first step in advancing towards the global goal of achieving inclusive and cohesive societies.

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