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Employing Social Network Analysis to Examine the Social Participation of Students Identified as Having Special Educational Needs and Disabilities

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ABSTRACT

The number of students with identified Special Educational Needs and Disabilities (SEND) in mainstream schools has been rising in the last three decades, primarily due to policy changes promoting inclusive education. However, many of these students remain socially isolated despite expectations that inclusion may lead to enhanced outcomes, particularly social outcomes. This paper draws on a study conducted in three countries; Cyprus, Spain, and Switzerland. A critical case study design, grounded in social capital theory, was adopted to examine the concept of social participation from a social network perspective in six Grade 4 classrooms, two in each country. Data were collected through 109 network surveys. Network maps for each classroom were developed, and social network measures were calculated. The findings from each case/classroom were encouraging in terms of the social participation of students with SEND and have provided a layer for understanding social responsiveness and inclusion of each classroom. The social participation for many students with SEND was found to be comparable to peers without SEND.

Introduction

As a result of international policy developments and implementation, there has been a growing momentum towards the inclusion of students identified as having Special Educational Needs and Disabilities (SEND) in mainstream education settings (e.g. The United Nations, 2006; Unesco, 1994). The term SEND is being used in the context of this study as a broad term to include all students that may be identified as having a disability and/or a special educational need. We are aware that in certain contexts these terms are being used interchangeably whereas in other contexts disability or special educational needs may not mean the same thing. Therefore, in order to reach a wider international audience, we have decided to adopt the term SEND, without necessarily implying that these are the most suitable or justifiable terms to use (Norwich, 2017).

It is increasingly being argued that students identified as having SEND may particularly gain social and academic benefits (Frederickson, Dunsmuir, Lang, & Monsen, 2004; Hanushek, Kain, & Rivkin, 2009; Lindsay, 2007) by being included in mainstream classrooms. Inclusion is a highly contentious concept which has been broadly defined as an ongoing process of educational provision, ranging from providing access to and educating students with SEND in mainstream classrooms (Rafferty, Boettcher, & Griffin, 2001) to an endless process of developing the school for all (Booth & Ainscow, 2002). Inclusive settings are seen by many parents and educators as providing more opportunities for enhanced social participation, such as increased friendships, social relationships and interactions with peers as well as engagement in social and play activities (De Boer, Pijl, & Minnaert, 2010; Symes & Humphrey, 2011). However, there is substantial evidence to show that students identified as having SEND predominantly remain socially isolated and are likely to have fewer friends (Bossaert, Colpin, Pijl, & Petry, 2013a; Mamas, 2013; Pijl, Frostad, & Flem, 2008), thus resulting in decreased social participation.

This study set out to examine the social participation of students identified as having SEND, by employing a critical case study design within a social network analysis framework. Data were collected from six Grade 4 classrooms, across elementary schools in Cyprus, Spain, and Switzerland (one school, two classrooms per country). In total, 109 out of a total of 114 students completed a social network survey, 21 of whom were designated as having SEND. In applying social network analysis, we aimed to address two main objectives. First, to examine the structure of the classroom social networks and what it may imply for social participation. Second, to understand the structural position of students with SEND as compared to their classmates within their classrooms' social networks. In doing so, we aimed to investigate the social relationships of all students and the implications for their social participation, especially for students with SEND. Both objectives have been addressed through a social network analysis survey. Three network measures and visual network maps have been calculated and developed, respectively, which are discussed in the method section.

The concept of social participation has been elaborated on in many studies, and it would be essential to convey a definition within the context of this paper. Koster, Pijl, Houten, and Nakken (2007; 2010) who reviewed relevant studies, found that social interactions and relationships, playing together, social contacts, and friendship networks are often described by researchers as major aspects of social participation. In particular, they have identified four key themes related to social participation: friendships/relationships, contacts/interactions, students' social self-perception, and acceptance by classmates. Within the context of special and inclusive education, Kennedy, Cushing, and Itkonen (1997) described social participation as comprising social contacts between students identified as having SEND and their peers, as well as friendship networks. Henceforth, in this paper inclusion is viewed as promoting the active social participation of all students. Consequently, the notion of participation is central to an understanding of inclusion. As Rustemier (2002) notes, a student can be physically included in a group by sharing a location, but socially, emotionally and intellectually excluded by being unable to participate in learning and other activities. Therefore, it is important to draw a distinction between access to education and participation in it (Florian, 2007), whereas Booth (2013) argues that participation involves going beyond the access and implies learning alongside others and collaborating with them. Similarly, Florian, Black-Hawkins,

and Rouse (2016) have identified three key aspects of participation, namely access, collaboration and diversity.

To examine social participation in this study, we employed a social network analysis approach. First, this approach has enabled the quantity of social relationships and relational ties between students to be captured. Second, two main aspects of students' social relationships, namely friendships and playing together during recess have provided a dynamic perspective on students' social participation. Overall, social network analysis was used to understand social participation by illustrating the network structure and structural position of students within their friendship and recess networks.

Theoretical Framework

This study is grounded in a social capital theoretical framework (Putnam, 2001, 2007). Daly (2010) argues that social capital represents one of the principal conceptual foundations in understanding social networks. Subsequently, social network theory and analysis are central in understanding the social networks of students within the six classrooms. Scott (2013) has described social networks as a form of social capital that students may employ to enhance their advantages or opportunities. Therefore, social networks have value for students (Putnam, 2001) with respect to promoting their social participation and inclusion.

The attainment of social capital is reflected in the ability of individual students to leverage relational ties to successfully engage or share with others (Borgatti, Everett, & Johnson, 2013). This idea implies that there is a network of relationships between and among individuals that can be examined through social network theory and analysis which is primarily concerned with network structure and position of an actor within a network (Borgatti et al., 2013). For example, the structure of a classroom network may be important in understanding and improving the pedagogical ecosystem of that classroom whereas the individual position of actors may be equally revealing the teaching and learning that is taking place there. Additionally, network structure and position may drive the flow of resources, knowledge or support in a classroom through the channel of interpersonal relationships, in line with social capital theory and social network perspective (Putnam, 2001; Scott, 2013). Therefore, understanding network structure and identifying one's position within a network may provide insights into actor and network level outcomes, such as social participation and inclusion.

Social network theory is important as it provides a framework for understanding how social capital is being generated and flows through the pattern of social relationships among students in a classroom social network. A notion of social capital is that social relationships provide access to resources that can be exchanged, borrowed and leveraged to facilitate achieving goals (Moolenaar, Daly, & Sleegers, 2012). Therefore, classroom social networks built up through friendship ties or other relational ties may provide access to social capital and subsequently enhance social participation. In our case, an actor is a student whose position in a network may or may not provide opportunities for interpersonal social interactions and may well be related to social participation, inclusion or exclusion, behaviour, and other important aspects of schooling. Social network research suggests (Daly, 2010) that those primarily informal webs of

relationships can be the key factors of how well students are socially accepted, academically included, and actively participating in the classroom environment.

Method

We employed social network analysis in collecting and analysing the data within a critical case study design. A social network analysis survey comprised the main data collection method and was administered to all 114 students across the six classrooms. In total, 109 students completed the survey, resulting in a 95.6% response rate across classrooms. A total of 21 students (18.4%) were identified as having SEND (see Table 1). Most of these students have been identified as having learning difficulties (14), some of them with a physical disability (3), autism (3), selective mutism (1), and additionally many of them were of migrant background with language challenges.

The age of Grade 4 students across the three countries ranges between 9 and 10 years old. Information on gender distribution among participants is provided in Table 2. The individual classroom response rates are all 100%, except in the case of classroom 5 where the response rate is 68.8%. Despite this lower response rate, it is still possible to conduct social network analysis with a response rate close to 70%, however, this is a reported limitation of the study. In the literature, it is noted that for most efficient network analysis a response rate of 70–80% is desired (Grosser & Borgatti, 2013; Neal, 2008).

The survey consisted of two main questions with regards to students' friendships and play during recess. A roster with all names of classmates was provided for each question and students were asked to check the names of their friends in the classroom (question 1) and who they play with during recess (question 2). Providing a roster was perceived as more advantageous as it reduces the recall error and students get the chance to respond for each of their classmates (Scott, 2013). The disadvantage of this technique was that we had to receive the classroom name list in advance, which was slightly time consuming. Another inherent ethical challenge of a social network analysis survey questionnaire is the use of children's names. To conduct social network analysis, students should provide their names as well as have access to their classmates' names. Therefore, anonymity at the data collection phase was impossible (Borgatti et al., 2013). However, during the analysis phase, all names of children were replaced by randomly assigned numbers.

Table 1. SEND rate per classroom.

	Cyprus		Spain		Switzerland	
	C1	C2	C3	C4	C5	C6
N (all)	21	22	16	15	16	24
N (SEND)	3	1	4	3	2	8
SEN rate (%)	14.3	4.5	25	20	12.5	33.3

Table 2. Gender of participants.

	Cyprus		Spain		Switzerland	
	C1	C2	C3	C4	C5	C6
Girls	11	11	9	7	6	12
Boys	10	11	7	8	10	12
Total	21	22	16	15	16	24

A Critical Case Study Design

A critical case study design (Yin, 2014) was applied across the six cases/classrooms. Data collection took place during the 2016–2017 academic year. Within a critical case study design, the researcher has a well-developed theory, and cases are chosen because they allow a better understanding of the theory (Bryman, 2016). Social capital represents the theory that drove this study and the six classrooms/cases were chosen on the basis of providing a better understanding of this theory (Bryman, 2016) in terms of students' social participation. Therefore, the purpose of this design was not generalisability of findings but rather in-depth understanding of social capital theory across the six cases. In doing so, we aim to provide an alternative methodological platform for understanding social participation and social responsiveness of a classroom by applying a social network analysis framework.

In addressing the two main objectives of the study, our analysis focused on six Grade 4 classrooms, across three countries. Our intention was not to compare the three countries with each other. Rather, our aim was to implement social network analysis in six transnational cases to get a snapshot of the social participation of students identified as having SEND as well as to ascertain how helpful and rigorous this type of methodology is in doing so. The cases were primarily selected based on geographical distribution (three countries), diversity in terms of SEND (18.4% – some classrooms with high rate of SEND and some with low), classroom size (range from 15 to 24 students), and students' grade (only Grade 4 classrooms).

In Cyprus, data were collected from two classrooms located in an urban middle-class elementary school. The size of the school is around 350 students, with low rates of immigrant students (7.3%) which is in line with formal statistics (CSS – Cyprus Statistical Service, 2017), showing that 86.19% of public primary school students in Cyprus are Cypriot and only 13,81% are foreigners (EU and Non-EU citizens). In both C1 and C2, the majority of pupils are of Greek Cypriot families and speak Greek as their first language (mother tongue). In C1, there is only one pupil with an immigrant background (4.8%), who learns Greek as a Second Language. Similarly, in C2, there are three pupils with an immigrant background (13.7%), who learn Greek as a second language. Furthermore, in C1 there are three pupils diagnosed as having SEND (14.3%), whereas in C2 there is only one pupil with SEND (4.5%).

Cyprus has adopted a dual model of the so-called integrative and/or inclusive education. On the one hand, special units, according to the respective legislation (MEC – Ministry of Education and Culture, 2001), provide education for students, identified as having more complex SEND. On the other, students who are identified as having SEND or 'students with special needs', as they are referred to within the Cypriot context, comprise the largest portion of students within the context of special and inclusive education, which means that they receive their education in mainstream settings, either in mainstream classrooms or special support classrooms. The 113(I)/1999 Education Act for Children with Special Needs (MEC – Ministry of Education and Culture, 1999) introduced officially the notion of integration and/or inclusion in Cyprus, which was put into effect in 2001 (MEC – Ministry of Education and Culture, 2001). In line with this law, students are being identified as having SEND through an assessment process conducted by an interdisciplinary team of special education professionals. The

team defines the SEND and decides on special education services to be provided to the child. Parents' input in the whole process is significant and valued.

In Spain (C3+ C4), data were collected from a public school located in a culturally diverse neighbourhood. The school provides education to nearly 300 students from pre-school to elementary education, of whom about 45% are non-Spanish. In each of the classrooms, there is one non-Spanish speaking student. The school's educational mission reflects and takes into account this diversity. There is an intention of innovation and improvement of the educational practice. This is reinforced in the active participation of the teachers in different continuous professional development programs. In terms of students' evaluation for special needs, the Public Law 2/2006, Organic Law of Education (LOE, 2006) stipulates that the identification and evaluation of students with special educational needs will be carried out by multi-professional (multidisciplinary) teams (Rao, Cardona, & Chiner, 2014). According to them, the evaluation of the student and the context are to be done to help professionals make decisions about the type of schooling, the special education provisions, and the curricular adaptations that are necessary for the personal, intellectual, social, and emotional development of the students.

In the Swiss context, both classrooms (C5+ C6) are located in a medium socio-economic neighbourhood within the German part of Switzerland and the size of the school is comparable to the other two cases. C5 is highly linguistically and ethnically diverse with a high number of students from families with a migration background. Six out of 16 students are learning German as a second language and two students come from a bilingual family context. Three students from C6 have a migration background. In Switzerland, the Law on Equal Rights for People with Disabilities (BehiG, Behindertengleichstellungsgesetz, 2002, Art., p. 20) recommends on the Federal level that the cantons promote integration. In terms of special needs evaluation, cantonal agencies provide case evaluation, diagnosis, guidance counselling and treatment. Special need education services are offered after an application, an evaluation of the case and an admittance decision.

Measures

Social network measures have been calculated at two levels of analysis; whole and node level. For calculating network measures and generating visual network maps, we used UCINET (Borgatti et al., 2013). At the whole network level of analysis, density, and reciprocity (Borgatti et al., 2013; Scott, 2013) have been applied to examine relevant properties of the structure of the networks. For example, density of a network provides a ready index of the degree of dyadic connection in a population and is usually defined as the sum of the values of all present ties divided by the number of possible ties (Hanneman & Riddle, 2005). Therefore, density may show how well connected or not a network is, which could be an indicator of how social participation and associated social capital of students with SEND is structured and flows (Borgatti et al., 2013). Moreover, reciprocity was calculated. In friendship and recess networks, a classroom that has many reciprocated relational ties between students may be a more inclusive and socially responsive where students enjoy learning as they feel socially valued and integrated. A network, which has many reciprocated ties, may be more conducive to better flow of social capital (Hanneman & Riddle, 2005). At the node level of analysis, in-

degree centrality was calculated to examine the structural position of students in the network. In a classroom network, centrality indicates specific aspects of the quantity of the pattern of ties that surround an individual student making them socially 'active' in a network. In-degree centrality, which is the average number of incoming ties, can be seen as a measure of popularity and as an indicator of social participation and valuable source of social capital (Scott, 2013).

Results

The results are being structured under the study's two main objectives. The first objective was to examine the structure of the classroom social networks and what this structure may imply for social participation. The second objective was to understand the structural position of students with SEND as compared to their classmates without SEND. Overall, the analysis has shown some differences between the cases, primarily in relation to the structure of social networks, however, minor differences were found with regards to the position of students with SEND in the two social networks examined.

Network Structure

To examine relevant properties of the structure of the friendship and recess networks across the six classrooms, density, and reciprocity measures (Borgatti et al., 2013; Scott, 2013) were calculated (see Table 3) as well as visual network maps were developed. First, density at the whole network level of analysis was calculated across the six classrooms (see Table 3). Density scores for the friendship network range from a lowest 0.32 (C2) in Cyprus to a highest of 0.62 (C3) in Spain.

Figures 1 and 2 show the friendship network maps in these two classrooms that reflect the respective density scores. Green-coloured nodes represent boys and red-coloured nodes represent girls. Students with SEND are shown in triangles whereas node size is defined by in-degree centrality, which is the number of nominations received by each student. The bigger the node size is the more friendship nominations received. Looking at the network maps, we can see that C2 students are not as densely connected to each other in comparison to students in C3. However, the visual difference is only subtle, as the number of students in C2 is higher (22) than C3 (16). Therefore, the density readings enable a better understanding of the two networks, as visually the differences between the two networks may not be as apparent due to classroom size variance. Students with identified SEND seem to occupy both central and peripheral positions within the network. For example, students 5 in both classrooms are located on the periphery with probably the smallest node size within

Table 3. Density and reciprocity scores.

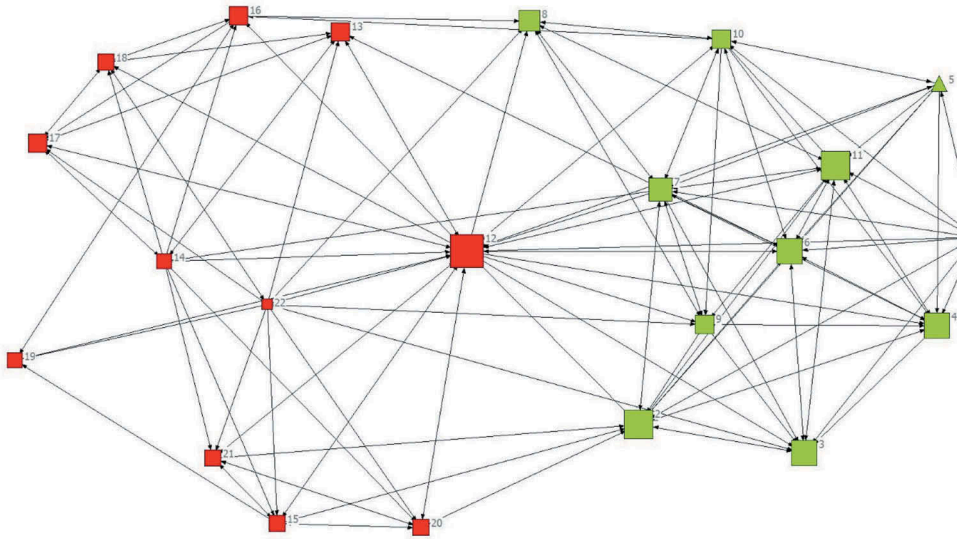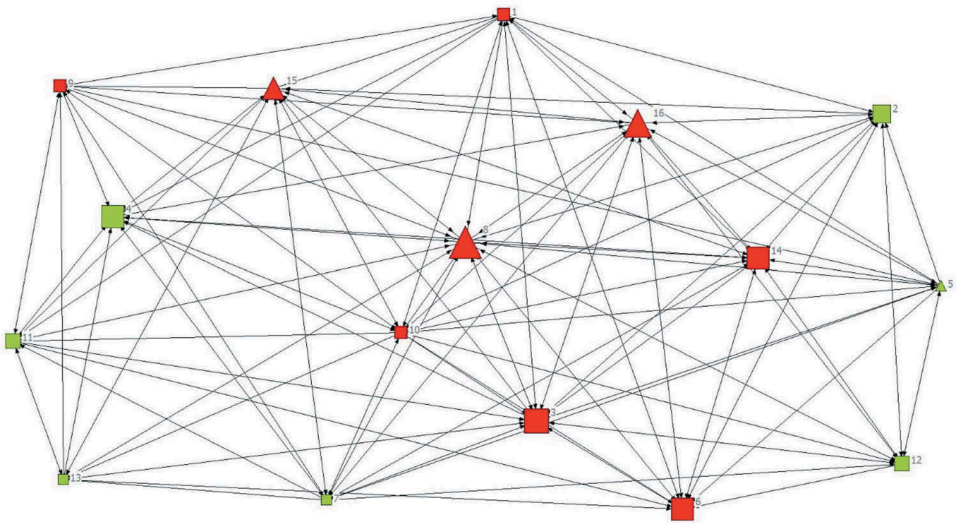| Country	Cyprus		Spain		Switzerland	
Classroom	C1	C2	C3	C4	C5	C6
Density Friendship	0.60	0.32	0.62	0.60	0.49	0.40
Recess	0.43	0.40	0.35	0.49	0.43	0.63
Reciprocity						
Friendship	0.72	0.68	0.74	0.75	0.49	0.74
Recess	0.62	0.70	0.74	0.66	0.50	0.72

Figure 1.

Figure 2.

their networks. However, the remaining three students with SEND in C3 (8, 15, 16) seem to be more central within the friendship network of their classroom with comparable node size to that of their peers without SEND.

Overall, C2 in Cyprus has the lowest friendship density (0.32) and C3 in Spain has the lowest recess network density score (0.35). This is rather interesting as C3 has the highest friendship density score (0.62). Primarily, friendship density scores are higher than recess except for C2 and C6. C6 has the highest recess density. Figure 3 shows the recess network map for C6. In a visual manner, we can easily see that all students in C6, including those with
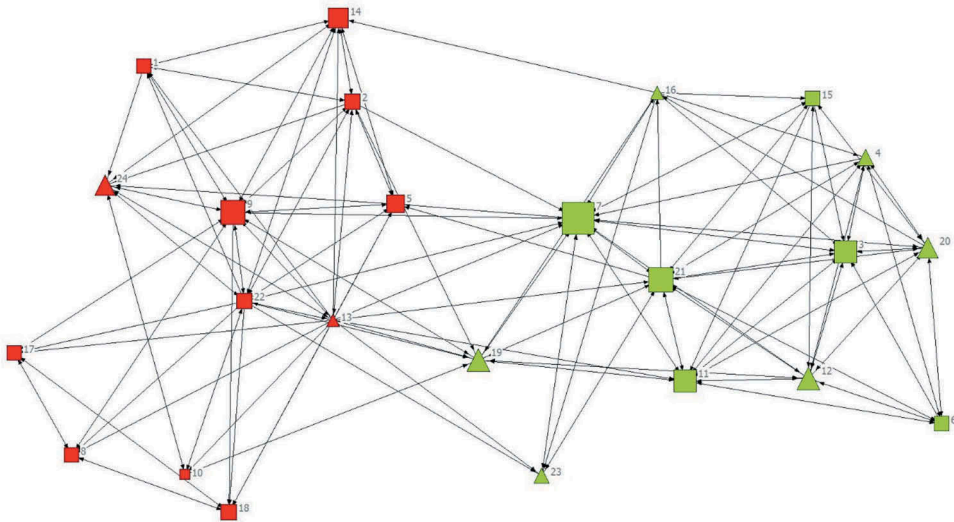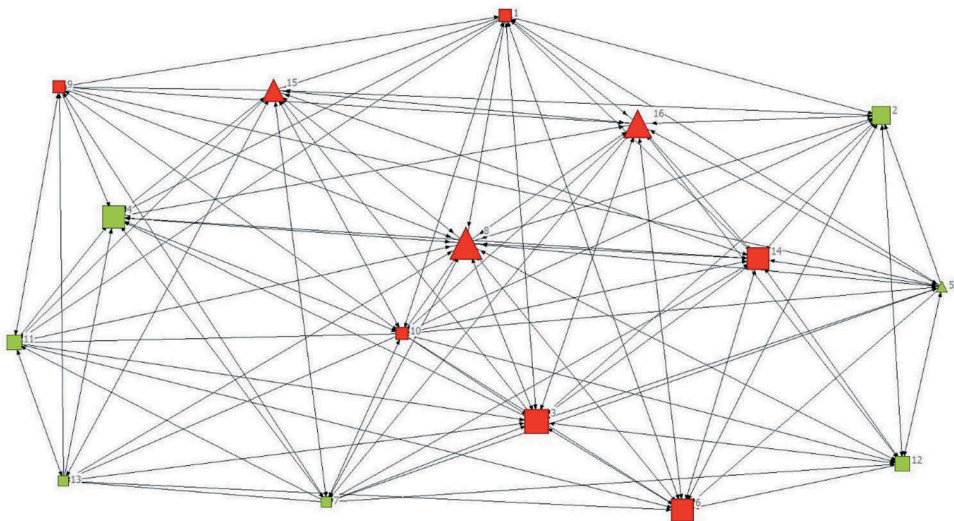
Figure 3.

Figure 4.

identified SEND (triangular shapes), are relatively well connected to each other whereas students in C3 seem to be slightly less densely connected (Figure 4). Despite the high recess density in C6, it seems that there is a gender division as boys appear to play mostly with boys and vice versa. There are only a few inter-gender connections whereas in C3 it seems that relatively there is more interaction and play between boys and girls. This is evident across the network maps shown in Figures 3 and 4.

Reciprocity was the second measure that was calculated to examine the structure of friendship and recess networks across the six classrooms. At the whole network level of

analysis, reciprocity represents the proportion of all outgoing arcs that are reciprocated. Table 3 shows reciprocity scores for all classrooms.

Across the six classrooms, both in friendship and recess networks, the analysis resulted in high reciprocity scores. It seems that of all friendship and recess ties, between half and three quarters are reciprocated. C5 had the lowest reciprocity levels but this may be attributed to the lower response rate in this classroom. Friendship and recess reciprocity scores were rather similar, which shows that children's friendship and recess ties may be correlated. This is an expected finding as we would anticipate that 10-year-old children would choose to play with their friends during recess and vice versa; playing with someone during recess may be conducive to building a friendship tie.

Structural Position

In addressing the second objective of the study, which was to examine the structural social position of students identified as having SEND compared to that of their peers, in-degree centrality was calculated. In-degree centrality provides an index of popularity within a network and is calculated by summing up the incoming friendship and recess ties for each student. Table 4 shows the normalised in-degree centrality scores for all classrooms.

Students identified as having SEND across five of the six classrooms were found to have a lower in-degree centrality score compared to their peers. Overall, it seems that these students have on average slightly less friendship connections and peers to play with compared to their typically developing peers. However, in C3 students with SEND, perhaps surprisingly, have on average more friendship nominations (0.75) and more peers to play with (0.42) than their classmates. The in-degree scores for these students are exceptionally high, especially in the friendship network. On average, students with SEND in this classroom have between 7 and 8 reported friends whereas non-SEND students have 5 to 6 reported friends. It is worth noting that student 8 (girl with SEND) in C3 (see Figure 3) has a perfect in-degree centrality score of 1, meaning that all classmates nominated her as a friend. Having a full in-degree score is highly unlikely and very rarely can be seen in a classroom network. Being a student with SEND makes this score even more noteworthy.

Collectively, across the two networks, students identified with SEND score an average friendship in-degree centrality of 0.38 and an average recess in-degree centrality of 0.34. The respective scores for peers without SEND are 0.55 (friendship) and 0.43 (recess). On average, the in-degree scores are higher for students without SEND and this may imply that they may be more socially active within their classrooms in comparison to peers with SEND. However, as we have seen, this is not the case for all classrooms. These

Table 4. Normalised in-degree centrality.

Country	Cyprus				Spain				Switzerland			
Classroom	C1		C2		C3		C4		C5		C6	
SEND	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Friendship	0.62	0.45	0.33	0.19	0.57	0.75	0.62	0.52	0.74	0.53	0.42	0.37
Recess	0.46	0.28	0.40	0.33	0.32	0.42	0.51	0.40	0.66	0.39	0.21	0.20

findings cannot be generalised as the sample size is small, and the research design of the study does not allow for generalisability.

In summing up this section, we see that across all classrooms (except for C3) in-degree centrality is higher for non-SEND students, however marginally in most cases. This may show that the structural social position of students identified as having SEND, in most classrooms, is similar to those without SEND, implying that they have nearly as many reported friends and play partners as their peers. However, in the case of Cyprus, there is a more noticeable difference between SEND and non-SEND students, with the latter having considerably higher friendship in-degree than the former.

Discussion

In this study, we implemented social network analysis within a critical case study design to examine social participation with regards to the quantity of friendships and recess interactions as well as understand how friendship and recess relational ties may act as conduits of social capital within these networks. Social network analysis provided a comprehensive framework to capture the nested structure of relationships within the two classroom networks (Scott, 2013). Overall, we found that the social participation of many students designated as having SEND within the six case study classrooms is enhanced and comparable to students without SEND. Our analysis has shown that many students with SEND occupy, on the whole, a similar network position to their peers, have as many friends and play partners and are as socially accepted as their peers. However, in five classrooms, with the exception of C3 in Spain, students identified as having SEND have been found to receive, on average, less friendship nominations, as it was reflected on their lower in-degree centrality scores, especially in the case of the two Cypriot classrooms. By contrast, in C3, students with SEND on average were found to have more friendship ties and play partners than their non-SEND counterparts, which is not usually the case.

We have explored the concept of social participation of students identified as having SEND by examining the structure and position of these students within the six friendship and recess classroom social networks. Membership in these two types of networks (friendship and recess) comprised the main criterion for assessing social participation. Thus, social participation and social capital were explored in relation to the friendship and recess ties each student received (in-degree centrality) as well as reciprocity and density scores for their respective classrooms.

Network Structure, Position and Social Participation

With regards to the structure of the social networks, we found that density and reciprocity scores (network structure) as well as in-degree centrality (position) may be revealing of the overall classroom social participation, responsiveness, and inclusion. As our findings suggest, classrooms with higher reciprocity and density scores may be more conducive to the social participation of students with SEND. In these classrooms, students identified as having SEND had nearly as many friends and play partners and only minor differences in the in-degree centrality scores were observed. A notion of social capital is that social relationships may provide access to resources that can be exchanged, borrowed and leveraged to facilitate achieving goals (Moolenaar et al.,

2012). Particularly, in classroom settings, social capital may provide access to social, emotional and academic support, well-being, and sense of belonging. Therefore, high reciprocity and density in combination with increased friendships and recess connections (in-degree centrality) are likely to facilitate access to and flow of social capital and subsequently may enhance social participation.

In our view, the dynamic interrelationship between density and reciprocity scores with the individual in-degree scores is very important within inclusive settings. Our analysis has provided some insights into how classroom networks with high density, reciprocity, and centrality scores may be more conducive towards enhancing the social participation and social capital of all students, including those with identified SEND. These insights may suggest that exploring the quantity and quality of social relationships, and overall classroom social network dynamics may be key towards contributing to our understanding of social participation as well as the social responsiveness and inclusivity of a classroom. This represents a shift from a deficit view of disability, SEND and diversity in which students' social participation is seen primarily through the individual student and their ability or inability to form friendships and social interactions with peers based on their prosocial skills.

In comparing friendship and recess centrality scores across the two populations of students, in all cases friendship in-degree centrality is higher than recess centrality, except in C2. This implies that students receive more friendship nominations than recess play nominations. Children seem that they are more selective and specific when it comes to choosing their play partners whereas the construct of friendship seems to be more wide-ranging. In practice, this may imply that overall play partners are also nominated as friends but not all friends are nominated as play partners. Reciprocity scores follow a similar pattern, meaning that friendship reciprocity scores are higher than recess scores.

In general, research regarding the social participation of students identified as having SEND in inclusive classrooms is ambivalent (Garrote, Dessemontet, & Opitz, 2017). Our results reflect this ambivalence. Most studies have revealed a bleak picture of the social participation and acceptance of students with SEND, but our study has overall shown more positive results. For example, several studies have shown that pupils with SEND included in primary schools have fewer friends than their peers (Avramidis, 2013; Bossaert et al., 2013a, 2013b; Estell et al., 2008; Frostad & Pijl, 2007; Koster, Pijl, Nakken, & Van Houten, 2010; Mamas, 2013; Pijl et al., 2008; Rotheram-Fuller, Kasari, Chamberlain, & Locke, 2010). This is somewhat reflected on our sample, particularly in C1, C2, and C5. However, in other classrooms, particularly C3, C4, and C6 within our study, students with SEND appear to have nearly as many friends as their peers without SEND which is in line with a number of studies (Avramidis, 2010; Boutot & Bryant, 2005; Garrote, 2016; Walker, 2007). In C3, students with SEND have been found to have even more friends and play partners than their counterparts without SEND. A similar picture has been observed in terms of recess interactions. In three of the classrooms (C2, C4, C6) students with SEND had on average as many play partners as their peers without SEND, whereas in C3 these students have been found to have more connections than peers without SEND. These findings are in disagreement with numerous studies in the field (Avramidis, 2013; Cambra & Silvestre, 2003; Estell et al., 2008; Frederickson, Simmonds, Evans, & Soulsby, 2007; Garrote, 2016; Grütter et al., 2015; Koster et al., 2010), whereas

only a handful of studies provided evidence in agreement with our findings (Boutot & Bryant, 2005; Harper, Symon, & Frea, 2008). Overall, our study has shown that students' social capital, as a result of their friendship and recess social networks, may enhance social participation and inclusion within a classroom setting. Therefore, educators should be more intentional in creating, managing and maintaining a socially responsive and inclusive learning environment for all their students, particularly those identified as having SEND. Relationships may act as conduits of social capital flow and also provide access to social capital. In the six cases examined, students with high in-degree scores may be more likely to access resources, knowledge, and support as a result of their increased connectivity with others in the network.

Conclusions and Limitations

Even though our findings cannot be generalised due to the study's design and sample size, they present important implications for inclusive practice and may contribute to the continued debate on social participation within a special and inclusive education context. Primarily but not exclusively, we have found that many students with SEND occupied a comparable position within their networks, by having, in most cases, nearly as many or more friendship ties and play partners as their peers without SEND. This is encouraging within the context of inclusion because a lot of studies have shown that these students are predominantly socially isolated within mainstream school settings. The differences between classrooms seem to suggest that classroom social dynamics and classroom climate can play a key role in shaping the social participation of all students and particularly those designated as having SEND.

This study is not without limitations. First, the findings cannot be generalised as this is a case study design. Therefore, it cannot be implied that one classroom or country is more socially responsive over another or what we found in these classrooms can be generalised to other similar classrooms. The findings are only relevant to the six participating case study classrooms. Second, social network analysis provided a snapshot of the friendship and recess social networks across the six classrooms. It should be noted that social relationships, especially in elementary school children, may be quite dynamic and easily changeable. We primarily examined the quantity of social relationships and structure of those social networks, but we cannot infer much about how these networks are formed or evolve. Therefore, our ability to explain the *why* of the structure of networks is limited. To do so, qualitative ethnographic-style methods of data collection should be implemented. In relation to this, the stability of friendship and recess nominations in young children also needs to be examined. To extract more concrete conclusions about how social networks are formed and evolve, longitudinal social network data are needed. This is not to imply that taking a snapshot is not useful or rigorous but longitudinal data can provide a more complete picture over time. Third, the lower response rate in C5 (68.8%) in comparison to the 100% response in the other five classrooms, presents some challenges in comparing and interpreting the results from that classroom. However, many studies in the field are being conducted with similar response rates to C5. Despite the limitations, our study provided a snapshot of the social participation of students identified as having SEND. Social participation has been examined and defined in various ways. In our view, social network analysis

methods can potentially provide a comprehensive framework in exploring, assessing, and understanding social participation. Future studies may include longitudinal and qualitative data to produce a more complete picture of the social participation of students identified as having SEND in mainstream settings.

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