Predictions on the Frequency and Importance of Social Contacts Across Placements: A Bayesian Multilevel Model Analysis

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Abstract

Parents and teachers have identified the social inclusion of students with complex support needs as one of the most important components of school participation. Previous research has found that the opportunities for, and importance of, social contacts for students with complex support needs vary by educational placement. The purpose of this study was to evaluate a national sample of 92 elementary-aged students with complex support needs to determine whether placement predicts the number and importance of social contacts. We used multilevel regression analysis to measure the extent to which placement predicts the number of social contacts and teachers' ratings of importance. Students in inclusive placements had almost 50% more social contacts than students in a segregated school. Furthermore, teachers' perceptions of the social significance of the contacts experienced by students with complex support needs were notably higher in inclusive settings. Given these findings, we suggest implications for practice and future research.

Predicting the Frequency and Significance of Social Contacts Across Placements: A Bayesian Multilevel Model Analysis

The examination of social contacts and their importance has yielded a rich set of findings regarding the influence and significance of these contacts on valued outcomes in school, work, and community life for all students (e.g., Barber & Hupp, 1993; Fryxell & Kennedy, 1995; Kennedy et al., 1990; Ladd, 1990; Landesman-Dwyer et al., 1979; Osterman, 2000; Santillan et al., 2019). As early as the 1990s, studies in general education demonstrated that (a) school adjustment is positively correlated with the number of classmates a student has as friends (Ladd, 1990) and (b) while a student's sense of acceptance and belonging influences behavior across a range of school performance variables, organizational practices within schools (e.g., the distribution of students into *placements* for their educational services) tend to limit student experiences of membership and inclusion (Osterman, 2000).

Research has underscored the impact of educational placement on social contacts influencing opportunities to interact with their peers, engage in shared experiences, and/or become friends with peers in natural settings (Biggs & Snodgrass, 2020; Feldman et al., 2016). In this study, educational placements were defined per Section 618 of IDEA: (a) Placement A, defined as a placement where students with complex support needs were represented in natural proportions and spent 80% or more of the school day in the general education classroom; (b) Placement B, defined as a placement in which students with complex support needs were represented disproportionately in a school setting and spent 40-79% of the school day in the general education classroom; (c) Placement C, defined as a placement in which students with complex support needs were represented disproportionately and spent less than 40% of the

school day in the general education classroom; and (d) Placement D, defined as a special school and access to general education classroom was not possible. Previous research including students with complex support needs (e.g,. Kennedy et al., 1994) has shown that placement affects the social contacts of students with complex support needs. More inclusive placements relate to more social contacts.

One longstanding rationale for the inclusion of students with complex support needs has been the communication and relationship opportunities general education participation affords (e.g., Carter et al., 2016; McLeskey et al., 2014). These opportunities have been shown to positively impact the social contacts and relationships of students with complex support needs (Kennedy et al., 1994; Carter et al., 2016; Asmus et al., 2017). "Social contacts" have been the most frequently used defintion of social connection for over three decades (e.g., Brinker & Thorpe, 1984). As a quantitative measure, social contacts have many desirable features including precision of measurement, replicability across contexts, and desirable scaling properties (Haring & Breen, 1992). A social contact is defined as a sustained period of interaction within the context of specific activities (Carter et al., 2016; Kennedy et al., 1994). They are substantive social interactions occurring between individuals that last for extended periods of time (e.g., 15 min of sustained shared activity) rather than brief meetings or exchanges of social amenities. Measuring the number of social contacts provides information regarding the extent to which a student is included with peers and participates in the "mainstream of school activities." However, it is important to emphasize that the number of social contacts are not sufficient to infer the development of friendships.

Historically, researchers have focused on the social lives of students with complex support needs by developing and implementing interventions that increased the quantity of

discrete interactions. Although it has been important to focus on these measures, changes to these discrete interactions do not always reflect evidence of the development and maintenance of socially significant relationships. Brown et al. (2020) point out that peer relationships take many forms and can vary in how they provide benefits and opportunities for students with complex support needs and their peers without disabilities. The relationship can be formal (e.g., peer tutoring) or informal (e.g., acquaintance) and enduring or short. What is critical is that relationships include reciprocating parties perceiving the relationship to be socially significant. This social significance is a critical condition for social contacts to develop into meaningful relationships.

Researchers have used a variety of approaches to examine the number and social significance of social contacts experienced by students with complex support needs in different placements. Kennedy and Itkonen (1994) evaluated the effect of being educated in the general education classroom on students' social contacts and social networks (i.e., socially significant peer affiliations). Baseline measures were focused on students' typical community-based curriculum with peer tutoring and friendship programs. The intervention measures included students' participation in a general education classroom using the general education curriculum and primarily group-based instruction. The authors found general education classroom participation increased, and students initiated novel social contacts with peers without disabilities who later became socially significant members of students' social networks.

Carter et al. (2016) extended the research on social contacts and networks by comparing the academic and social outcomes of high school students with complex support needs in general education classrooms receiving individualized assistance through peer support arrangements and adult-delivered support. Special educators identified students' social contacts that lasted 15 min

or longer within an activity. Carter et al. found that students who received peer support gained significantly more friends without disabilities compared to students who received adult support. Further, many students with complex support needs and peer partners without disabilities had maintained social contacts and friendships one year after the intervention.

Unfortunately, the social contacts of students with complex support needs have often been characterized as occurring less frequently and even when they do occur, of being judged as lower in social significance than those of their peers without disabilities (Carter et al., 2008; Petrina et al., 2014). Observational studies consistently show infrequent social contacts within school settings for students with complex support needs (e.g., Carter et al., 2005; Raghavendra et al., 2012). Even within inclusive settings, social contacts for students with complex support needs can be rare (Feldman et al., 2016). Individuals with complex support needs have had relatively few social contacts and these contacts were most commonly parents and support professionals (Bigby, 2008; Forrester-Jones et al., 2006; Milner & Kelly, 2009; DeGotto et al., 2010; Kennedy et al., 1990).

The research just reviewed suggests that students with complex support needs who have access to general education classrooms and peer supports experience greater gains in social measures than those in more restrictive placements. The observation that there may be a relation between social measures and classroom placement suggests that placement may serve as an influential variable. Thus, a student's educational placement (i.e., Placements A, B, C, and D noted previously) directly affects the quantity and importance of their social contacts. This study examined the extent to which a student's educational placement predicts the number and importance of social contacts using a large national sample of students with complex support needs in elementary schools. We addressed the following research: (a) does placement help

predict the total number of social contacts? and (b) does placement help predict the perceived importance of social contacts?

Method

This study was part of a larger national research study that used multiple outcome measures to explore the effect of educational placement on the academic, behavioral, and social/communication outcomes of students with complex support needs (see Kurth & Jackson, 2022). Research teams from six universities conducted the research: University of Kansas, University of Northern Colorado, University of Utah, University of Wyoming, University of North Carolina at Greensboro, and University of New Mexico. Institutional Review Board approval was obtained by the study's principal investigator from the University of Kansas and then co-principal investigators from the remaining universities obtained reliance agreements.

Research teams coordinated the recruitment of a national sample of participants from four educational placement designations across four geographic regions of the United States (i.e., West, Midwest, Northeast, and South) that included urban, suburban, town, and rural schools. Students with complex support needs were selected for participation in this study based on the following criteria: (a) categorized within the 1% of students who participate in their state's alternate assessment due to the complexity of their support needs in multiple domains; (b) an IDEA diagnostic classification of autism, intellectual disability, or multiple disabilities; (c) currently eligible for special education services and receiving services through an IEP; (d) elementary-aged student between 5- and 12-years-old at the start of the study; and (e) consistent school attendance.

Research teams first contacted school districts and charter schools to explain the study and recruit their participation. After a school district or charter school expressed interest in

participating, research teams completed the necessary procedures to obtain district approval.

Research teams then contacted schools in approved districts with basic information about the

study and student inclusion criteria. School staff were asked to forward information about the

study to the families of eligible students to obtain student assent and parent/guardian consent.

Informed consent forms were obtained from parents/guardians of student participants, all

teachers who expressed an interest in serving as respondents (e.g., special education teacher,

general education teacher), and school administrators.

Participants and Settings

There were 117 students with complex support needs in the full sample for the larger

research study (see Kurth & Jackson, 2022). Of these, 92 students with complex support needs

were retained in the sample for this study in which we used the Social Connections and

Relationships Assessment (SCRA; adapted from Kennedy & Itkonen, 1996 and Carter et al.,

2016) to document the students' social contacts across the four placement designations. Twenty-

five students were not retained in the analysis because of missing SCRA data. Demographic

information about the participants is included in Table 1. In terms of placements, 20.7% (19) of

the students spent 80% of their school day in general education (Placement A); 30.4% (28) of the

students spent 40-79% of their day in general education (Placement B); 29.4% (27) of the

students spent 0%-40% of their day in general education (Placement C); and, 19.6% (18) of the

students were in special schools with no routine access to general education (Placement D). The

92 students were attending 47 schools across 36 local education agencies in the United States.

The students came from six of the nine Census Bureau divisions across the United States (e.g.,

Mountain, South Atlantic), representing all four geographic regions.

It is also important to note that students' social skills data would have reflected *post-placement* social skills (as opposed to pre-placement social skills) and were not included as covariates in Bayesian modeling. Specifically, controlling for any *post-placement* factor (e.g., post-placement social skills) could introduce "post-treatment bias" if the impact of placement on social contact outcomes is mediated by them. The correct solution to avoid the danger of "post-treatment bias" would be to include *pre-placement social skills* as a covariate in the Bayesian model instead of *post-treatment* social but we did not have access to pre-placement social skills data in this study. Although we considered including social skills as a covariate, we selected not to include it as a covariate because the risk of introducing post-treatment bias was too great. We opted against including any covariate in this study to focus on prediction instead of causation. Future studies with more rigorous designs will be better positioned to address causal questions based on lessons learned from this exploratory/predictive study.

Demographic data were collected from 87 teachers (some teachers taught more than one student) who completed the SCRA for the students in this sample, including special education teachers (n=55; 63.2%) and general education teachers (n=32; 36.8%). The majority of teachers identified as white (96%), non-Hispanic (92.4%), and female (93.3%) with an average age of 38.9 years old (range=23-70). Teachers reported an average of 11.7 years of teaching experience ranging from 1-34 years.

Measures

We collected data on social contacts by having students' teachers of record complete the SCRA (adapted from Kennedy & Itkonen, 1996; Carter et al., 2016). Two weeks before researchers began an on-site visit, teachers were provided a Qualtrics link where they were asked to complete the SCRA. For this study, researchers asked teachers to list every social contact (i.e.,

an interaction lasting at least 15 min around a shared activity) the focus student had at school

during the prior two weeks. For each contact, teachers recorded (a) the first name of the peer and

(b), the perceived importance of the peer to the focus student (i.e., *not very important, somewhat*

important, very important). The teacher provided their own rating of how socially important the

contact was perceived to be to the participating student. Some indicators of not very important

included the student with complex support needs rarely talking about the contact or seeking

interactions with the contact and often choosing not to interact with the contact when given an

opportunity. Some indicators of somewhat important included the student sometimes talking

about the contact or seeking interaction with the contact and the student with complex support

needs sometimes choosing to interact with the peer when given an opportunity. Some indicators

of very important included the student often talking about the contact or seeking interaction with

the contact and the student with complex support needs often choosing to interact with the

contact when given the opportunity. Data were also collected on the length of the relationship, if

the contact had a disability, and if the contact was a peer tutor. In a separate section, teachers

listed other contacts with whom the student with complex support needs had not had a social

contact in the prior two weeks—but were considered to be friends—along with items a and b

above.

       We adopted this measurement approach for the same reasons cited in Asmus et al.

(2017): (a) sociometric techniques would not have been feasible or reliable; (b) students had

complex communication needs or other support needs; (c) participants were almost always in the

presence of special educators or paraprofessionals who could report on extended social contacts;

and (d) this approach has been used successfully in prior studies involving students with complex

support needs (e.g., Asmus et al., 2017; Carter et al., 2016; Fryxell & Kennedy, 1995; Kennedy

et al., 1997). However, it is a limitation of the instrument that the information is from the

perspective of the teacher and not the student or peer.

Data Analysis

Our data on social contacts came from 92 sampled students [level 1] nested in 47

sampled schools [level 2]. To compensate for the sampling complexity, our primary modeling

strategy was two-level regression analysis (students nested in schools), with an appropriate link

function for the differently scaled outcomes (e.g., Zero-Inflated Poisson for total counts of social

contacts; multinomial for (ordered) importance rankings of social contacts). Within a generalized

linear mixed modeling (GLMM; Stroup, 2012) framework, we made the standard assumption

that school effects (u_j) followed a Gaussian (normal) distribution, $u_j \sim N(0, \sigma_u^2)$. Accordingly,

regression coefficients for the placement options should be interpreted as school-specific (i.e.,

the regression coefficients specifically for schools in which the corresponding school effect $= 0$).

Although we considered a range of options to managing missing data, we selected to remove the

25 students in the full sample with unknown social contacts rates from this analysis as simulation

research documents that listwise deletion can be a pragmatic solution to missing data in

exploration research (Kromrey & Hines, 1994). This is especially true when the modeling

assumptions undergirding more complex approaches, such as, for example, multiple imputation

are questionable as is typically the case when working with populations of students with complex

support needs wherein sample sizes are bound to be small with complex missing data patterns.

Of the 25 missing SCRAs, 16 were missing from placement A, 6 from placement B, 3 from

placement C, and 0 were from placement D.

To address our first research question (*Does placement help predict the total number of*

social contacts?) we tested our first exploratory hypothesis (H_1): Comparing students who differ

in their placements, those in more inclusive placements will on average have higher numbers of

social contacts than their counterparts in less inclusive placements. Specifically, we tested the

extent to which a model with placement effects (M_1) fit the data better than the model without

any placement effect (M_0) using Bayes' Factor (BF_{10}) analysis (Hicks et al., 2018). We selected

Bayes' Factor analysis because simulation studies demonstrated it performs well in small sample

analysis (Pooley & Marion, 2018). Incidentally, we used the most probable effect estimates of

placement options with the sample data as our effects for the alternate model in Bayes Factor

analysis given that their direction aligned with our exploratory hypothesis. In Bayes Factor

analysis, BF_{10} quantifies the relative fit of the alternate and null models to the data such that, for

example, $BF_{10} = 10$ indicates that the alternate model (M_1) fits the evidence ten times better than

the null model (M_0). In line with Jeffreys (1931), we interpreted Bayes Factors between one and

three as constituting only weak evidence; between three and 10 as giving moderate evidence; and

greater than 10 as strong evidence. To gauge the practical significance of estimated placement

effects on total counts of social contacts among sampled students in the two-week window, we

examined the model-implied marginal population means controlling for school effects. In

addition, the effect size metric used for count outcomes was incident-rate ratios (IIR), which are

interpreted similarly to odds ratios such that IRR values between zero and one indicate negative

effects, one indicates no effects, and values greater than one indicate positive effects.

Importantly, we also implemented a zero-inflated Poisson regression analysis to cope with higher

incidents of zeros in count data in our sample than Poisson regression analysis expects.

To address our second research question (*Does placement help predict the perceived*

importance of social contacts?) we tested our second exploratory hypothesis (H_2) stating:

Comparing students who differ in placement, those in more inclusive placement will on average

have more important social contacts than those in less inclusive placement. Specifically, we used

Bayes Factor analysis to test if the data fit the alternate model (M_1) better than the null (M_0). We

again used the most probable placement effect given data to specify the alternate model because

its estimated direction aligned with our exploratory hypothesis. To gauge the practical

significance of the placement effect, we used odds ratios and corresponding model-implied

probabilities of social rankings by placement. We also verified that all estimated models passed

posterior predictive checks before interpreting them, which tests whether models can reproduce

the obtained data. All models were estimated with Bayesian estimation, using a general-purpose

Markov Chain Monte Carlo (MCMC) simulation procedure (PROC MCMC; SAS Institute Inc,

2017). We set flat priors on all model parameters to obtain estimates that coincided with

maximum likelihood ones. Detailed model specifications, including priors and summary

diagnostics, are available upon request from the corresponding author.

Results

Placement and the Number of Social Contacts

With respect to our first research question, Bayes Factor analysis found that M_1 (model

with placement effect) fit the data approximately 19 times better than M_0 (model without

placement effect), $BF_{10} \approx 19$, which constitutes strong evidence that placement effects enhanced

the predictive power of this model (see Table 2 for further details). To estimate the magnitude of

the predicted placement effects, Table 3 provides a side-by-side comparison of the relevant

summary sample statistics and accompanying model-implied effect sizes. Table 3 shows that the

forecasted data predictions of M_1 conform to our first exploratory hypothesis (H_1) such that,

comparing two students who differ in their placement status, the alternate model confidently

expects that whichever student is in the more inclusive of the two placement options will have

the highest number of social contacts. As an example, the alternate model expects that a student in Placement A (at least 80% of the time in general education) will have approximately six social contacts, whereas the model expects that a student in Placement D (separate school) will only have approximately three social contacts, a difference in model expectations which translates into an incident rate ratio (IRR) of 0.52 (i.e., a 48% drop in the comparative rate of social contacts during the prior two weeks for students with complex support needs in the less inclusive setting).

Placement and the Significance of Social Contacts

For our second research question, the Bayes Factor analysis found that M_1 (model with placement effect) fit the data over 100 times better than M_0 (model without placement effect), $BF_{10} > 100$, which we interpret as strong (preliminary) evidence that including placement in the model increases the predictive power of the model (see Table 4 for further details). To estimate the magnitude of the predicted differences in the odds of a higher social importance ranking for a social contact across placement status, Table 5 provides a side-by-side comparison of the relevant summary sample statistics and accompanying model-implied effect sizes. Table 5 shows that the forecasted data prediction of M_1 confirm to our second exploratory hypothesis (H_1) such that, comparing two students who differ in their placement status, the model expects that social contacts of whichever student is in the more inclusive of the two placement options will likely have higher social importance ratings. In summary, although no inferences to causation are warranted and it would be premature to accept the estimated effect sizes as the factual given the sample sizes, this exploratory study still provides quantitative evidence from a multistate sample of students with complex support needs for the working hypothesis that variance in the

inclusivity of education placements partially explains the variance in the rates of social contacts and their social significance, as perceived by teachers.

Discussion

Research on social networks in special education has often applied network analysis to better understand the nature of social relationships. For example, efforts have involved gathering information regarding the number and attributes of classmates whom a student considers to be of particular social significance, then examining whether different educational contexts are associated with different patterns of social relationships. This research has strongly suggested that organizational practices, in this case, the distribution of students into *placements* for their educational services, may have consequences impacting the development and importance of social networks, with possible deleterious (or less than desirable outcomes) when students are placed in segregated placements. This would be consistent with the findings of Fryxell and Kennedy (1995) who completed both social contact and social network analyses for a group of 18 students with complex support needs served in either general education or self-contained classes. Examining primarily the students' relationships, they found that levels of social contact, experiences of social support, and the size of friendship networks varied by setting, favoring more inclusive settings.

The present study also suggests opportunities for socially significant relationships, as perceived by teachers, are more frequent in inclusive settings. When comparing the social contact rates of sampled students in different placement options, the reported social contacts differ by almost 50% between an inclusive general education placement (Placement A) and a segregated school (Placements D). Further, when comparing the reported importance rankings given to these social contacts by teachers, the probability of higher social significance rankings

differs by 88% between Placement A and Placement D. That is, the social significance of the contacts experienced by students with complex support needs was perceived by notably higher in inclusive settings.

Although it is tempting to attribute negative social outcomes experienced by students with complex support needs largely to social skill deficits and complex communication challenges, Asmus et al. (2017) identified lack of opportunity as a greater barrier. That is, self-contained classrooms and separate schools may limit the number of opportunities for students with complex support needs to have meaningful interactions with peers, with or without disabilities. For example, in a classroom with 15 students with significant cognitive and health support needs at a separate school where students do not change classsssss throughout the day and staff are continually engaged in feeding, changing, positioning and other basic supports may provide different social opportunites than an inclusive setting might afford. As indicated in this study, placing a student with complex support needs in a segregated setting may predispose the student to having a compromised social experience. In contrast, the data in the present study and the studies cited previously suggest that placement in general education will enhance students' opportunities for meaningful social experiences. In addition, previous research has found that students with complex support needs learn important social skills through their social networks in inclusive settings. Although our research did not measure social skills gains in a similar way, the importance of social networks in teaching critical relationship skills cannot be underestimated and should continue to be explored in future research.

In addition to examining the opportunities provided to students for larger social networks, the perspectives of students with complex support needs must also be considered. People with complex support needs should have access to forming friendships with others with complex

support needs, as well as those who do not have disabilities. However, as van der Klift and Kunc (2019) describe, instead of gathering together, students with complex support needs are usually *gathered* together with other students with complex support needs, having little opportunity to make choices and decisions about how and with whom they gather. Too often, the resulting social networks are created not on the basis of individual choice based on common interests and priorities of people with complex support needs, but on perceived convenience or staffing efficiencies for teachers and other support providers. Given the diversity of students in inclusive settings, including the presence of students who have complex support needs or not, an inclusive educational experience is likely associated with more opportunities for affinity groupings and the establishment of more valuable social networks from the perspectives of students with complex support needs. How to achieve this, and to understand the value of social networks, affinity groupings, and inclusive opportunities from the perspectives of school-aged students with complex support needs must be a priority.

Limitations

There are a number of limitations that should be acknowledged. It would be risky to infer causation from this exploratory analysis given the design of our study. We can only confidently make modest correlational claims from these data. What we do know is that differences in opportunities across placements could indeed contribute to, if not explain, placement predicting social contact outcomes. However, this is one among many *legitimate* explanations that need to be considered (e.g. students social skills). One benefit of this explanation is that it coheres well with the existing literature and is a testable hypothesis for future studies to analyze. It is also possible that placement shapes skills (or the effects are bidirectional). Thus, we lean towards the opportunity hypothesis, but more research is needed.

In our study design, estimates of regression coefficients were based on samples which likely would be different from the obtained data because of random fluctuations due to small sample sizes. However, our findings provide direction for future research, given the focus on which hypothesis best fits the available data (as opposed to estimating exact effect sizes). In this case, Bayes' Factor analysis indicates that the obtained data were likelier under the alternate model than the null model even if we cannot yet reject the null model. Moreover, these reported probabilities of hypotheses given data can be naturally updated using Bayesian inferences as new data are collected (i.e., obtained posteriors can be reused as priors in future Bayesian analyses to amplify statistical power in research studies). It should also be emphasized that this study is primarily a replication of of previous studies (e.g. Kennedy et al, 1994, Kennedy et al., 1997, Carter et al., 2016) with a focus on creating a basic Baysian statistical model that can be refined and added to as researchers alanyze additional moderating and mitigating factors related to the development of social relationships.

The COVID-19 pandemic and subsequent school closures interrupted the original data collection plan. Therefore, the authors could only collect SCRA data at the beginning of the school year (fall term). This clearly impacted our findings by limiting data collection to a single two-week "snapshot" of students' social contacts. Given this limitation, we do not know if the results would be consistent over time. Also, because of the pandemic and national school closures in the spring of 2020, we could not obtain the perspectives of the students with complex support needs regarding the number or importance of their social contacts. Further, we could not observe students' interactions with peers to determine the frequency or type of interactions students engaged in with peers. We could not seek clarity from teachers as to the reasons a student had no social contact in the prior two weeks, which makes it difficult to ascertain

whether students had no social contacts because of disruptions to their normal education activities (e.g., truancy, sickness, family vacation) versus cases wherein no social contacts reflect their normal education activities. However, we chose to make the assumption that zero contacts reflected normal education activities, given the student inclusion criteria and previous research on the social experiences of students with complex support needs. Future studies should examine these patterns, and seek more information from teachers if a lack of social interactions was routine for students.

Third, the sample was not representatively diverse. The majority of the 92 students in the analytic sample identified as White (76.1%) and non-Hispanic or Latinx (72.8%), with the majority of students identifying as male (58.7%). Further, the study only focused on elementary school students. More research is needed that examines social relationships of students with a wide range of cultural identities across ages to determine if there is any impact of these and other sociodemographic characteristics. Future statistical models should include the measurement of more complex interrelated contextual variables including supports for the student (e.g., AAC availability and instruction, peer supports, instruction from educators, and meaningful social opportunities in natural settings).

Finally, we were not able to collect direct observation data to corroborate the findings. The data reported were based on subjective opinions of teachers and may not truly represent the frequency or social significance of social contacts. Further, the standardized assessment used was of value in providing insight on the social relationships of students with complex support needs, but provided limited information on what benefits peers without disabilities derived from the experiences.

Implications for Research and Practice

The peer relationships of students with complex support needs may be impacted by a variety of factors including whether the student has complex communication needs (Biggs & Snodgrass, 2020), the presence of paraprofessionals in close proximity to the student (Biggs et al., 2017), and the availability of peers due to educational placement and/or classroom arrangement (Feldman et al., 2016). We suggest that the quantity and importance of peer relationships may also contextually relate to the type and characteristics of classroom placements (e.g., general education versus self-contained). School, and specifically the classroom, is a primary context in which students have contact with peers and develop relationships. Opportunities for education in inclusive contexts may be a critical component of successful social support interventions. Yet in most schools, students with complex support needs rarely participate in general education classes, cafeterias are often segregated, and there is little intentional effort to create shared activities among students with and without disabilities (Feldman et al., 2016; Kleinert et al., 2015). Researchers and teachers should design and implement educational interventions to create opportunities for contact and/or strengthen existing bonds between students, such that social interactions are increased and positive relationships are formed (e.g., Carter et al., 2016). This shift in educational practices requires both intentional planning (e.g., opportunities for students to interact) and consistent access to same-aged peers found in inclusive settings (Asmus et al., 2017).

As noted, social contacts are an important dimension to understand a student's social life, both in terms of patterns of affiliation and patterns of friendship. Relationships affect not only the emotional well-being of students but also their learning, performance, and acceptance in schools. As special educators, it is our task to enhance students' social connectedness, enabling them to build relationships and optimally benefit from their educational experiences. As

suggested by Jackson et al. (2008/2009), education for students with complex support needs may be compromised if it does not consider the role and contribution of social interactions and relationships in the educational process. Opportunities for education in inclusive placements may be an important component of successful social support interventions.

Further research is needed to understand the value of social contacts from the perspectives of students themselves. Our analysis relied on teacher or adult report. While this provides useful information, we cannot ascribe value to those relationships or fully understand how those contacts extend beyond school. Further, we cannot understand the perceptions of students with complex support needs of these social contacts, their value, and alignment with their preferences and interests. However, many people with and without complex support needs benefit from close circles of support throughout life to support decision making, self-determination, and personal autonomy. For people with complex support needs, friends are key supporters, and their support can be a critical component of directing their own life and supports rather than relying on agency-directed supports or even guardianship (Lockman Turner et al., 2022).

To that end, future research must consider and integrate the necessary supports for communication that would enable students with complex support needs to communicate with both peers and researchers about their experiences at school. The majority of the research in this area has not included the perspectives of the students themselves (McDonald et al., 2013), and such work will necessitate the development and/or provision of necessary communication supports so that the student has the opportunity and support to share their perspectives of social contacts and the importance of them.

Conclusion

Families of children with complex support needs have reported that what they want most out of schooling is for their children to interact socially and develop friendships with peers both in and outside of school (Overton & Rausch, 2002). Educators have indicated that social interactions with classmates without disabilities is an instructional priority for students with complex support needs (Carter & Hughes, 2006). Our findings suggest that the organizational structures (i.e., educational placement options) provide the context for shared experiences and should be an important consideration in creating sufficient opportunities for socially significant interactions and potential for meaningful and valued relationships.

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