The Impact of Placement in the US on Social Opportunities for Students with Multiple Disabilities: An Analysis of the SEELS Database

Robin D Brewer[1*], Silvia M. Correa-Torres[1] & Tyler W. Kincaid[2]

[1] School of Special Education, University of Northern Colorado, Greeley, CO, USA

[2] Department of Applied Statistics and Research Methods, University of Northern Colorado, Greeley, CO, USA

[*] Robin D. Brewer, E-mail: robin.brewer@unco.edu

Abstract

The authors of this study examined data from the Special Education Elementary Longitudinal Study (SEELS) regarding school settings, time students spent in each setting, and opportunities for social interactions experienced by students with multiple disabilities. Findings suggest that over a span of six years, students in the US spent an increasing amount of time in resource or pull-out settings. This resulted in students spending less time with their general education peers but also less time in self-contained special education classrooms. Results also indicated that the opportunities for social interactions experienced by students with multiple disabilities increased in all settings and typical students are now spending more time with students with multiple disabilities. The data also revealed that social interactions increased for all students but when students spent a majority of their day in the general education setting, the increase was at a significantly higher rate. This leads us to understand the need to prepare all students to be prepared to exit school into adult life. Interacting with typical students will increase their ability to interact and understand the need for socially acceptable behavior.

Keywords

multiple disabilities, social interactions, inclusion, SEELS database, educational placement

1. Introduction

The education of all individuals with disabilities has slowly changed from more segregated special education only environments (e.g., specialized schools and self-contained classrooms) to more inclusive settings in the US where students with special needs spend a majority of their day in general education classrooms (US Department of Education, 2014; Zigmond, 2003). This shift can be seen across all disability areas, but is most prominent in students with high incidence disabilities (e.g., learning disabilities). This trend is also somewhat apparent for those identified with low incidence disabilities, including students with multiple disabilities, but at a much lower rate. According to the

35th Annual Report to Congress on the Implementation of IDEA (McLeskey, Landers, Williamson, & Hoppey, 2012; US Department of Education, 2014), the number of students with multiple disabilities placed in general education settings is constantly increasing. Data indicate that in 2011 29.4% of students served under the Individuals with Disabilities Education Act's (IDEA) multiple disabilities category between the ages of 6 and 21 spent over 40% of the day in general education settings, but 24% spent the majority of their day in "other environments", meaning hospital, homebound, or institutional settings. These environments offer little in exposure to work and community settings or interacting with typical peers. Even though the data provide quantitative information about the settings where students receive most of their academic services, they tells us little about who the students with multiple disabilities interact with during the school day, and more importantly, outside the school day.

In order to get a more complete picture of students with special needs and to gather more specific information about the academic, social, and vocational services for students with special needs, the Office of Special Educational Programs funded the Special Education Elementary Longitudinal Study (SEELS) between the years 2000 and 2006 (Godard et al., 2007; SEELS, 2007). Data were collected on more than 11,000 students with disabilities, allowing researchers the ability to broaden the information ascertained in the most recent *Annual Report to Congress on the Implementation of IDEA* (US Department of Education, 2014). This article uses the SEELS data set to examine the placement of students with multiple disabilities, offering complex information about students with disabilities and the perceptions of school personnel and family members regarding services, student growth, and social issues. Additionally, the authors analyzed the opportunities for social interactions when students spent a majority of their day in three school settings: general education, resource, and self-contained. While the data were collected from 2001 to 2006, the information available in the study raises questions about trends and issues that are pertinent today.

Because of the enormity of the SEELS data set and the difficulty in isolating the needed data, little research has been completed related to low-incidence disabilities. The results gleaned from the data inform the field of patterns and trends that continue to be relevant. In fact, recent research using the SEELS database provided information on many different facets related to students with special needs including academic achievement and self-concept, patterns and predictors of discipline, and mathematical achievement for students who are visually impaired (Bowman-Perrott et al., 2013; Giesen, Cavenaugh, McDonnall, & Michele, 2013; Ju, Zhang, & Katsiyannis, 2013).

2. Students with Multiple Disabilities

The history of education for students with multiple disabilities dates back to the late 19th century (Rotatori, Obiakor, & Bakken, 2011) with "experimental" programs, however, no formal education programs for individuals with multiple disabilities existed in the United States until 1933 (Yell, Rogers, & Rogers, 1998). Considerations for placing students in the least restrictive environment were rarely contemplated until 1976 and the passage of the PL 94-142 (Nietupski, 1995). In recent years, services for

students with multiple disabilities have changed from medically or institutionally driven models to more inclusionary models where students are learning with typical peers in general education settings (Carter, Sisco, Melekoglu, & Kurkowski, 2007; Downing & Eichinger, 2003; Downing & Peckham-Hardin, 2007a, 2007b; Rossetti 2011, 2012). Research in the area of multiple disabilities has identified the benefits and challenges of including students with multiple disabilities in general education settings (Cole, Waldron, & Majd, 2004; Stainback & Stainback, 1990). A large body of literature was found to show that an increasing number of students with multiple disabilities are being educated in general education classrooms. This same literature base documents that inclusion has positive but ambiguous social and academic outcomes for both students with multiple disabilities and their same-age peers, yet the data do not always support this assumption expressed in the literature (Block, Klavina, & Flint, 2007; Downing & Peckham-Hardin, 2007a; Goetz & O'Farrell, 1999; Haring & Romer, 1995; Jones & Hensley, 2012; Peck, Staub, Gallucci, & Schwartz, 2004; Romer & Haring, 1994; Sall & Mar, 1999; Swedeen, Carter, & Molfenter, 2010).

2.1 Educational Settings for Students with Multiple Disabilities

As previously stated, the *35th Annual Report to Congress on the Implementation of IDEA* (US Department of Education, 2014) reported that during the 2010-2011 academic year 29.4% of students with multiple disabilities received services in general education settings at least 40% of the day, an increase of approximately 3% from 1997. It was also reported that 75.6% of the students with multiple disabilities spend *some* part of their day in the general education classroom, an increase of 3.1% since 1997. While this change is small it is in the right direction, however, it is disheartening to see it is not increasing at a faster pace.

Literature indicates that the social interactions of students with multiple disabilities who are educated in inclusive settings are associated with positive outcomes (Angelides & Aravi, 2007; Imogen, Roy, Horn, & Swan, 2001; Downing & Peckham-Hardin, 2007a, 2007b), Rossetti (2011, 2012), yet the incremental progress toward inclusion seems to ignore these findings. Thus, questions, remain: a) is there a trend toward students spending more time in the general education classroom? and b) do opportunities for social interactions increase as students with multiple disabilities spend more of their day in the general education classroom (Rossetti, 2011; Wall, 2002)?

Numerous studies have supported the importance of teachers' interactions with students with multiple disabilities and found that positive interactions have correlated significantly with gains in classroom performance (Dessemontet, Bless, & Morin, 2012; Dotger & Ashby, 2010; Helmke & Schrader, 1988; Matsumura, Patthey-Chavez, Valdez, & Garnier, 2002; Whitebook, Howes, & Phillips, 1989). Studies have also reported that positive interactions with educators have lead to more successful placements in the general education classroom. The teacher-child relationship, as measured by social and physical interactions, has been characterized as a "regulatory system that contributes to children's social and academic competence" (La Paro, Pianta, & Stuhlman, 2004, p. 413). It seems apparent that if students with multiple disabilities are included in the general education classroom they are more likely to

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interact more frequently with same-age peers. However, research has reported that students with multiple disabilities lack opportunities to interact with typical peers during non-structured times (Kyoung & Chadsey, 2004), Rossetti (2011, 2012).

2.2 Research Using the SEELS Data Set

As previously mentioned, the SEELS Data Set allow researchers to examine large populations of students with various disabilities and thousands of demographic and academic variables (see for example Bowman-Perrott, Benz, Hsu, Kwok, Eisterhold, & Zhang, 2013; Bradley, Doolittle, & Bartolotta, 2008; Duchnowski, Kutash, Green, Ferron, Wagner, & Vengrofski, 2013; Ju, Zhang, & Katsiyannis, 2013; Wagner, Kutash, Duchnowski, & Epstein, 2005; Zhang, Hsu, Kwok, Benz, & Bowman-Perrott, 2011). However, very few have analyzed the data for low-incidence populations. Only three studies have analyzed the SEELS data related to vision loss (Kelly & Smith, 2008; Kelly, 2009; Kelly, 2011) and only one related to hearing loss (Wilkens, 2009) and one related to students with autism (Wei, Wagner, Christiano, Shattuck, & Yu, 2014). None to date have focused on students who are deaf-blind. Based on the unique needs of students who are deaf-blind and the vast range of characteristics associated with this group of children, this article, will add to the existing knowledge base by examining data on the communication choices, educational placements, access to curriculum, academic accommodations, and future expectations of students who are deaf-blind as reported in the Special Education Elementary Longitudinal Study (SEELS).

3. Methodology

3.1 SEELS Data Set

SEELS was part of the national assessment of IDEA 1997 and funded by the US Department of Education Office of Special Education Programs (OSEP) between the years 2000 to 2006. Data collected in the study documented the experiences of over 11,000 students with disabilities as they transitioned from elementary to middle school and from middle to high school, documenting the changes in students' academic, social, vocational, and personal development.

3.2 SEELS Sampling Procedures

The SEELS data collection, sampling, instrumentation, and analysis were designed and implemented by SRI International (SEELS 2002). Students who were represented in the study were between six and twelve years of age in 1999. Students' names were randomly selected from the special education student enrollment lists in districts, agencies, and schools for the deaf/blind that were receiving state and federal funds.

Data were collected in 3 waves from students, family members, teachers (special and general education), administrators, related services providers, and other school personnel. Wave one data were collected in 2000, wave two in 2002, and wave three in 2006. Data were gathered from interviews, surveys, direct assessments of students, and through transcript reviews. The instruments were designed

to include information that would be found on national databases allowing for comparisons across states (SEELS 2002).

3.3 Parent Interviews

For this secondary analysis we specifically examined the data gathered from parent interviews about their children with multiple disabilities. Parent interviews were held via telephone and focused on family characteristics and non-school activities (SEELS, 2002). Parents were asked to verify information provided by the school (e.g., disability, grade, and age). Additionally, they were asked to provide information about their child's activities at home and their experiences at school. From the SEELS data we initially drew 831 students with multiple disabilities ages 7 to 14 from wave one in 2000 and 530 in wave three in 2006. The parent interview data were determined to be the most accurate data available to gain responses for our specific questions. When corrected for missing data, listwise deletion was applied and we used the paired data set of 530 interviews.

The data labels in the SEELS database were selected and reported. The student data selected for this analysis had an identifying label of *Multiple Disabilities* and had at least two identified disabilities including autism, vision impairment, hearing impairment, mental retardation, Down Syndrome, or a developmental delay. In the sample 60% of the students were male and 40% female. Ethnicity was reported in waves one/three as 60%/66% of the students being white, 25%/18% African American, 13%/13% Hispanic, 2%/2% Asian, .003%/1% Native American, and .003%/.003% reported multi-ethnicity.

In waves 1/3 students represented rural areas (3%/11%), suburban (57%/56%), and urban (40%/33%) areas. Students were in public schools (79%/73%), special schools (18%/21%), magnet schools (1%/1%), and other settings (2%/5%). An insignificant number of students were reported in "other" settings including homebound or hospital settings, private school, or separate schools. Additionally, 59% (wave 1) and 67% (wave 3) of the students spent some part of their day with typical peers in general education settings.

4. Data Analysis

As previously stated, the SEELS data set (results from wave 1 and 3 parent interviews) were used to analyze the educational placements of students with multiple disabilities and how these placements changed between wave one and wave three. Additionally, we analyzed the reported social interactions of students with multiple disabilities to determine if differences in social interactions changed over the period of wave 1 to wave 3.

4.1 Unique Cluster Sampling Considerations

When analyzing the complex SEEL's samples we had to give careful consideration to the unique sampling design (Thomas, Heck, & Bauer, 2006). This large secondary data set provided the researchers with a unique opportunity to analyze the data of over 500 students with multiple disabilities when we typically get only a small representative number of students (Hahs-Vaughn, 2006). The

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SEELS data had two unique considerations that we had to address when analyzing the data. First, we had to consider that for schools that participated within the study, a stratified sampling of schools was used. The second consideration was the clusters of students within each school sampled (i.e., those with multiple disabilities) were clustered within each participating school.

We used standard statistical procedures utilizing a computer based statistical software programs. However, this did not account for our stratified sample; therefore, we used the procedures developed by Thomas and Heck (2001) to account for this unique design. When we delved into researching this large sample set, first we considered the sample weights given to better represent each respondent in the sample (Hahs-Vaughn, 2006; Kish, 1965). The SEELS data provided sample weights for each respondent based on the student's location and specific disability (Blackorby et al., 2007). For example, students with a primary disability that was uncommon, and thus harder to detect within a simple random sample, were given a larger sample weight to better represent them within the sample. Conversely, larger weights were applied to subgroups that were harder to locate, and thus were over sampled within the data. This method was an attempt to help better represent the overall population of these unique students (i.e., students with multiple disabilities). *Raw weights* for each respondent were provided by SEELS data. The raw weights represented the total population size (Hahs-Vaughn, 2006), or the total population of the special education students across the United States, and worked well for the descriptive analysis of the samples.

4.2 Data Analysis Procedure

For the purpose of this analysis, SPSS version 19.0 and SAS version 9.2 were used exclusively for all data procedures. Descriptive analysis was preformed through frequencies and cross tabulations of selected variables. Inferential statistics were performed using simple t-Tests for proportions and mean differences in time spent within certain classroom settings and social situations. Data from wave 2 was not considered for use in this analysis. The simple structure of comparing the data from the start of the data collection (wave 1) to the end (wave 3) proved to be a better indicator of change across the six-year time span. For the purpose of selecting students with multiple disabilities the single primary disability indicator was used. The specific primary disability variable (w1_dis12), which is based for all respondents across all three waves, provided the clearest and most concise measure of disabilities for students within the SEELS data. While completing the analysis, we did experience difficulties ranging from a lack of a secondary disability indicator for some to a lack of interpretation of multiple response indicator variables. Problems with reporting secondary disabilities are discussed in depth under "limitations".

5. Results

5.1 Students Time in Settings and Primary Setting

While we were primarily interested in the social interactions of students with multiple disabilities, we first had to analyze the placement of these students. Analysis of the data provided an interesting result

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indicating that over the six years of data presented, students were spending a approximately half an hour per day *less* time in general education classes. They were also spending significantly less time, at least two hours less per day, in self-contained classrooms. Results indicated that there was a significant jump in the amount of time spent in resource room settings, with a mean increase of 2.43 hours per day as shown in Table 1.

Table 1. Mean Difference in Hours Spent in Each Setting from Wave 1 to Wave 3 (N=530)

Setting	Mean	Std Error	P-Value	95% CI for the Mean
General Education	-0.27	0.077	0.0018	(-0.396, -0.134)
SpEd Self Contained	-2.03	0.24	<.0001	(-2.464, -1.621)
SpEd Resource Room	2.43	0.22	<.0001	(2.058, 2.800)

In Table 2, the data also indicate that, with the change in time spent in the different settings, the primary placement for the students also changed. There was a significant decrease in the proportion of students who spent the majority of their day within a general education classroom. The decrease of roughly 3% corresponds to the roughly 30 minute decrease in the mean time spent within the general education setting. Further, there was a significant decrease in the number of students who spent the majority of the day within self-contained classroom (roughly 34% of students) and a corresponding increase in the number of students who spent the majority of the day within a resource room setting (roughly 36%).

Table 2. Percentage of Students Day within Setting (N=530)

Relationship	Wave 1	SE 1	Wave 3	SE 2	t-Test	p-value
W1 vs W3: General Education	11.6	(1.169)	7.32	(1.639)	4.52	>0.001
W1 vs W3: SpEd Self Contained	59.39	(2.104)	25.07	(2.456)	112.62	>0.001
W1 vs W3: SpEd Resource Room	1.29	(.550)	38.34	(2.873)	160.42	>0.001

5.2 Social Interactions

Overall there was an increase in the number of students engaged in social interactions between waves 1 and 3 parents reported that there was a significant increase in the students' participation in school activities outside of class, and a significant increase in participation in school or non-school activities (see Table 3). When the amount of time students were engaged in school activities (both outside of class during school and non-schools activities outside of class), were scrutinized for each environment, we discovered that there were over twice as many occasions for students to socially interact when they were spending a majority of their day in the general education setting (see Table 4). The change over the six-year period evidenced a significant increase in participation of school activities and non-school activities for students who spent the majority of their day within a general education setting only

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(roughly 36%). For those students who spent the majority of the day within a self-contained classroom, there was also a significant increase in participation in school activities (roughly 12%). However, data revealed that between waves 1 and 3 there was not a significant difference in the number of reported social activities for students who spent the majority of their day within a resource room environment.

Table 3. Percentage of Students Involved in Social Interactions (N=530)

	Wave 1	SE 1	Wave 3	SE 2	t-Test	p-value
Child participated in any school activities outside of class	20.49	(1.465)	31.69	(1.485)	28.82	>0.001
Child participated in any school or non-school activities outside of class	49.75	(1.737)	57.82	(1.791)	10.46	>0.001

Table 4. Percentage of Students Involved in Social Interactions by Majority Setting (N=530)

General Education	Wave 1	SE 1	Wave 3	SE 2	t-Test	p-value
Any School Activities	32.86	(1.465)	31.69	(1.485)	28.82	>0.001
Any School or Non-school Activities	58.69	(1.737)	57.82	(1.791)	10.46	>0.001

SpEd Self Contained	Wave 1	SE 1	Wave 3	SE 2	t-Test	p-value
Any School Activities	18.81	(2.456)	31.66	(1.725)	18.33	>0.001
Any School or Non-school Activities	51.26	(1.873)	51.89	(2.697)	0.04	0.9681

SpEd Resource Room	Wave 1	SE 1	Wave 3	SE 2	t-Test	p-value
Any School Activities	21.51	(7.388)	28.34	(3.889)	0.67	0.5029
Any School or Non-school Activities	73.5	(10.877)	61.79	(3.308)	1.06	0.2891

6. Discussion

The category of students with multiple disabilities is a low-incidence disability. Therefore, the majority of research studies involving students with multiple disabilities primarily include small numbers of participants. Due to the nature of low-incidence disabilities there are few research opportunities to examine practices for large numbers of students with multiple disabilities. The data reported in the SEELS database gives us a rare opportunity to examine educational opportunities and social experiences for a comparatively large number of participants. Analyzing these data is tedious since there are a large number of variables within the data set. However, these data help us to understand the unique needs of students with multiple disabilities and the need to provide opportunities for social interactions and experiences.

Although an increase in opportunities for social interactions for students in general education and

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self-contained settings was found, the greatest opportunities occurred by far when the students spent the majority of their day in general education environments. It is then troubling to note that as students progressed in school they spent less time in general education settings and more time in resource classrooms where there was no significant change in the number of social interactions. It is also important to note that fewer students are spending the majority of their day in self-contained settings; however, this improvement was diminutive at 3%.

This study provides documentation to support the argument that the placement of students with multiple disabilities in general education settings can increase the social interactions of these students. As students graduate or age-out of public school programs into adult services, higher education, post-school education, or community work sites, a person's ability to interact socially with others is a key skill (Johnson, Douglas, Bigby, & Iacono, 2012). Ensuring opportunities for students to learn how to interact socially through natural events is a part of education. Through these opportunities students with multiple disabilities can develop lifelong skills that will enable them to successfully form relationships (Rodi et al., 1999).

6.1 Limitations

For students with multiple disabilities the SEELS data set is considered a large sample of participants from across the United States. However, when considering the adjusted data set corrected for missing variables, the number is reduced when compared to data sets for large-scale studies. As mentioned previously, this was a rare opportunity to examine a comprehensive data set for students with multiple disabilities. As other research using the SEELS data set have reported we can glean some interesting patterns across the United States. With each state in the US having specific rules and regulations in addition to the federal legislation, specific patterns of placement in each state need to be examined. Follow-up studies would be beneficial to continue this line of inquiry and determine if there are some states with more inclusive practices than others, how they are implementing these placements, and finally, how students' social interactions differ for students with multiple disabilities.

When examining the SEELS data set, it is important to keep in mind that it has been shown that families and teachers do report their perspectives of school activities and learning differently (Narayan & Bruce, 2006). Parents tend to confirm changes in behavior and teachers will report emerging learning more frequently. Since we have reported data provided via parent interviews (teacher data were not available for wave 1) this may have influenced the results and accuracy in both identifying the correct setting code and in identifying the number of opportunities for social interactions both in school and out. However, this is the best data available on such a large scale and does provide a snapshot of what is occurring across the US.

Another limitation was that the lack of adequate variable documentation and description, missing variables, and repeated multiple response sets complicated direct understanding of the student's disabilities and characteristics.

6.2 Further Study and Analysis

Further study comparing the accuracy of the parent reports of students with multiple disabilities as opposed to teacher/school reports could help to confirm the results of this study. There is also a need to continue to study student placement throughout the day to ascertain continuing trends in placement as students continue their educational careers. As seen in tables 1 and 2, there was a significant change in the location over a 6-year period where the students with multiple disabilities were spending a majority of their school day. The decrease in the amount of time spent in general education settings and the change from self-contained classrooms to resource room settings should be given further analysis.

The data collected indicated that reports by parents of social interactions of students with multiple disabilities increased within a general education setting, but not within a resource room setting. However, the results of opportunities for social interactions in a resource room showed no change in opportunities for interactions but were not statistically significant. An examination of the reasons why students with multiple disabilities' placements have changed from the general education setting to a more restrictive, resource environment should also be considered. Additionally, the settings students move in and out of–and why–are critical to an understanding of the changes documented in this article. As anticipated, students with multiple disabilities had a greater opportunity to interact with typical peers when they received a majority of their academic instruction in general education settings. This led to more opportunities for social interactions both in and outside of school. Since the trend indicated that more students with multiple disabilities are being placed in resource room settings the reason for this drift to a more restrictive setting must be examined. Additionally, resource room settings are typically short term and not considered a student's primary placement. It is possible that resource rooms are being used as a euphemism for self-contained classrooms. Students with multiple disabilities become adults who need to be able to interact with co-workers, family members, and within the community in general. Only with opportunities to participate with typical peers will these students be able to develop the needed skills (Carter, Hughes, Guth, Copeland, & MacLean, 2005; Chung, Carter, & Sisco, 2012; Hughes et al., 1999).

7. Conclusion

There are few opportunities to examine large populations of students with multiple disabilities. The SEELS database allowed us to analyze a national sample of students with multiple disabilities and their primary settings and likelihood for social interactions. The data revealed social interactions of students with multiple disabilities are approximately twice as likely to occur in and outside of school if the student spends a majority of the day in a general education classroom. However, making the decision about a student's primary placement is complex. Understanding more about the environments and social interactions that occur in all settings is crucial. More research regarding the placement decisions and social opportunities needs to be completed to understand the impact on these students and how these decisions affect their future lives.

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