

The Impact of an Invitational Environment on Preschoolers with Special Needs



Citation

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Abstract

Providing services to special education students has been fraught with controversy concerning the appropriate setting (Yell, 1995). This quasi-experimental study compares the progress of developmentally delayed preschoolers after two school years of schooling in two environments using the Brigance Inventory of Early Development (IED-II) (Brigance, 2006). One of the settings is an environment that is exclusive to disabled peers (a self-contained or pull-out classroom), and the other setting is an environment including both disabled and non-disabled peers (inclusive classroom). Then, this study looks at the school climates to see if more specific environmental factors contributed to the student progress, or lack thereof, using the School Survey-Revised(ISS-R) (Smith & Purkey, 2012).

The results from the Brigance Inventory of Early Development (IED-II) standardized assessment revealed that there were two domains with no significant differences and one domain that was significant between the settings. There were no significant differences in the academic or life skills domains; however a significant difference was gained in the social-emotional domain for inclusive classrooms. The Inviting School Survey-Revised(ISS-R) (Smith & Purkey, 2012) was administered to a small sample population to measure the school climates for factors that could have contributed to the gains, but overall, no difference was found.

Purpose

The research question that frames this study was: What environmental factors, as defined by the Invitational Learning Theory (Stanley & Purkey, 2005) contribute to the progress of developmental delayed preschoolers? Stanley and Purkey stated, “Invitational Theory is an explanation of human interactions and development based on interconnected assumptions about positive and negative signal systems that exist in human experience.” (p. 24). Given the lack of evidence to support inclusion and self-contained models for developmentally delayed children (Salend & Duhaney, 1999), this study looked to define specific environmental factors that may contribute to the students’ developmental progress.

Theoretical Framework

Substantial debate has waged over the past 40 years about the best delivery models for students with disabilities (Fuchs & Fuchs, 1994). Researchers report that many students with disabilities are not progressing sufficiently when educated with other disabled peers (Fritschmann, Deshler, & Schumaker, 2007; Lenz & Hughes, 1990). Yet, data on self-contained or pull-out special education programs indicate that, for students with disabilities, these programs are not producing adequate long-term benefits (Rea, McLaughlin, & Walther-Thomas, 2002).

Data surrounding inclusion models of instruction are no more encouraging than those on self-contained programs. A

meta-analysis on inclusion research conducted by Salend and Duhaney (1999) presents mixed results: the success of the inclusion model has more to do with the level of expertise of the teachers and how well the teachers get along with each other than with the model itself. Historically, advocates for inclusion have proposed that students with disabilities should never be excluded from the general education class (Will, 1986) while Mastropieri and Scruggs (2002) reported that no data exists to support the elimination of special education classes.

Therefore, this study was developed to contribute to the body of research in the special education least restrictive environment.

This study extends beyond the simple inclusion versus self-contained setting for developmentally delayed preschoolers; it isolates the evidence of environmental factors in each setting that could contribute to the students’ progress.

Appropriate placement decisions for developmentally delayed preschoolers’ least restrictive environments consider more than the setting. A setting is defined as “the

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surroundings in which something exists or takes place" (Setting, 2007) while an environment is a "set of external conditions, especially those affecting a particular activity" (Environment, 2007). The answer to the setting dispute is not found in the setting but rather in the environment within the setting. Therefore, Invitational Theory is used to look beyond the setting and deeper into the environmental factors. According to Smith and Purkey (2012) invitational theory is "designed to create, sustain, and enhance human environments that cordially summon people to realize their potential in all areas of worthwhile human endeavor" (p. 3). Five corollaries that more specifically define operational factors of invitational theory, in hierarchical order are: people, program, process, place, and policies. Previous research (Salend & Duhaney, 1999) corroborates the importance of environmental factors despite the setting. Salend and Duhaney's (1999) meta-analysis of the inclusion classroom setting found faculty cohesiveness and teacher expertise to be more conducive to student success than the actual inclusion vs. exclusion setting. A cohesive faculty is one element of the invitational theory. Therefore, the question may not be which setting is more beneficial to a student but whether the settings are able to provide an intentionally inviting learning experience that impacts student progress of preschoolers with developmental delays.

Method

Three phases of research were implemented in this study. First, there was a quantitative quasi-experimental design to measure the progress of preschool children with developmental delays in two different settings. Second, data were collected from each school setting using the Inviting School Survey-R (Smith & Purkey, 2012). Finally, the Inviting School Survey-R data were disaggregated into the five invitational corollaries to measure the correlation, if any, to student progress in the inclusion and self-contained classrooms.

The first phase of the study analyzed the Brigance Inventory of Early Development (IED-II) scores of two groups of preschool aged children (3-5 years of age) designated as Developmental Delayed under the Individuals with Disabilities Education Act (IDEA) criteria in two different settings. The first group consisted of 25 students who received their education in classes with disabled peers (self-contained arrangement) and the second group of 25 students received their educational services in classes with normally developing peers (inclusive arrangement). The children identified as Developmentally Delayed were randomly placed in their setting by the school district Individualized Education Program (IEP) teams; the researcher only requested permission to use two data points that were

collected as part of the district's standard assessment procedure for preschool special needs children. The first data point was collected when the student began the program at approximately three years of age and the second data point was collected when the students left the preschool setting at approximately five years of age. The district IEP teams randomly placed developmentally delayed students on a first-come, first-serve basis. The first students identified as Developmentally Delayed are included in the inclusion classroom settings. When the general classroom slots are full, the district IEP team places the following students identified as developmentally delayed with disabled peers in a self-contained classroom with other disabled peers. Developmentally delayed student scores were included in the sample when a child met the following criteria: (a) between 36 and 60 months of age by January 1, 2009; (b) a current Individual Education Program (IEP) for children with special needs; and (c) a designation of Developmentally Delayed as defined by the State Education Department Preschool Outcomes Measurement System (POMS).

The three most significant subtests used to measure student progress in this study included the Brigance Inventory of Early Development (IED-II) scores for academic/cognitive domain, daily living domain, and social-emotional domain. The first data point for each participant was collected at the beginning of the 2008 school year, and the second data point was collected at the end of the 2010 school year. Progress was measured for each participant comparing the two data points with a one-to-one correspondence. Then, the progress scores for the inclusion setting were compared with the progress scores for the self-contained setting using a *t*-test to measure whether the participants in each setting significantly differed in their progress for each domain over the two year period in their prospective environmental settings.

The second phase of the study used the Inviting School Survey-Revised, (ISS-R), (Smith & Purkey, 2012) to collect data describing the detailed environments of each setting. Administrators and teachers working in the schools during the participants' years of attendance, 2008 to 2010, were given the opportunity to anonymously complete the ISS-R.

In the third phase, the ISS-R results were disaggregated into the five Invitational Learning corollaries: people, process, practice, place, and policies, to identify correlations between the student progress and the environmental factors. Additionally, they were separated to compare the teacher and administration assessments of the same school.

Instrumentation

Brigance Inventory of Early Development (IED-II)

The Brigance Inventory of Early Development (IED-II), an assessment for children with a developmental age between 0 and 7 years, measures children's performance on more than 200 skills within the following major developmental domains: self-help, preambulatory motor, gross motor, fine motor, speech/language, social/emotional development, general knowledge and comprehension, academic readiness, basic reading skills, basic mathematics, and manuscript (Black, 2004). Each broad skill area is broken down into overall goals and objectives, methods of assessment, assessment directions, required test materials, and the references used to validate the sequencing of skills (Black, 2004). In addition, each skill item is coded as (a) not assessed, (b) assessed and set as an objective, (c) introduced but not achieved, or (d) achieved (Black, 2004).

The Inviting School Survey – Revised (ISS-R)

The Inviting School Survey – Revised (ISS-R) evolved from the original Inviting School Survey created in the early 1990's to measure school climate (Smith & Purkey, 2012). The 50 Likert items on the survey correlate to the Invitational Model's five factors (people, program, policy, process, and places) that define a school as inviting or disinviting.

Data Collection Procedures

Between the years 2008 and 2010, 77 special education preschool students were administered the Brigance Inventory of Early Development (IED-II) pretest and posttest. There were 42 students in the self-contained setting and 35 students in the inclusion setting. Of these 77 students, the District Special Education Resource Teacher randomly selected only 50 of the students' archival data for this study. The preschoolers received two years of special education instruction five days a week, six hours a day; twenty-five students in the inclusion setting and twenty-five in the self-contained setting.

The Early Childhood Special Education (ECSE) teachers administered the Brigance Inventory of Early Development (IED-II) (Brigance, 2006) assessment within two months of the preschoolers' entry into special education instruction. The Brigance age-equivalent scores were submitted to the District office. The same procedure was used for the posttest after two years of attending their designated schools. Scores were submitted in May 2010 by the ECSE teachers. The District Special Education Resource Teacher collected the IED-II data and using Microsoft Excel's® random number generation capability, assigned a random six-digit number to the child so that no personally identifiable data was connected to any student. The de-identified data was given to

the researcher and analyzed using Statistical Package for Social Sciences.

All teachers and administrators that worked in the participating preschools during the 2008 to 2010 school years were asked to anonymously complete the ISS-R. The district resource teacher volunteered to deliver and collect the surveys for the study in Fall 2011. A limited number of 4 teachers and 4 administrators completed the survey. Data was disaggregated to discover themes in the school climates according to the five factors and describe any differences between the inclusion classrooms, self-contained classrooms, and faculty/administrators perspectives. Plus, correlation statistics between the student progress IED-II scores and the ISS-R scores were calculated.

Results

The academic/cognitive domain, daily living domain, and social-emotional domain pretest and posttest scores of the Brigance Inventory of Early Development (IED-II) (Brigance, 2006) were used to calculate the t-test for significant differences. No significant difference for the academic/cognitive or daily living domains was found, but there was a significant difference for the social emotional domain. Students in the inclusion setting progressed significantly higher in their social emotional skills.

A small number of completed surveys ($n = 8$) for the ISS-R contributed to the limitations for this study, but descriptive themes were noted between the administrators' and teachers' scores as well as the overall scores for the general education and self-contained preschool settings. Most notably, the self-contained administrators described the overall school climate more favorable than the teachers.

Null Hypothesis 1: There is no significant difference in social-emotional skills for preschool aged developmentally delayed students educated in separate special education classrooms with only disabled peers from those educated in inclusion classrooms with non-disabled peers as measured by the Brigance Inventory of Early Development (IED-II).

Alternative Hypothesis 1: There is a significant difference in social-emotional skills for preschool aged special education students educated in separate special education classrooms with only disabled peers from those educated in inclusion classrooms with non-disabled peers.

Hypotheses 1 Findings

The results of the pretest t-test for the social emotional domain were not significant, $t(48) = 1.28, p = .207, 95\% \text{ CI } [-1.22, 5.46]$, suggesting the mean score for separate classrooms for social-emotional skills at pretest ($M = 22.44, SD = 6.17$) was not significantly different than the mean score for inclusive classrooms for social-emotional skills at

pretest ($M = 24.56$, $SD = 5.55$). The two groups of preschool students did not differ on their level of social-emotional skills at the pretest (see Table 1).

Table 1. *Means and Standard Deviations for Social-Emotional Skills by Time and Group*

Factor	Total		Self-Contained Classrooms		Inclusive Classrooms		Group
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Pretest	23.50	5.90	22.44	6.17	24.56	5.55	
Posttest	46.18	8.83	41.56	8.91	50.80	5.94	

Hypothesis 1

The *t*-test for the social emotional domain posttests rendered different results. The main effect of time was significant for each student, $F(1, 48) = 508.62$, $p = .001$, suggesting that the mean score at posttest ($M = 46.18$, $SD = 8.83$) was significantly larger than the mean score at pretest ($M = 23.50$, $SD = 5.90$). The two groups of preschoolers both improved their social-emotional skills over time. However, the main effect of the group (separate special classrooms vs. inclusive classrooms) was significant, $F(1, 48) = 12.14$, $p = .001$, suggesting that the mean score for inclusive classrooms

($M = 37.68$, $SD = 1.15$) was significantly larger than the mean score for separate special classrooms ($M = 32.00$, $SD = 1.15$). The effect of the interaction between time and group was significant, $F(1, 48) = 12.53$, $p = .001$, suggesting that the effect of the interaction between time and group significantly impacted the mean scores for social-emotional skills. The developmental delayed children who had access to an inviting inclusion environment had significantly greater gains in social-emotional skills. The alternative hypothesis was accepted (see Table 2).

Table 2. *Post-hoc Independent Sample t Test for Social-Emotional Skills at Posttest*

	<i>df</i>	<i>t</i>	<i>P</i>
Inclusive – Separate	48	4.31	.001

Hypotheses 2

Null Hypothesis 2: There is no correlation between the student progress and the Invitational Environmental corollaries: people, program, process, place, policies.

Alternative Hypothesis 2: There is a correlation between the student progress scores and the Invitational Environmental corollaries: people, program, process, place, policies.

Hypotheses 2 Findings

The statistical findings from the Inviting School Survey (ISS-R) may have been different with a larger number than 8 participants. Overall the scores in each setting were similar (see Table 3).

Table 3. Summary of the Inviting School Survey - Revised

Participants	Total raw	mean	mode
General Education Setting			
Administrators	320	6.54	6
Teachers	274	5.48	6
Overall	594	5.78	6
Self-Contained Setting			
Administrators	355	7.1	8
Teachers	210	4.2	4

Note: Likert scale scores 0 (strongly disagree) to 8 (strongly agree).

n=2 for each set of participants

The number of surveys was too small to calculate any statistical differences, but the descriptive statistics may provide more insight into the school climate. The most prominent findings involve the differences between the teachers' and the administrators' scores in the self-contained setting (see Table 4). Overall, the school climates appear to be similar but the differences between the teachers' and the administrators' scores showed a possible faculty disconnect in the self-contained school. With 4.0 representing the median in the Likert scale, the administrators' mean of 7.1 and a mode of 8 was significantly higher than the teachers' mean of 4.2 and the mode of 4. Teachers rated the environment to be less inviting than the administrators did and significantly lower than the administrators in the process domain (See Table 4). The perceptions are different but generally favorable. There was no correlation between the student progress scores on the IED-II domains and the ISS-R scores. The scores were not significantly different for the

ISS-R in any domains and they were different in the social-emotional domain for the IED-II (see Table 3).

Conclusion

What environmental factors, as defined by Invitational Learning Theory (Stanley & Purkey, 2005), contribute to the progress of learning disabled preschoolers? There was no correlation to the IED-II and the factors for an inviting setting. The school climate factors: people, program, process, place, or policies did not have any correlation to the students' progress. Teachers and administrators rated the settings to be generally inviting in both settings.

But, one interesting finding in this study is the gains made by preschool-aged students with developmental delays. The scores were significantly higher in the social emotional domain for the inclusive setting compared to the self-contained setting (see Table 2).

Table 4. *Mean Scores of Inviting School Survey Corollaries*

Participants	People	Program	Process	Place	Policies
General Education Setting					
Administrators	6.5	5.3	7.1	6.5	7.4
Teachers	6.0	3.5	5.2	5.6	6.1
Overall	6.0	4.5	6.1	6.0	6.7
Self-Contained Setting					
Administrators	7.3	6.0	7.6	7.0	7.3
Teachers	4.3	3.4	3.8	4.3	5.7
Overall	5.7	4.7	5.7	5.7	6.5

Note: Likert scale scores 0 (strongly disagree) to 8 (strongly agree).

n=2 for each set of participants

The only significant discrepancy in the ISS-R scores is the administrators' and teachers' process scores in the self-contained setting. Also, the administrators' perception of the environment in all corollaries was significantly higher than those of the teachers' neutral perceptions. It is with caution, the author suggests any disconnect in the teachers and administrators. The high administrator scores may be due to Likert scale tendencies to score higher or the perspective from which each group views the setting. Overall, both school settings provide similar invitational environments as measured by the ISS-R and shown in Table 3.

Significance of the Study

All children, whether or not they have disabilities, want to belong (Thompson & McKenzie, 2005). Self-contained classroom settings are frequently limited to

students with a variety of deficiencies or developmental learning problems who are barred from admittance to regular classrooms. This restriction can be an ongoing tragedy for many students because an invitation to be like non-disabled peers is exactly what most schoolchildren want. Students in a preschool self-contained setting may not know they are being excluded from regular society but the interactions are obviously limited with the general student. Stanley and Purkey (2005) stated, "Invitational Theory is an explanation of human interactions and development based on interconnected assumptions" (Stanley & Purkey, p. 24). The exclusive setting in this study exposes the assumption that developmentally delayed children cannot interact or progress in a general education setting.

The inviting, inclusive setting exposes different assumptions about the preschoolers' and their abilities to interact and progress in a general setting. As inviting as a self-contained school may be, developmentally delayed preschoolers who

are placed in an inviting, inclusive preschool setting may have a greater chance of meeting their social emotional potential.

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