Including Students Who Are Visually Impaired in the Classroom: Attitudes of Preservice Teachers

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Structured abstract: *Introduction:* This study examines the perceptions of preservice teachers concerning the inclusion of students with blindness or low vision (visual impairments) in their classrooms. *Methods:* Using a modified version of the Preservice Inclusion Scale (PSIS), data were collected from participants in three universities in the United States before and after the completion of an introductory special education course. A Multivariate Analysis of Variance (MANOVA) test was conducted to investigate the change in participants' attitudes toward inclusion. *Results:* The anxiety measure revealed an increase in the calmness level of preservice teachers, and the receptivity measure revealed a nonsignificant change in their receptivity level toward inclusion. *Discussion:* There were three main study outcomes: A between-subject effect of the universities was not evident, no significant changes in hostility or receptivity were found, and the confidence of preservice teachers in teaching students with visual impairments was not a predictor of changes in attitudes toward inclusion. *Suggestions for future research:* Future research should determine the nature and scope of strategies included in coursework, and whether these strategies relate more to improvements in attitudes than to coursework that does not include them.

Historically in the United States, children who are blind or have low vision (that is, those who are visually impaired) have been educated alongside their sighted classmates in their neighborhood schools (Farrell, 1956; Koestler, 1976; Lowenfeld, 1975; Meyer, 1950). According to Meyer (1950), the development of day school programs for children who are visually impaired represented the second major milestone in the education of these children, the first being the establishment of residential schools.

The public school education movement, which has today metamorphosed into what is universally termed "inclusion," first began in Europe with an Austrian educator named Johann Wilhelm Klein. By 1805, Klein had concluded that ". . . the solution for the problem of providing education for every blind child was in their placement in local public schools" (Lowenfeld, 1975, p. 81). Lowenfeld further commented that this innovative practice of public education for children who are visually impaired

later spread to Scotland, Germany, and England.

In the United States in 1866, at the cornerstone-laying ceremony for the New York State Commission for the Blind at Batavia, Dr. Samuel Gridley Howe of the renowned Perkins Institution proclaimed, well ahead of his time, that children who are visually impaired could be taught with sighted children in the local schools "if special pains were taken with them, and special encouragement given . . . in the shape of books, slates, maps, etc." (Koestler, 1976, p. 408).

In 1900, parents of visually impaired children in Chicago demanded their children be educated closer to home than in the residential school in the southern part of Illinois. This effort culminated in the establishment of classes for children with visual impairments in local schools. By about 1920, there were at least six urban centers with public school classes for children with visual impairments in the United States (Irwin, 1955). Thus, inclusion had become an education paradigm for children who are visually impaired long before the 1975 implementation of P. L. 94-142, the Education for All Handicapped Children Act, and its amendments (Individuals with Disabilities Education Improvement Act, 2004).

Today, inclusion is viewed as a commitment to educate each child, utilizing available services and supports, to the maximum extent possible, in the classroom he or she would otherwise attend. Inclusion is also seen as a reform that supports and welcomes diversity among all learners (Smith, Polloway, Patton, & Dowdy, 2012; UNESCO, 2009). However, the movement has both proponents and critics. For example, supporters of inclusion contend that in an inclusive setting, children who have disabilities are given the opportunity to interact with their peers through simple physical proximity and modeling, which leads to effective language and social skills acquisition that may not be possible in a segregated setting. These benefits of inclusion are believed to increase academic motivation and self-esteem for all learners and promote a sense of belonging for those students with learning needs (Moore, Gilbreath, & Muiri, 1998). Conversely, critics have argued that inclusion can result in social isolation and limited opportunities for students to become competent in the "expanded core curriculum," particularly as these competencies relate to pupils who are visually impaired (Hatlen, 2004; Hoben & Lindstrom, 1980; Huurre, Komulainen, & Aro, 1999). These critics are of the opinion that, more often than not, a majority of children who are visually impaired in public schools do not become socially integrated because teachers of children with visual impairments are frequently saddled with large and diverse caseloads, and rely heavily on a service delivery model that favors itinerant and teaching consultant approaches that do not allow adequate instruction in the specialized competencies.

Since inclusion requires a collaboration between general and special education, researchers must analyze the phenomenon of the views of teachers about inclusion. Research supports the fact that expectations of teachers influence the achievements of students, as well as their behavior and self-esteem (Brophy & Good, 1974). If teachers' perceptions of children with disabilities are negative, then including such children in public school classrooms may not translate into positive experiences for the children. It

would be important to study the perceptions of teachers, as these may exert a great influence on the inclusion of children with disabilities, especially those who are visually impaired.

Researchers have noted that teachers who have had more special education coursework develop more positive perceptions of inclusion than those with less of that specific coursework (Ajuwon et al., 2012; Jobe, Rust, & Brissie, 1996; Stoler, 1992). In Canadian research, Wall (2002) found that teachers with the least amount of experience with children with visual impairments tended to place those children in more restrictive placements, to have less confidence in their own abilities to work effectively with those children, and to be less inclined to include such children in general education classrooms. Among the ideas to enhance positive attitudes toward inclusion, as noted by Wall, are: increasing the amount of positive contact teachers have with children with visual impairments before the teacher is expected to teach such children, and providing novice teachers with informational visits, reading materials, meetings, and workshops prior to the children entering the classroom. The preceding ideas further underscore the need for providing preservice teacher candidates with specific training and experience in basic areas of blindness and low vision, which will ultimately enable them to develop needed strategies and skills.

On the basis of the foregoing realities, it would seem prudent that the most direct action for teacher educators to embark upon is to incorporate a course into the future teachers' training curricula. There has been minimal research on the influences of such a course, particularly with regard to teachers of students who are visually impaired. Of equal significance is the need to determine the content and scope of such a course that would indicate impacts on trainees. In other words, preservice training will need to focus on general issues related to visual impairment, children's learning challenges, ways to identify such challenges, and how to modify teaching techniques to optimize opportunities for learning and socialization in children with visual impairments. Thus, it becomes imperative to assess the content of such a course and to determine why such a course might or might not be expected to effect a change in the attitudes of students taking the course.

Purpose of the current study

This study explored the feelings of future general education preservice teachers, using the modified Preservice Inclusion Survey, hereafter referred to as PSIS (Shippen, Crites, Houchins, Ramsey, & Simon, 2005). The investigators felt there was a strong need to investigate disability-specific perspectives. Hence, the original PSIS scenario to measure the degrees of hostility or receptivity and anxiety or calmness of educators toward inclusion of children with high-incidence disabilities was modified to measure these same variables toward inclusion of children who are visually impaired, a low-incidence disability.

Soodak, Podell, and Lehman (1998) defined the two dimensions of hostility or receptivity and anxiety or calmness as used in the current study. According to them, "Hostility/receptivity reflects teachers' feelings pertaining to their enthusiasm for including a student with disability and their expectations for the success of such an arrangement," while "anxiety/calmness reflects the emotional tension held by teachers

in response to being told that a student with disabilities is to be in their charge" (p. 491). For the purpose of this article, we refer to the hostility-receptivity and the anxiety-calmness measures as *receptivity* and *calmness*, respectively, to avoid confusion of which levels were elevated or decreased in the study.

Thus, the main aim of the current study was to provide future general educators with an opportunity to reflect on their feelings regarding the practice of educating children with visual impairments within general education settings. The researchers wanted to assess the effects of some selected variables on the attitudes of respondents toward inclusive education and to determine if the attitudes of participants could be positively affected through a single course. Ultimately, the aim was to ascertain how university programs can better prepare prospective educators to have positive attitudes toward inclusion and provide them with skill sets that will enable them to teach children who are visually impaired to be successfully integrated into society.

The variables of interest that potentially affected the attitudes of the participants toward visual impairments included: geographic locations of the participants' universities, self-reports related to disabilities, prior significant interactions, prior training, prior experience in teaching, prior knowledge of legislation or policy, and prior confidence in teaching.

Methods

Instrument

The investigators used a modified version of PSIS, which presents a hypothetical scenario in which a general education teacher is informed that several new children with disabilities will be in his or her class in the coming school year. The scenario in the original PSIS was modified to reflect new directions in the measurement of attitudes of preservice teachers toward children with visual impairments (see Box 1).

The scenario was followed by 17 pairs of adjectives, which respondents rated from least positive to most positive attitudes to indicate their feelings toward the scenario. These adjective pairs were grouped into two categories: anxiety-calmness (fearless-scared, relaxed-anxious, comfortable-uncomfortable, confident-insecure, calm-nervous, powerful-weak, and prepared-unprepared); and hostility-receptivity (enthusiastic-unenthusiastic, not angry-angry, willing-unwilling, interested-disinterested, pleased-displeased, indifferent-annoyed, accepting-opposing, cooperative-resistant, happy-unhappy, and optimistic-pessimistic).

For the purpose of analysis, the paired adjectives for each response were transferred to a 5-point Likert scale in which the least positive adjective corresponded to 1 and most positive corresponded to 5. In both groups, scores of individual adjective pairs were added up to get the scores of anxiety-calmness with a possible range from 7 to 35, and for hostility-receptivity with a possible range of 10 to 50.

Within the same instrument, additional questions were added to gather information on: participants' age; gender; ethnicity; class ranking; level of certification sought; documented disabilities; prior significant interactions (none, some, high); prior training (none, some, high); prior experience in teaching (none, some, high); prior knowledge of legislation or

Modified Preservice Inclusion Survey

The administrator of your school calls you in for a conference two weeks before school is out. The administrator informs you that next school year you will have several new students with disabilities in your classroom. He also shares that next year the school will make an effort to include students with disabilities in general education classes as often as appropriate. The special educator for your district is also in attendance at this conference, and she is also hearing this information for the first time. The administrator goes on to say that the students with disabilities that will be in your class have the identified disabilities of blindness and low vision. You leave the meeting feeling _____. (Check the word that best describes your feelings after reading the following scenario.)

1.	Enthusiastic	Somewhat enthusiastic	Neutral	Somewhat unenthusiastic	Unenthusiastic
2.	Scared	Somewhat scared	Neutral	Somewhat fearless	Fearless
3.	Anxious	Somewhat anxious	Neutral	Somewhat relaxed	Relaxed
4.	Comfortable	Somewhat comfortable	Neutral	Somewhat uncomfortable	Uncomfortable
5.	Angry	Somewhat angry	Neutral	Somewhat not angry	Not angry
6.	Unwilling	Somewhat unwilling	Neutral	Somewhat willing	Willing
7.	Interested	Somewhat interested	Neutral	Somewhat disinterested	Disinterested
8.	Confident	Somewhat confident	Neutral	Somewhat insecure	Insecure
9.	Nervous	Somewhat nervous	Neutral	Somewhat calm	Calm
10.	Pleased	Somewhat pleased	Neutral	Somewhat displeased	Displeased
11.	Weak	Somewhat weak	Neutral	Somewhat powerful	Powerful
12.	Annoyed	Somewhat annoyed	Neutral	Somewhat indifferent	Indifferent
13.	Accepting	Somewhat accepting	Neutral	Somewhat opposing	Opposing
14.	Prepared	Somewhat prepared	Neutral	Somewhat unprepared	Unprepared
15.	Resistant	Somewhat resistant	Neutral	Somewhat cooperative	Cooperative
16.	Happy	Somewhat happy	Neutral	Somewhat unhappy	Unhappy
17.	Pessimistic	Somewhat pessimistic	Neutral	Somewhat optimistic	Optimistic

Box 1.

policy (poor, average, high); and confidence in teaching (poor, average, high).

Participants

Participants were selected for this study based on their enrollment in preservice courses. As a result, the population that was surveyed represents a convenience sample. The participants were enrolled in two southwestern universities and one midwestern university. The highest participation rate came from students enrolled in the first southwestern university, where a total of 37% (n = 34) participated, while 29% (n = 26) of participants were enrolled in the other southwestern university and 34% (n = 31) were enrolled in the midwestern university.

In total, 91 preservice teachers participated in the survey. Ninety-five percent (n = 86) of the participants were females and 5% were male (n = 5). The ethnicity of the participants was 86% Anglo American (n = 76), 10% Hispanic (n = 10), 2% African American (n = 2), and 2% selected "other" (n = 3). Ninety-eight percent of the participants were undergraduates (n = 89) and 2% were graduate

students ($n = 2$). Although the age of participants ranged from 19 to 49, the median age was 20 ($SD = 6.18$).

Procedure

The Institutional Review Boards of two of the participating universities approved the online research. Approval was not required of the third university, because it was a satellite campus of the main southwestern university and, as such, it operated under the same Institutional Review Board guidelines. Attached to each survey was a cover letter that assured participants that the study would be anonymous and that the information provided could not be traced to individuals. At the bottom of the cover letter was information on how participants could contact the lead investigator if they had any questions. Finally, participants were informed that by clicking on the Start button on the online survey they understood the conditions of participation in the study.

The survey was placed online through the website SurveyMonkey. The instrument was administered before and after the participants attended the preservice course. All surveys were distributed in the fall semester of 2011.

Data analysis

As part of the data-analysis process, the researchers reviewed available course syllabi from two of the three universities. The similarities of the two courses were: the intent to provide introductory content and instructional strategies to support students with disabilities, the fact that both were distance learning courses, that assignments required students to identify accommodations and modifications for children with different disabilities, and that weekly content modules included required readings. The primary differences between the two courses were that one course required students to complete 25 hours of field placement with an individual with a disability. The other course required each student to complete an interview with a teacher, an administrator, and a family member who had a child with a disability.

A further step in the analysis was the use of MANOVA to examine the effects of independent variables on two dependent variables simultaneously, and, unlike ANOVA, more than one dependent variable in MANOVA was used (Tabachnick & Fidell, 1996). Another advantage of MANOVA is to protect against an inflated Type 1 error, which is typically associated with series of ANOVA tests (Tabachnick & Fidell, 1996). Thus, to answer the research question about the effects of various factors on participants' attitudes toward inclusion, the researchers conducted a repeated-measure MANOVA with time (before and after) as a within-subject factor and six between-subject factors. The two dependent continuous variables of the study were receptivity and calmness. The six independent categorical variables included in the analysis were: institution of higher education, prior significant interactions, prior training, prior experience in teaching, prior knowledge of legislation or policy, and confidence in teaching.

Although the researchers collected various demographic variables, these were not included in the analysis because of significantly unequal distribution of the data. For example, the researchers did not include gender and disability information in the analyses because the majority of the participants were females without disabilities.

Table 1
Independent variables mean scores.

	Level of training in educating students with disabilities	Knowledge of legislation	Confidence in teaching students with disabilities	Experience teaching students with disabilities	Interaction with people with disabilities
Mean *(SD)*	1.54 (0.62)	1.58 (0.62)	1.84 (0.71)	1.55 (0.61)	1.52 (0.58)

Results

The repeated-measure MANOVA was conducted to evaluate the effect of enrollment in a special education introductory course on students' receptivity and calmness toward inclusion.

The descriptive analysis was conducted for the six between-subject factors, including geographic locations of the universities, prior significant interactions, prior training, prior experience in teaching, prior knowledge of legislation or policy, and prior confidence in teaching. (For information on geographic location, see the explanation provided in the Participants section of this article. For information on the other five factors, see Table 1).

The main effect of time was significant for calmness: Wilk's Lambda = .036, $F(1, 90) = 2402.651$, $p < 0.01$. However, the multivariate test indicates a nonsignificant receptivity main effect: Wilk's Lambda = 1.029, $F(1, 90) = .989$, $p = .313$.

After performing the various analyses listed above, there is a significant change in mean values for calmness ($p < 0.01$) while there is no significant change in mean values for receptivity ($p = .313$) between pre- and posttests. The change in pre- and posttest means for calmness indicates a significant effect of time in increasing the calmness levels of participants. However, changes in mean levels for receptivity reveal nonsignificant effect of time on the receptive attitudes of preservice teachers toward inclusion. Results from Wilk's Lambda tests support these trends. On the other hand, there was no significant or higher-order interaction effect of the independent factors as listed earlier in the first research question, which addresses the characteristics of preservice teachers such as geographic location of their universities and prior interactions with students with disabilities, as well as experience teaching students with disabilities. The two dependent variables were positively moderately correlated.

Table 2
Pre- and posttest mean scores.

Pre- or post-	Mean *(SD)*
Pre–total calmness	18.88 (5.24)
Post–total calmness	20.35 (4.49)
Pre–total receptivity	40.84 (6.18)
Post–total receptivity	40.52 (6.31)

Discussion

Three major study outcomes emanate from this investigation that deserve further elaboration. First, a between-subject effect of the universities for this study was not evident. Second, no significant changes were seen in receptivity. Third, the confidence of preservice teachers in teaching students with visual impairments was not a predictor of changes in attitudes toward inclusion.

It is apparent from these results that general education preservice teachers are more reticent to teach or include students with visual impairments than are those specially trained professionals who had attended prescribed courses that address similar issues. The question remains as to why preservice teachers have this attitude and whether teacher preparation programs can ameliorate this phenomenon.

Although this study did not collect data to address this question, based on the researchers' experiences, there are a number of factors that may contribute to general education preservice teachers having negative perceptions of the inclusion of children with visual impairments. Possible reasons for the lack of change in attitude of preservice teachers could also be attributed to their lack of experience with individuals who are visually impaired. Historically, there have been negative perceptions of people who are visually impaired which then lead to low expectations of the ability of these individuals to contribute to society or achieve successful academic outcomes; in addition, individuals who are visually impaired can be perceived as being a nuisance (Tuttle & Tuttle, 2004). Either viewpoint makes it difficult to ascertain the impact of sight loss on children with visual impairments, on their families, and on the professionals educating them.

Fear of becoming blind or losing one's vision is also a potential factor as to why participants in this study may have had a less than positive perception of working with students with blindness and low vision in general education classrooms. In fact, Koestler (1976) states "Of all the ills and imperfections of humankind, blindness is the most universally dreaded" (p. 1).

Limitations of the study

A number of possible limitations may have affected the findings of the study. These limitations include: the use of a convenience sample, the number and the homogeneity of the participants, the information provided in the courses, the instructors teaching the courses, the Hawthorne Effect, and the review of only two course syllabi rather than three.

The convenience sampling method used in the study may not permit generalization of data to other universities in the United States that prepare teachers of students who are visually impaired. The total number of participants for this study was 91 respondents, which is considered a small sample judging by the three universities represented within the sample. In the Shippen et al. (2005) study, the total number of participants exceeded 300 students, which allowed for a comprehensive range of comparisons between pre- and posttests.

The homogeneous nature of the sample and the fact that a large percentage of the participants were Anglo-American female students may have contributed to the small change in attitudes toward inclusion. A more diverse sample may contribute to diversity in attitudes toward inclusive education.

The amount of information on teaching students with visual impairments provided in the courses examined by this study is unknown and may have influenced the outcomes that were measured. The knowledge base and comfort level of the individual instructors of the courses may have been a factor in how participants viewed the inclusion of this population in general education settings.

As noted previously, the syllabi that were reviewed provided only information on projects and activities germane to broad disability categories that were not specific to visual impairment. The researchers only had access to two of the course syllabi to review from two of the three participating universities. The information in the third syllabus on the content of that course may have provided additional information concerning why the participants responded in a certain manner.

The Hawthorne Effect may explain the change in participants' attitudes toward inclusion (Gall, Borg, & Gall, 1996), since participants may have altered their responses to fit a perceived notion about the expected patterns of their responses. Even though the participants were told that their participation was anonymous, some may not have taken part because their assumption might have been that responding or not to the survey could have affected their grade in some fashion and was not truly anonymous.

Suggestions for future research

Future research needs to address preservice teacher training coursework that focuses on strategies such as:

- Recruiting guest speakers (for instance, teachers of students with visual impairments and orientation and mobility specialists) to discuss their roles and responsibilities in the classroom, the kinds of assistive technologies used by students with visual impairments, and the accommodations and modifications that are typically implemented with these students.
- Encouraging ongoing dialogs with preservice teachers to address their fears about serving this population of students, with the possible inclusion of an individual who is blind or has low vision, or a parent of such an individual, to facilitate such discussions.
- Providing intensive, diverse, and hands-on field-based experiences with students who have visual impairments.
- Assisting subject-specific methodology classes with how to adapt the general curriculum for students with visual impairments.
- Sensitizing preservice teachers to the importance of the expanded core curriculum and the development of a disability-specific curriculum for students who are visually impaired.

In summary, the above curricula adaptations could help to determine if the suggested strategies might demonstrate changes in attitudes of preservice teacher candidates. Additional research on the education of general educators and administrators about students with visual impairments would also provide more rigorous field-based training opportunities for preservice general education teachers.

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