A Need for Interdisciplinary Personnel to Serve Students with DeafBlindness: A Literature Review

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Abstract

This article presents a narrative review of research revealing a need for professionals trained to serve students with DeafBlindness. The synthesis was conducted to glean evidence from the literature and to answer questions regarding the need for professionals to serve children with DeafBlindness. Twelve articles provided the needed evidence under the following identified themes: the need for resources and services for students with low-incidence disabilities including DeafBlindness, the need for training opportunities for professionals in DeafBlindness, the role of personnel preparation programs, the use of specific models and intervention strategies, and the recommended practices and competencies for professionals in DeafBlindness. Four of the articles addressed more than one of these themes, while the remaining eight articles addressed one theme each. This review supports the findings of previous studies that have identified the need for professionals in DeafBlindness and recommended that these professionals be prepared to possess specific competencies that enable them to implement evidence-based strategies to improve student outcomes.

Keywords

DeafBlindness, Orientation & mobility, Teachers of students who are deafblind, Low incidence disabilities

Introduction

The Individuals with Disabilities Education Improvement Act (IDEIA) of 2004 defines “DeafBlindness” as “concomitant hearing and visual impairment, the combination of which causes such severe communication and other developmental and educational needs that the child cannot be accommodated in programs solely for children with deafness or blindness” (34 CFR §300.8(c)(2)). According to the IDEIA (2004), a child need not be both totally deaf and totally blind to be considered DeafBlind (Wiley, Parnell, & Belhorn, 2016).

According to the 2016 report of the National Child Count of Children and Youth Who Are DeafBlind, 10,749 children in the United States were identified as DeafBlind. In addition, approximately 90% of the population with DeafBlindness was identified as having one or more additional disabilities, the most common of which were cognitive impairments, orthopedic impairments, and complex health care needs (National Center of DeafBlindness, 2017).
Without enough personnel trained in serving children with DeafBlindness, this high-need population can be difficult to identify, evaluate, and serve. However, it is not fiscally prudent for many districts to hire professionals trained specifically in DeafBlindness and orientation and mobility (O&M). To solve this problem, the authors recommend that teachers of students with visual impairments (TVIs) be trained to acquire competencies to serve children with DeafBlindness and related O&M issues. Using an interdisciplinary team approach, TVIs could be cross-trained in O&M with a specialization in DeafBlindness to better meet the individualized needs of students with DeafBlindness (Ayala, 2017; Downing & Peckham-Hardin, 2007).

Many students who experience DeafBlindness leave school without having received a free and appropriate public education (FAPE), which is the cornerstone for meeting individualized learning and developmental outcomes required for completion and graduation from high school, and access to post-secondary education and vocational opportunities (Banks & Polack, 2014; Ferrell, Bruce, & Luckner, 2014). As a result, students with sensory impairments, especially those who are from low-income groups, suffer low employment rates unless they are provided vocational experiences (Banks & Polack, 2014; Ferrell, Bruce, & Luckner, 2014). In addition, DeafBlindness being a low-incidence disability and students with DeafBlindness often requiring specialized and expensive services, equipment, and assistive technology (AT), many states and districts find it financially difficult to serve students with DeafBlindness (Bhattacharyya & Spears, 2007; Montgomery, 2014; Sutton, Bausmith, O’Connor, Pae, & Payne, 2014). For this reason, federal support (e.g., funding personnel preparation programs to train professionals to teach children with DeafBlindness, social security income, Medicaid/Medicare) is essential for improving the quality of the services provided to students with DeafBlindness in geographically and financially challenged areas (Ayers, 2011).

There are country-wide shortages of personnel trained to serve students with DeafBlindness (Bruce, Luckner, & Ferrell, 2018; Landa-Vialard, Ely, & Lartz, 2018), and the programs that train personnel to serve students with DeafBlindness have limited capacity and scarce resources (National Center on Deaf-Blindness, 2019). In addition, these shortages will likely be exacerbated in the coming years by the retirement of large numbers of baby-boomer teachers (Ambrose-Zaken & Bozeman, 2010; Lenihan, 2010; Pogrund, 2017). Research indicates that the most significant factor in improving services and programs for students with DeafBlindness is the retention of qualified teachers (Jackson, 2005; Paige, Jones, & Pasternack, 2002; Rhim, Sutter, & Campbell, 2017). However, school districts in rural areas often face significant challenges in recruiting and retaining teachers, especially when large portions of their students come from underrepresented groups and low-income populations (Hammer, Hughes, McClure, Reeves, & Salgado, 2005).

To address the issues raised above, a narrative review of the literature was conducted to achieve the following goals:

- Analyze data demonstrating the significant need for trained teachers and O&M specialists to serve students with DeafBlindness
- Critically review and discuss common themes related to the significant need for professionals to serve students with DeafBlindness.
- The following questions were used to guide this review:
  - Is there a need for trained teachers and O&M specialists to serve students with DeafBlindness?
  - What common themes occur in the literature regarding the need for trained teachers and O&M specialists to serve students with DeafBlindness?

**Methods**

Mays, Pope and Popay (2005) claimed that, “a synthesis of findings is the heart of any systematic review” (p.6). Although there are different approaches for the synthesis of qualitative evidence (Barnett-Thomas & Paige, 2009; Cruice, Johansson, Isaksen, & Horton, 2018; Mays et al., 2005; Popay, Roberts, Sowden, Petticrew, Arai, Rodgers, Britten, Roen, & Duffy, 2006), a narrative review was conducted to evaluate the need for professionals to serve students with DeafBlindness. The narrative review conducted included the comprehen-
sive summary and interpretation of evidence from published studies pertaining to the need for trained teachers and O&M specialists to serve students with DeafBlindness (Mays et al., 2005). Accordingly, the flexibility of a narrative review allowed the authors to review different types of evidence (qualitative and quantitative research studies) without generating new theories; however, even without generating new theories, the wide range of evidences from the narrative review can still inform public policy (Mays et al., 2005). In addition, the thematic analysis implemented in the narrative review produced a synthesis of findings within the included studies. As Mays et al. (2005) explained, thematic analysis brought the important issues or themes that arose from the body of the literature and were shaped by the review questions that guided this study. This review was conducted in the stages described below.

Stage I: Initial Literature Search

The literature was reviewed between May 2018 and March 2019, and papers were selected for inclusion using a broad range of criteria. To begin with, an electronic worksheet was used to identify all relevant texts in the literature. The worksheet was composed of 11 sections for encoding, and texts were evaluated using the following criteria: the names of the author/s, the average rating, a complete citation of the article in American Psychology Association (APA) format, the title of the article, the name of the journal in which the article was published, the purpose of the study, information on the participants and the location of the study, data collection procedures, and results. Once the sections were organized, a Boolean search was performed in Google Scholar using the following terms: “DeafBlindness,” “need for teachers of Deafblind students,” “Deafblind and O&M teachers,” “dual sensory impairment,” and “low-incidence disability.” These key phrases were chosen because they encompassed important elements surrounding DeafBlindness. Specific library links were also set during the search of Google Scholar to ensure that the search would include up to five libraries per the allowable library access links set by Google Scholar. The library links in Google Scholar included the Library of Congress, Open WorldCat, the Texas Tech University Library, Harvard University, and the Oxford Health NHS Foundation Trust.

Library subscription databases were also accessed online. These included Academic Search Complete, EBSCO, Information Services, ERIC, JSTOR, and Scopus by Elsevier Publishing. Because electronic searches often miss relevant articles, five journals were hand-searched for the specified publication years from 2000 to 2018. These were American Annals of the Deaf, International Journal of Orientation & Mobility, Journal of the American Academy of Special Education Professionals, Journal of Visual Impairment & Blindness, and the American Council for Rural Special Education Quarterly.

The initial search yielded 82 articles. Of these 82, nine were excluded because they were not peer-reviewed studies. Since O&M is an essential service in DeafBlindness, texts that specifically addressed both DeafBlindness and O&M (including journals that addressed these issues in different subsections) were immediately added to the appropriate section of the worksheet.

Stage II: Secondary Evaluation

The remaining, peer-reviewed articles were made accessible to all the authors. Between 12/1/2018 and 4/30/2019, each of the authors read all 73 articles and then met to discuss their ratings as a group. The ratings established by the panel were as follows: 1 — no evidence, 2 — little evidence, 3 — some evidence, 4 — strong evidence, and 5 — very strong evidence. The decision rules the authors followed were: the authors shared justification; the average of the rating scores provided a justification (e.g., evidence for their specific rating); individual ratings were changed based on the was calculated; the authors agreed that articles with average ratings of four or five would be included in the next round. Then, the remaining articles were encoded in a new tab in the primary electronic worksheet. Of the 73 articles reviewed, only 15 were included in the next round. Ratings of four and five revealed “there is strong evidence of the need for trained teachers and/or O&M specialists to serve students with DeafBlindness.”
Stage III: Final Review

In the final round, the authors reviewed the 15 articles that were included in the second round of review. First, the authors searched the reference lists of these articles for articles that could have been included in the initial search (Thomas, Ciliska, Dobbins, & Micucci, 2004; Vassar, Atakpo, & Kash, 2016). As a result of this search, nine articles were evaluated for inclusion. The first and second authors examined the contents of these articles, and only one was determined to meet the inclusion criteria. Then, each author reread the resulting 16 articles and rated them a second time. This process took two weeks, and 12 of the 16 articles were determined to meet the inclusion criteria for the final literature review.

Figure 1. Flow diagram illustrating each of the stages in the data review
<table>
<thead>
<tr>
<th>Table 1. Characteristics of Included Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reference</strong></td>
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<td>---------------</td>
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</tbody>
</table>
A Need for Interdisciplinary Personnel to Serve Students with Deafblindness

(1) Dear educators, teachers, and parents:

There is a need to develop comprehensive interdisciplinary programs to serve students with Deafblindness. In the absence of knowledge, skills for educational intervention and psychological support are not provided to learners with low-incidence disabilities. The role of special educators and teachers is critical in addressing the unique needs of students with Deafblindness. The best educational practices that are inclusive of positive behaviors and interventions are essential to achieving academic success. Inadequate preparation of personnel is not an easy task, posing significant challenges to educators.

(2) Information on best practices for students with low-incidence disabilities is not readily available. The United States has a need for qualified personnel to provide appropriate educational preparation.

(3) The need exists for early intervention and information programs.

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There is a need for intensive intervention in communication for individuals who are developing to become active members of society.

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(2) Evidence-based strategies to help individuals who are developing is necessary to moderate stress, self-regulate, and develop social relationships.

(3) Personal engagement programs need to incorporate cultural and behavioral differences.

(4) The curriculum developed in the ET VISTA project recommends practices that improve engagement and visual

(5) The use of evidence-based research in education is recommended when early intervention

(6) More learning on evidence-based practices is needed.

More research is needed for evidence-based practices.

Edgars were successful in reducing dysregulated behaviors, and was also

INTERVENTIONS EMPLOYED BY A CHILD INTERVENTIONIST DURING DEVELOPMENTAL DISABILITIES

A self-contained classroom for children with visual impairments.

The child who was blind lived a normal life.

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A Need for Interdisciplinary Personnel to Serve Students with Deafblindness

These 12 articles were listed in a table and each analyzed under the following variables: content, participants, setting, outcomes, and methods (see Table 1). Figure 1 is a flowchart summarizing each stage of the data review and how it contributed to the synthesis process.

The Process of Data Analysis

The first level of analysis was a content analysis (Krippendorff, 2013; Mayring, 2000/2014; Seuring & Gold, 2012). On Mayring’s process model of qualitative content analysis, analytic categories are defined, assessed, and selected for application to collected materials. This procedure enables the formulation of criteria based on the research questions, which determines the materials considered after consensus from the panel (Mayring, 2000). Each author reviewed the final 12 articles and identified items from the articles that demonstrated the need for O&M specialists and teachers of students with DeafBlindness. These items were placed in the “Results” column.

The second level of analysis was the identification of themes (Krippendorff, 2013; Mays, 2005). After the core themes emerged, Table 2 was developed in which the pieces of textual evidence that supported each theme were organized according to the theme they supported. For easy tracking and retrieval of the text evidences in the articles, the reviewers assigned an article identification number to each piece of textual evidence. For example, [A-2] indicated “article 2” and the identification number for article 2 was “2.” In the third and final level of analysis, each author reviewed articles that they had not previously been assigned, and the results were added into the “Results” column. This was done to capture any pieces of thematic evidence that may have been overlooked by the previous reviewers. This process was consistent with Seuring and Gold (2012), who argued that materials can be thoroughly assessed using an iterative process of category building and the constant comparison of data. After this level of analysis, the identification of thematic evidences was considered complete.

Table 2. Sample of general themes with corresponding text evidences

<table>
<thead>
<tr>
<th>Recommended practices and competencies for professionals in DeafBlindness</th>
<th>[A-15] Practices should be based on the practices presented in the national special education organizations and should include: assessment, intervention, professional collaboration, multiple disabilities/DeafBlindness, early intervention and visual impairment</th>
<th>[25] Should be based on recommendations for quality personnel development for leading national organization in early childhood special education impairment of DeafBlindness.</th>
<th>[A-49] There is need to develop competencies among teachers and service providers who serve students with low incidence disabilities in the areas of knowledge and skills for behavioral changes as well as technological support for learning</th>
<th>[A-57] Orientation and mobility specialists need to provide assessment and instructional services using functional activities and environments.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need for resources/services for students with low incidence disabilities</td>
<td>[A-49] The best educational practices (e.g., positive behavior interventions, the use of assistive technology, and using technology for learning in the home were not being provided to learners with low incidence disabilities.</td>
<td>[A-57] Skilled personnel need to advocate for support personnel services to enable individual in the society.</td>
<td>[A-54] The DeafBlind population has grown over the years but their needs of access to teachers and interveners with specific knowledge and training in DeafBlindness has remained unchanged overtime</td>
<td>[A-5] There is need for individuals with DeafBlindness to receive training in O&amp;M skills such as communication and access to information, crossing indicators and street furniture, public transport and international standards.</td>
</tr>
</tbody>
</table>
Results

Twelve articles were examined for evidence of the need for professionals to serve individuals with DeafBlindness, and the following themes emerged as the basis for evidence: the need for resources and services for students with low-incidence disabilities (N=4), the need for training opportunities for professionals in the area of DeafBlindness (N = 6), the role of personnel preparation programs (N = 2), the use of specific models and intervention strategies (N = 5), and the recommended practices and competencies for professionals in DeafBlindness (N = 4). Four of the articles (Jackson et al., 2015; Jackson et al., 2005; Parker & Nelson, 2016, & Sauerburger, Siffermann, & Rosen, 2008) were found to address more than one of these themes. The remaining eight articles (N = 8) addressed one theme each. The overall themes are provided below.

The Need for Resources and Services for Students with DeafBlindness

Four of the 12 articles (Jackson et al., 2005; Herse, 2014; Nelson & Bruce, 2016; Spungin, Ferrell, & Monson, 2016) addressed the need for resources and services for students with DeafBlindness. Jackson et al. (2005) found that in their home environments, learners with low-incidence disabilities, including DeafBlindness, were not being served using best educational practices, including positive behavior interventions and the use of AT. Additionally, even though the number of individuals with DeafBlindness has increased with time (The National Center on Deaf-Blindness, 2017), access to professionals with specific knowledge and training related to DeafBlindness has remained unchanged (Spungin, Ferrell, & Monson, 2016). “There are increased needs for more interventionists and teachers with knowledge of deafblind intervention and instruction, and for individualized supports, including the provision of intervener services” (The National Center on Deaf-Blindness, 2017, p. 45). Individuals with DeafBlindness need professionals who can advocate for them to be active participants in society (Jackson et al., 2005; Nelson & Bruce, 2016). Articles also described a need for the development of O&M skills for individuals with DeafBlindness, including their skills in communication. In addition, students need accommodations for accessing information, crossing indicators, and street furniture (e.g., streetlights, mailboxes, traffic signs, waste container). According to Hersh (2014), it is important for transport and public service personnel to receive training in providing services to individuals who are Deaf-Blind.

The Need for the Training of Professionals in DeafBlindness

Of the six articles that addressed this theme, three of the articles (Hartmann, 2012; Howley, & Teifer, 2017; and Jackson et al., 2005) discussed the scarcity of training opportunities, attributing this scarcity to the reason that many states are unable to provide training. They also attributed this scarcity to preparation programs for teachers of students with DeafBlindness being limited and difficult to maintain. These programs target small populations who need fewer teachers and university programs require large enrollments to be sustainable (Jackson et al., 2015; Parker & Nelson, 2016). The competency levels of personnel serving students with DeafBlindness were also discussed, and the authors emphasized the need for qualified teachers to serve this population. In Jackson et al. (2005), the participants described a need for teachers qualified to provide appropriate education and experiences to students with low-incidence disabilities, including DeafBlindness. They also found that information was scarce on best educational practices for students with low-incidence disabilities.

The other issue addressed under this theme was the need for O&M specialists to be familiar with techniques for serving students who are visually impaired with additional disabilities. Sauerburger et al. (2008) recommended that O&M specialists learn techniques for working with students who are Deaf-Blind.

The Role of Personnel Preparation Programs

This theme was addressed by two (Jackson et al., 2015; Parker & Nelson, 2016) of the 12 articles re-
Teacher preparation programs for deaf educators should provide more information to their students about children who are deaf with additional disabilities, including DeafBlindness. These programs should also use interdisciplinary teaming and teach communication and O&M skills to their students. The authors also emphasized the need for more evidence-based practices, an approach that used scientific evidence to determine the most appropriate action for a certain undertaking (Jackson et al., 2015), and identified different models that universities can use to train teachers in DeafBlindness. These models include incorporating DeafBlind competencies into existing coursework on other disability areas and adding coursework specific to DeafBlindness (Parker & Nelson, 2016).

The Role of Personnel Preparation Programs

Four of the articles (Bruce et al., 2018; Jackson et al., 2005; Landa-Vialard et al., 2018; Sauerburger et al., 2008) addressed recommended practices for professionals in DeafBlindness. Professionals in DeafBlindness need to apply practices recommended by United States national organizations for DeafBlindness (e.g., Howley et al., 2017; the Council for Exceptional Children). These practices include assessment, early intervention, and collaboration. The need for the development of quality personnel was also emphasized (Landa-Vialard et al., 2018). It was recommended that competencies be developed among teachers and service providers for working with students with DeafBlindness. Additionally, the importance of acquiring knowledge and skills related to behavioral changes and the technological support of learning were emphasized (Jackson et al., 2005).

Orientation and mobility specialists need to use functional activities to provide assessment and instructional services to individuals who are DeafBlind. In addition, communication and child-guided approaches need to be systematically taught and implemented with students who are DeafBlind (Sauerburger et al., 2008). Bruce et al. (2018) argued that educational teams for children who are DeafBlind should include at least one member who is knowledgeable concerning the impact of DeafBlindness, and in specialized communication and instructional methods that can be used to aid in assessment, instructional planning, and program implementation.

Discussion

The results of this study agree with those of previous studies that have identified the need for children with DeafBlindness to be served by professionals possessing specific competencies and can implement evidence-based strategies that improve student outcomes (Ayala, 2017; Downing & Peckham-Hardin,
A Need for Interdisciplinary Personnel to Serve Students with DeafBlindness

2007; Jackson et al., 2005; Montgomery, 2014; Sutton, Bausmith, O’Connor, Pae, & Payne, 2014). Also, these professionals need to be able to incorporate curricula on DeafBlindness into personnel preparation programs (Landa-Vialard et al., 2018). Jackson et al. (2015) argued that preparation programs for teachers of deaf students should provide specific curricula concerning students with additional disabilities, including DeafBlindness. The continual need for resources and services for this population has been stressed by professionals in the field (Jackson et al., 2005; Montgomery, 2014; Sutton, Bausmith, O’Connor, Pae, & Payne, 2014).

Researchers have advocated for standards and competencies to be used in preparing professionals to teach children with DeafBlindness (Landa-Vialard et al., 2018; Parker & Nelson, 2016). Moreover, a comprehensive professional development system has been recommended to assist teachers to meet these standards and master these competencies. Preservice training, in-service/professional development, and leadership development could provide a variety of such opportunities. Areas to be addressed include assessment, intervention, professional collaboration, and additional disabilities, including DeafBlindness. All types of professional development opportunities could address these areas.

Studies emphasize the need for O&M specialists to be trained to serve individuals with DeafBlindness (Parker, 2009; Sauerburger, Siffermann, & Rosen, 2008). An emphasis on functional skills, especially for those with additional disabilities, to promote independent travel and the use of support personnel and peers to assist with the travel skills development of persons with DeafBlindness was suggested. Specifically, to provide better services, O&M specialists should collaborate with other professionals such as paraprofessionals and interveners/interpreters (Kelly & Hallak, 2018). Additionally, the importance of AT in improving the O&M skills and techniques of students with DeafBlindness, especially those who want to travel independently for tourism and business (Hersh, 2014), has been documented (Parker, 2009). Likewise, Kelly and Hallak (2018) and Pogrund et al. (2012) emphasized the need for AT (e.g., calendar system, longer cane, communication devices) to be used for children with DeafBlindness.

Interventions identified by the researchers included meaningful activities, calming strategies, anticipatory strategies (Nelson, et al., 2016), transdisciplinary teaming (Jackson, et al., 2015), the implementation of child-guided, systematic approaches (Bruce, et al., 2018), and communication interventions (Bruce, et al., 2018). Loli, Sauerburger, and Bourquin (2010) discussed the use of sign language, tactile and low-vision signing, and gestures to aid communication of individuals of DeafBlindness during O&M training. In summary, evidence-based strategies and interventions can help children with DeafBlindness to self-regulate, make friends, and improve their communication skills, thus, the quality of their lives.

Implications

Implications for the vision education of individuals with DeafBlindness include:
1. State departments of education in the United States of America need to advocate and complete the process of instituting a teacher of children with DeafBlindness.
2. Funding from a variety of entities (e.g. state departments of education, non-profit organizations, federal and state governments) needs to be sought for programs to train and prepare teachers of children with DeafBlindness.
3. O&M personnel preparation programs need to include information on the provision of O&M services to individuals with DeafBlindness, possibly through a microcredential program (National Center on Deaf-Blindness, 2019; Texas School for the Blind and Visually Impaired, n.d.).
4. Professionals who are already serving children with DeafBlindness need professional development opportunities that can update them on the most current strategies, services, and resources.

Limitations

Narrative review is one of the methods to document evidence-based practices (Popay et al., 2006; Snilsveit, Oliver, and Vojtkova, 2012). Given that our article is a narrative review of the literature, it might contain the same limitations for any narrative review. One concern is the lack of transparency which introduces bias into the review (Collins, & Fauser, 2005; Popay et al., 2006). To increase transparency, the methodological quality of the included studies was
used to assess quality of the evidence using the scoring process mentioned earlier (Ryan, 2013). Moreover, the detailed notes/minutes taken during the meetings were utilized to save all major decisions taken by team members, and the reasoning behind them, which was a “helpful aid to transparency and recall” (Popay et al., 2006, p. 67). Secondly, although our data were derived from five different sources and we reviewed articles published between 2000 and 2018, we excluded proceedings, book reviews, and dissertations. For this reason, additional vital information may have been omitted.

Directions for Future Research

Future studies could expand upon this review by including literature published before 2000 and by examining articles that were not peer reviewed. Such studies could provide more evidence of the need for teachers and O&M specialists trained to children with DeafBlindness. The studies could also serve as the basis for interventional/action research designed to establish the effectiveness of the strategies recommended in this review.

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A Need for Interdisciplinary Personnel to Serve Students with DeafBlindness

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