Survey Results for Training and Resource Needs Cited by Early Intervention Professionals in the Field of Visual Impairment

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Structured abstract: *Introduction:* Professionals working with infants and toddlers with visual impairments (that is, those who are blind or have low vision) were surveyed regarding their preservice training and their awareness and use of 29 resources related to young children who are visually impaired. *Methods:* Early intervention visual impairment professionals ($n = 109$) from 11 states completed a survey called the *Early Intervention Visual Impairment Self-Efficacy Evaluation.* The online tool was distributed to all professionals in each target state. *Results:* Thirty-eight percent of respondents indicated that the preservice program at which they received training as teachers of visually impaired students or orientation and mobility (O&M) specialists did not include content or experiences related to infants and toddlers with visual impairments. In addition, given three types of resources including books and curriculum ($n = 12$), websites ($n = 5$), and online or "eLearning" courses ($n = 12$), websites were rated as most frequently used, and eLearning resources were least frequently used for professional development. Resources on the topic of cortical or cerebral visual impairment (CVI) were more frequently rated as used, compared to resources on topics such as multiple impairments. *Discussion:* Results demonstrate that some training programs for teachers of visually impaired students and O&M specialists do not include content that prepares professionals to work with infants and toddlers with visual impairments, leaving professionals with a need for additional training to serve this population. In addition, workshops and web-based resources were respondents' preferred means of professional development. *Implications for practitioners:* As they consider future professional training efforts, individuals responsible for workforce preparation and development in the field of visual impairment need to take into account the training needs and preferred training formats of early intervention professionals.

As part of the Individuals with Disabilities Education Act (IDEA), Part C—Infant and Toddlers with Disabilities provides incentives for U.S. states that offer services to children ages birth to 3 years who have developmental delays or diagnoses

that puts them at risk for developmental delays (Yell, Katsiyannis, & Bradley, 2011). In 1997, vision services were specifically included in IDEA under the definition of what should be included in Part C early intervention services (Individuals with Disabilities Education Act Amendments, 1997). Although several states were already providing services to infants and toddlers with visual impairments through private or state-funded programs, this provision highlighted the need for each state's Part C system to include professionals with expertise in serving infants and toddlers with visual impairments and their families.

With just over 20 years of federal legislation supporting the need for personnel specifically trained to serve infants and toddlers with visual impairments, it is unclear if personnel preparation and professional development efforts adequately prepare professionals to serve this unique population. For example, certification or licensure requirements for teachers of individuals with visual impairments and orientation and mobility (O&M) specialists differ by state. Some states certify teachers of visually impaired students to serve individuals with disabilities ages 3 through 21 years, while other states certify them to serve children from birth through age 21 years. O&M specialists are typically certified to serve individuals across the life span. Leaders in the field note that vision professionals who work with infants and toddlers need at least a basic understanding of early intervention principles (Anthony, 2014; Chen, Klein, & Minor, 2009; Correa, Fazzi, & Pogrund, 2002; Dote-Kwan, Chen, & Hughes, 2001; Ferrell, 2011). Yet it is unclear whether training programs in the field of visual impairment can cover a wide age range and address the complexities involved in working with very young children (for the purposes of this manuscript, teachers of visually impaired students and O&M specialists who work with children aged birth to 3 years are referred to as early intervention visual impairment [EIVI] professionals).

Finding a professional with both an early intervention and a visual impairment background can be difficult (Anthony, 2014). To address this problem, some programs have hired either early interventionists or teachers of visually impaired students and supported them in pursuing preservice training in the missing area of expertise. Other programs have hired them to provide consultation to early interventionists; however, Anthony (2014) cautions that both of these solutions are costly.

Although EIVI professionals may not have formal training in early intervention, Correa et al. (2002) recommend that they remain up-to-date on early childhood practices while critically evaluating these practices for their effectiveness with young children with visual impairments. As Correa and her colleagues suggest, EIVI professionals may independently access resources to gain information and inform their work. Unfortunately, there is no research available that documents the awareness and use of resources for professional development by these professionals. This information is especially critical to those who develop and share resources, since access to professional training in the areas of early intervention and visual impairment has a direct effect on the infants and toddlers with visual

impairments and their families, who rely on the expertise of trained professionals.

Early childhood researchers have investigated the effect of professional development activities on teachers' practices and found that some activities are more effective than others. Researchers stress the importance of intensive in-service training (i.e., including active learning such as application, evaluation, reflection, and assessment activities; Bruder, Dunst, Wilson, & Stayton, 2013; Dunst & Raab, 2010) on multiple occasions over time (Dunst, Trivette, & Deal, 2011). Feedback from a coach, supervisor, or peer has been associated with positive changes in practice (Bruder et al., 2013). In contrast, research has shown that conference presentations, workshops, or multiple-day trainings without opportunities for active learning result in little change in practice (Bruder et al., 2013; Dunst & Raab, 2010; Dunst et al., 2011). Although more intense in-service formats appear to be the best method for impacting beliefs and practices, research reveals that such training is not what professionals typically receive. In a national study of Part C and 619 programs, workshops and web-based training were found to be the most common method of professional development training (Bruder, Mogro-Wilson, Stayton, & Dietrich, 2009). In the field of visual impairment, the SKI-HI Institute, Center for Persons with Disabilities, Utah State University, provides multi-day interactive training throughout the United States and sells corresponding curricula through the Hope Company (Morgan, 1995; Watkins, 1989). One SKI-HI in-service training program, Visually Impaired In-service in America (VIISA), focuses on young children with visual impairments, and a second one, INSITE (IN-home Sensory Impaired Training and Education), focuses on young children with multiple disabilities, including those with sensory impairments.

Individuals working in early intervention with young children with visual impairment may access professional development support through books, research articles, conferences, peer and professional networks, eLearning opportunities, and through other online information sources. However, we hypothesize that given the low incidence of visual impairment in the general population that early intervention professionals may be geographically isolated from other professionals who work in the same discipline, thereby limiting their ability to network and learn from one another. In addition, a potential barrier affecting the use of professional development materials may be the amount of time it takes such professionals to find and review these resources. Cost also might prohibit individuals from accessing certain materials. Therefore, it is possible that EIVI professionals are unaware of some resources and they may lack access to other materials.

As higher education professionals strive to prepare a workforce that is well trained in the specialized skills needed to collaborate with families and their young children who are visually impaired, it is important to understand the training and professional development needs of EIVI professionals. The purpose of this study was to explore these areas by answering the following research questions: (a) Do EIVI professionals with training as teachers of visually impaired students or O&M specialists receive content related to infants and toddlers with visual

impairments in their personnel preparation training program? (b) Given the variety of media available for professional development, what formats do EIVI professionals use to meet their ongoing training needs? and (c) What resources are EIVI professionals aware of that provide information about early intervention, and which of these resources do they use to meet their needs?

Methods

The data presented in this manuscript were gathered as part of a larger survey study, which focused on the professional preparedness and self-efficacy of EIVI professionals. This manuscript includes the data collected on professional preparedness and ongoing professional development. The institutional review board at the University of Illinois at Urbana-Champaign approved the study including the human subjects protocol with a waiver of documentation of informed consent. Thus, on the first page of the survey (prior to completing any part of the survey) participants checked a box that stated: "I certify that I am 18 years of age or older, I understand the information above, and I voluntarily consent to participate in this research study."

Selection criteria and recruitment

Participants were teachers of visually impaired students or O&M specialists who, at the time of the study, worked with visually impaired children from birth to age 3 years through Part C early intervention services. In addition, these professionals held, or had held at any point in the past, the appropriate state credentials to work as teachers of visually impaired students or O&M specialists in their states. There were no restrictions on the settings in which participating EIVI professionals worked. It was expected that some respondents would be independent service providers, while others would be employed by agencies such as a those with a program for children with visual impairments.

EIVI professionals from the following 11 states participated in this study: Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota. Multiple states were included in recruitment efforts because of the small number of EIVI professionals in each state. For example, state Part C databases show that Illinois and Missouri each have fewer than 25 EIVI professionals, while Indiana (S. Kixmiller, personal communication, December 2, 2016), North Dakota (L. Kraft, personal communication, December 4, 2016), and South Dakota (D. LaMee, personal communication, November 30, 2016) each have fewer than 10 EIVI professionals. By recruiting participants from 11 states, we were able to recruit more than 100 respondents who met the inclusionary criteria.

Potential bias was avoided by recruiting from the entire population of EIVI professionals in each state rather than a select group. To recruit participants, the first author contacted the agency in each state that oversees early intervention and secured agreement to access all of the state's EIVI professionals. In some cases, staff members at the state department provided access to their list of early intervention providers. In other states, staff members at the state agency referred the first author to entities that specifically employed EIVI providers throughout the state.

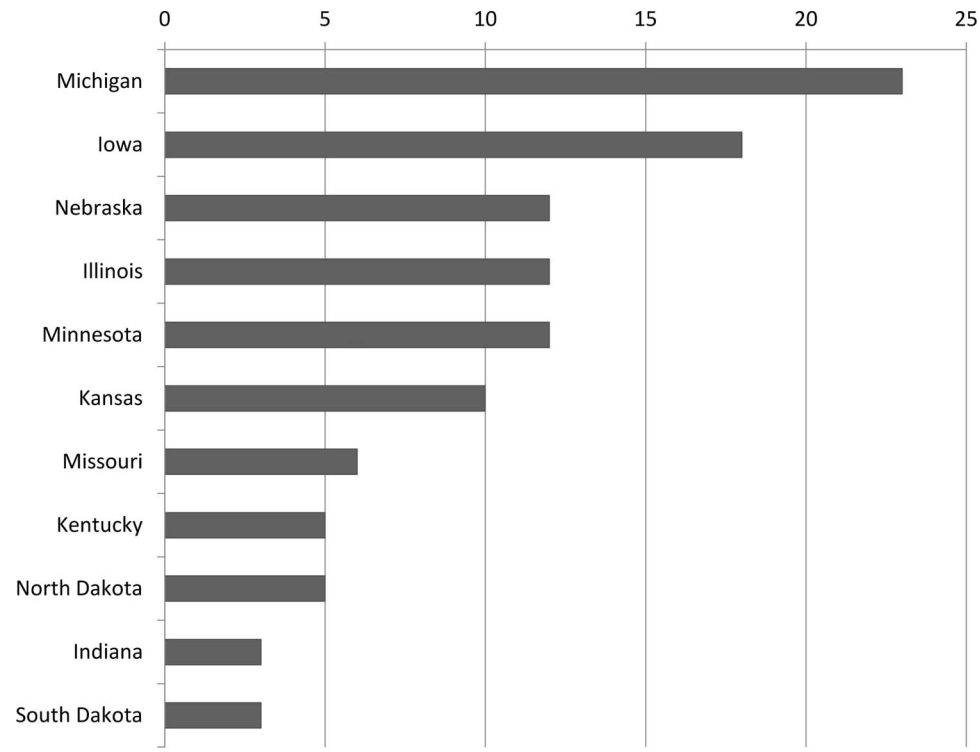

Figure 1. Participants by state.

Participants

Two hundred and five individuals attempted the survey while only 117 met the inclusionary criteria requiring that they be trained as a teacher of visually impaired students or O&M specialist and have at least one child with visual impairment aged birth to 3 years on their caseload. Of the 117 who completed all sections of the survey, 6 were eliminated because they indicated that they were from a state other than the 11 target states. Another was eliminated because the respondent did not identify a state. One additional respondent was omitted due to a large number of skipped responses, thereby failing to meet the rules for inclusion set in the larger study. Therefore, the number of survey participants included in the study was 109. Michigan (21%) and Iowa (17%) had the most respondents (see Figure 1). Although 1 participant did not provide an age, the remaining respondents ranged in age from 25 to 69 years, with a mean age of 49 years ($N = 108$, $M = 48.58$, $SD = 10.72$). Specifically, 4 (4%) participants reported being 20 to 29 years of age, 18 (17%) were aged 30 to 39 years, 31 (29%) were 40 to 49 years old, 36 (33%) were 50 to 59 years of age, and 19 (17%) were aged 60 to 69 years.

The survey targeted EIVI providers, including both teachers of visually impaired students and O&M specialists, with 6% of the 109 participants trained only as O&M specialists, 57% trained only as teachers of visually impaired students, and 37% who completed programs in both discipline areas. Participants were asked to

indicate the number of years of experience they had in working in the field of EIVI. One-third of the participants reported that they had 1 to 6 years of experience; one-third indicated 7 to 16 years of experience; and one-third reported that they had 17 to 40 years of experience. Most respondents (74%) served a wide age range spanning infancy through middle school, high school, or adulthood. Only 26% of the 109 respondents reported serving in positions that focused specifically on an early childhood population (birth to 3 years, birth to 5 years, or birth to elementary school age).

Measures

No published survey was found to address the proposed research questions; therefore, the authors developed one. The Early Intervention Visual Impairment Self-Efficacy Evaluation (EIVI SEE) includes four sections: demographics, preparedness and professional development, vision-specific knowledge and skills, and early childhood–specific knowledge and skills. Data from the demographics, and the preparedness and professional development sections are presented in this manuscript. More detailed information on the larger study and the EIVI SEE survey are available in a separate article (Ely, Ostrosky, & Burke, 2017).

A portion of the preparedness and professional development section of the survey assessed participants' awareness and use of specific professional resources available in the field. Books and eLearning resources were chosen by searching well-known resource providers (e.g., American Foundation for the Blind (AFB) Press, American Printing House for the Blind, SKI-HI Institute, and Perkins eLearning) for products likely to be used by EIVI professionals. Website resources were chosen by the first author based on her expertise in EIVI. In addition, two experts in the field of EIVI and an expert in survey research also reviewed the survey, including choice of resources chosen for inclusion in the survey. Finally, the survey was piloted with four EIVI practitioners from a non-target state and revisions were made based on the feedback they provided.

The section on preparedness and professional development included questions about respondents' personnel preparation programs along with questions on respondents' involvement in continuing education and their awareness and use of 29 resources related to infants and toddlers with visual impairments. The survey link was distributed by e-mail to all EIVI professionals in the 11 participating states either directly or through state contacts. The survey was available online for six weeks through Survey Monkey.

Results

Birth-to-3 content

Participants were asked to indicate if their program (teacher of visually impaired students or O&M specialist) included course content or practicum experiences that were specifically related to infants and toddlers (birth to 3 years of age) with visual impairments. Participants commented separately on their training for teaching visually impaired students and O&M; therefore, the 40 participants who were trained in both disciplines were asked to comment separately on the two

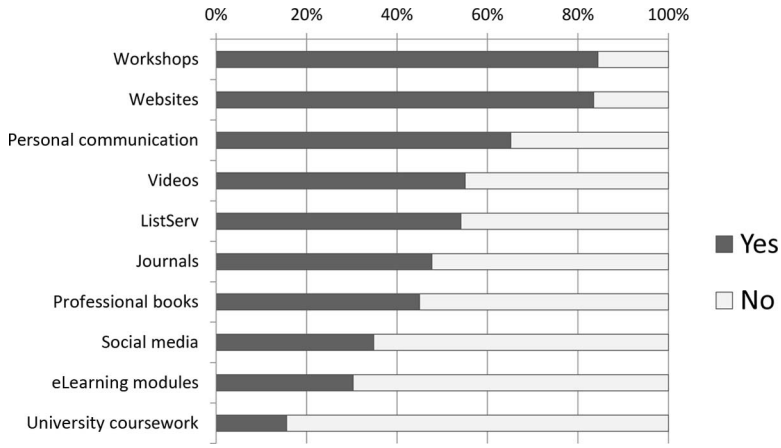

Figure 2. Professional development utilized by type.

curricula. Of the 102 participants who completed a program with a focus on teaching visually impaired students, 51% ($n = 53$) confirmed that their training included birth-to-3 content, while 38% ($n = 38$) indicated that their program did not contain content that specifically addressed infants and toddlers. Eleven percent ($n = 11$) of the respondents indicated that they did not remember whether their program for teaching visually impaired students contained birth-to-3 content. Of the 47 participants who completed a program with an O&M focus, 49% ($n = 23$) indicated that their program contained content related to infants and toddlers, while 38% ($n = 18$) indicated that birth-to-3 content was not part of their curriculum and 13% ($n = 6$) indicated that they did not remember if birth-to-3 content was included in their O&M training program.

Professional development

Participants were asked to identify the methods of professional development that they had used in the previous year to inform their practice from a list of 10 items (see Figure 2). Respondents indicated that they had used workshops (84%), websites (83%), personal communication (65%), and videos (55%). Less commonly used resources were social media (35%), eLearning modules (30%), and university coursework (16%).

Respondents were also asked about their awareness and use of 29 vision resources organized in three different categories: books and curricula ($n = 12$ resources), websites ($n = 5$ resources), and eLearning ($n = 12$ resources; see Figure 3). For each item, respondents indicated if they were: (a) unaware of the resource, (b) aware of the material but did not use it, or (c) aware of the material and used it.

Participants were least aware of eLearning materials and most aware of websites. Forty-eight percent or more of the participants indicated a lack of awareness of 10 of the 12 eLearning resources listed. The resources that participants most frequently rated as being aware of but not using were CVI AFB eLearning (46%; Roman-Lantzy, 2014) and *Parents and Their Infants with Visual Impairments* (PAIVI; 40%; Chen, Friedman, & Calvello, 1990). However,

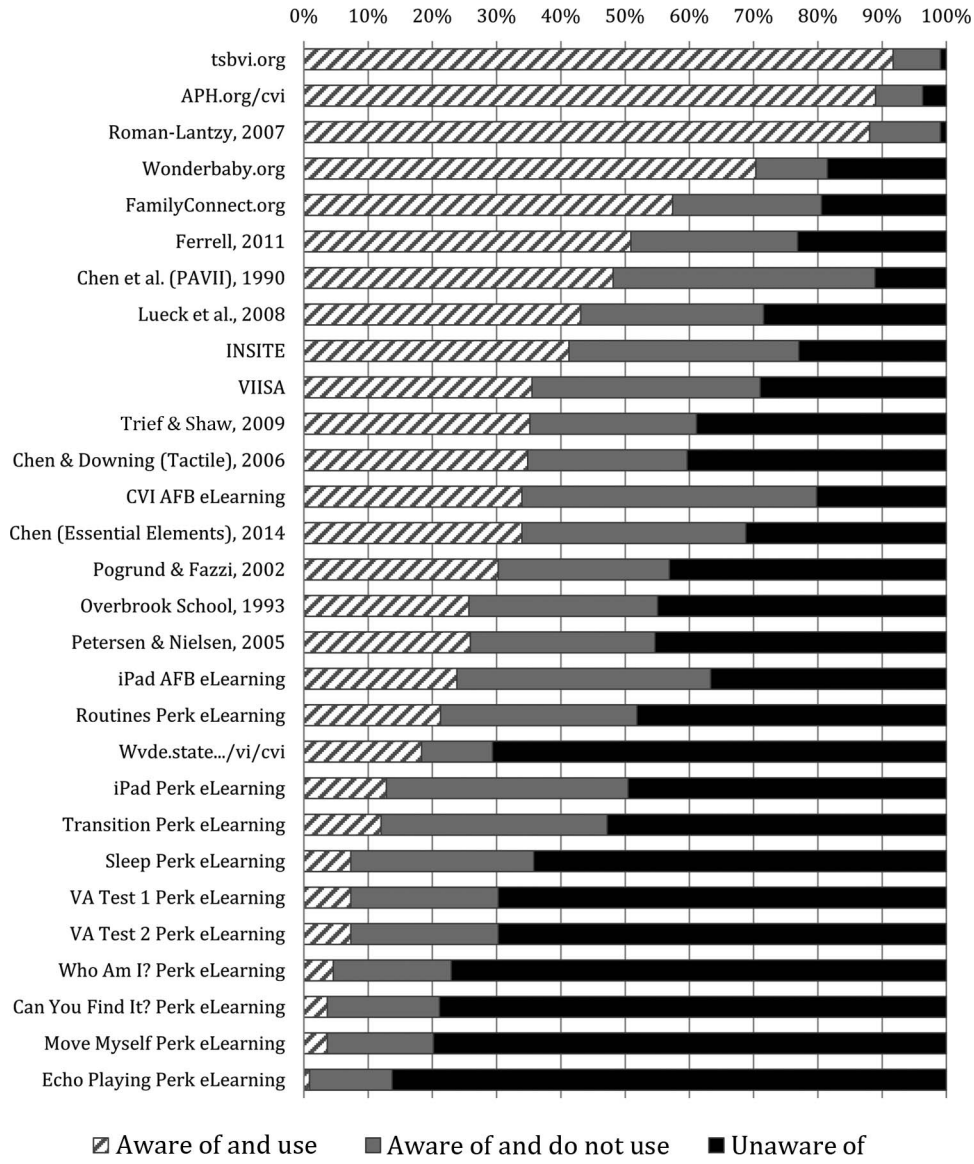

Figure 3. Awareness and use of resources.

PAVII also was one of the more frequently rated resources for awareness and use (48%); it only was unfamiliar to 11% of respondents. Of the five resources most frequently rated as being used by participants, four were websites belonging to the American Foundation for the Blind (AFB, n.d.), American Printing House for the Blind (APH, n.d.), Perkins School for the Blind (n.d.), and Texas School for the Blind and Visually Impaired (TSBVI, n.d.). It should be noted that two frequently used resources were on the topic of cortical or cerebral visual impairment (CVI), the CVI area of the APH website (n.d.) and the first book written on CVI by Christine Roman-Lantzy (2007). In fact, CVI resources were rated among the top

Table 1
Resources listed by participants in open-ended responses.

N(%)	Resource
15	*Oregon Project for Preschool Children Who Are Blind or Visually Impaired*, by Anderson, Boigon, Davis, and deWaard (book published by the Southern Oregon Education Service District, Medford)
4	*Can Do!* (video series distributed by Visually Impaired Preschool Services, Louisville, Kentucky)
4	LilliWorks Active Learning Foundation http://lilliworks.com (website maintained by Lilli Nielsen, Alameda, California)
3	Blind Babies Foundation www.blindbabies.org (website maintained by Junior Blind of America, Alameda, California)
3	*Vision and the Brain: Understanding Cerebral Visual Impairment in Children,* by Lueck and Dutton (Eds.) (book published by AFB Press, New York, New York)
2	*ISAVE: Individualized Systematic Assessment of Visual Efficiency for the Developmentally Young and Individuals with Multihandicapping Conditions,* Langley (functional vision assessment tool published by American Printing House for the Blind, Louisville, Kentucky)
2	National Center on Deaf-Blindness https://nationaldb.org (website maintained by The Research Institute at WOU: Western Oregon University, Monmouth)
2	Paths to Literacy for Students Who Are Blind or Visually Impaired www.pathstoliteracy.org (website maintained by Perkins School for the Blind and Texas School for the Blind and Visually Impaired)
2	*Vision Assessment of Infants & Children with & Without Special Needs,* by Appleby (out-of-print book published by Vision Associates, Lake City, Florida)

resources used in each genre (books and curricula, websites, eLearning). For example, AFB's eLearning resource on CVI was the most frequently rated item across all eLearning resources.

Overall, websites were rated as most frequently used, while eLearning materials were the least used type of resource. In an open-ended question, participants identified 37 additional resources that they use in their professional work. Resources mentioned by at least two participants are listed in Table 1. The most frequently mentioned resource was the Oregon Project for Preschool Children Who Are Blind or Visually Impaired ($n = 15$).

Interestingly, although many participants reported using resources for CVI (88% to 89%), few participants used resources that focused on children with multiple disabilities (34% to 41%), even though they indicated that they were aware of the resource. For example, resources on CVI include the CVI area of the APH website (n.d.; use, 89%; do not use, 7%; unaware of, 4%) and *Cortical Visual Impairment: An Approach to Assessment and Intervention* (Roman-Lantzy, 2007; use, 88%; do not use, 11%; unaware of, 1%). In contrast, the following materials focus on working with children with multiple impairments: INSITE (use, 41%; do not use, 36%; unaware of, 23%), *Tactile Strategies for Children Who Have Visual Impairments and Multiple Disabilities* (Chen & Downing, 2006; use, 34%; do not use, 26%; unaware of, 40%), and Chen's (2014) *Essential Elements in Early Intervention: Visual Impairments and Multiple Disabilities* (use, 34%; do not use, 36%; unaware of, 30%). In fact, these latter resources were used by a smaller percentage of

participants than other resources that are more general in their content. Specifically, *Reach Out and Teach: Helping Your Child Who Is Visually Impaired Learn and Grow* (Ferrell, 2011; use, 50%; do not use, 26%; unaware of, 24%), PAVII (Chen et al., 1990; use, 48%; do not use, 40%; unaware of, 12%), and *Developmental Guidelines for Infants with Visual Impairments: A Guidebook for Early Intervention* (Lueck, Chen, & Kekelis, 2008; use, 43%; do not use, 29%; unaware of, 28%) are books that focus on general development and children with visual impairments.

Discussion

Inclusion of EIVI content in training programs

Anthony (2014) suggested that visual impairment training programs that cover broad age ranges may not contain enough content that is specifically related to early childhood that would adequately prepare personnel to work with infants and toddlers with visual impairments. Data from the current study support this hypothesis. Although approximately half of the teachers of visually impaired students and O&M specialists indicated that their visual impairment training programs contained content related to early intervention, 38% of respondents reported that they were inadequately prepared to work with infants and toddlers with visual impairments. These results suggest the need to modify some personnel preparation curricula to include content related to early childhood. Erickson, Lee, and von Schrader (2016) estimate that .4% of children ages birth to 4 years have visual impairments; which, according to recent birth rates, suggests that over 16,000 infants are born annually with visual impairments in the United States. It is essential that visual impairment training programs include (a) content related to the unique needs of families raising infants and toddlers with visual impairments, (b) information on the effect of visual impairment on development, and (c) evidence-based strategies to support the learning of infants and toddlers with visual impairments. Further, recommended practices in early childhood are centered around family participation (Division for Early Childhood, 2014; Hatton et al., 2003), a perspective that requires a fundamentally different approach than what is typically used when working with older children in educational settings. Without training in this collaborative approach, EIVI professionals are likely to enter the workforce without the knowledge and skills they need to provide appropriate services to infants and toddlers with visual impairments and their families.

Professional development preferences and characteristics

The majority of respondents indicated that they used workshops, websites, personal communications, videos, and electronic mailing lists to meet their professional development needs. Although we hypothesized that workshops would be problematic due to geographic isolation and the low incidence of visual impairment, these factors did not appear to hinder EIVI professionals from participating in them. Since we did not define whether workshops included both in-person gatherings and webinars, it is unclear exactly how participants interpreted this question. Research suggests that short, lecture-style

workshops are ineffective in affecting practice due to limited or nonexistent active learning opportunities or participant reflection and feedback (Bruder et al., 2009; Bruder et al., 2013; Dunst & Raab, 2010; Dunst et al., 2011). But the SKI-HI Institute offers VIISA and INSITE trainings around the nation that are designed to include these learning practices (SKI-HI Institute, n.d.). In addition, several of the other avenues that participants noted as preferred professional development activities (websites, personal communication, and electronic mailing lists) may provide active learning, reflection, and feedback. For example, professionals who search websites for information are actively involved in their own learning, and electronic mailing lists can serve as an avenue to interact with colleagues when face-to-face contact is not possible.

Maximizing eLearning potential

The EIVI SEE survey included several eLearning resources from AFB and Perkins School for the Blind. These resources include activity ideas and recorded modules that are available online; however, very few survey respondents indicated that they were aware of these materials. Similarly, several other eLearning resources were rated as "aware of and do not use." Taken together, this finding suggests that not only were participants unaware of many of the eLearning materials mentioned, but they reported not using these resources even when they were aware of them. Although research on online professional development such as eLearning is lacking in the education literature (Dede, Ketelhut, Whitehouse, Breit, & McCloskey, 2009), it has been effectively utilized in the medical community (Ruiz, Mintzer, & Leipzig, 2006). In fact, Ruiz et al. suggest that eLearning modules capitalize on adult learning theory by allowing learners to become actively involved, since they are provided with opportunities to gain competence in specific knowledge and skill areas that they deem important. Further exploration into why EIVI professionals are not using this medium would provide valuable insight for organizations producing eLearning resources that are targeted at EIVI professionals. It could be that the available eLearning modules are too lengthy or prohibitive in cost to result in broad-scale usage. In addition, the format for eLearning modules may need to be adapted to include online communities for active learning and interaction with peers in an effort to capitalize on the characteristics that researchers have described as important for professional development and changes in practice (Bruder et al., 2009; Bruder et al., 2013; Dunst & Raab, 2010; Dunst et al., 2011). Clearly, further research is needed to investigate how this medium can best be used by EIVI professionals.

Resources on multiple disabilities and CVI

A recent report, Babies Count: The National Registry for Children with Visual Impairments (Hatton, Ivy, & Boyer, 2013), noted that 25% of all children aged birth to 3 years who received services for visual impairments had CVI and 65% had multiple disabilities. Interestingly, respondents in the current study reported accessing resources related to CVI with greater frequency compared to resources that focus on multiple disabilities. For example, two of the top three

resources used by participants were related to CVI. In addition, the newest resource on CVI (Lueck & Dutton, 2015) was specifically mentioned by two participants as a resource that they used (see Figure 3). However, resources such as INSITE and *Tactile Strategies for Children Who Have Visual Impairments and Multiple Disabilities: Promoting Communication and Learning Skills* (Chen & Downing, 2006) were accessed by far fewer respondents. This phenomenon likely reflects a need for professional resources on CVI, perhaps due to changes in professionals' understanding of the topic.

Alternatively, it is possible that EIVI providers who serve children with multiple disabilities rely on team members to provide content knowledge, while these same providers may feel more responsible for content knowledge for children who have vision loss without multiple disabilities, or children diagnosed with CVI. Given the trend toward primary provider models (a model in which one provider on an early intervention team works directly with the family while other members consult), it is possible that EIVI professionals do not provide direct service to children with multiple impairments but rather serve as consultants to the team unless the child is diagnosed with CVI. Understanding the roles and responsibilities of EIVI professionals on early intervention teams is essential, and investigations into these roles will help inform the development of training and resource content.

Limitations

Although the EIVI SEE survey was made available to the entire population of EIVI professionals in 11 states, participation was voluntary and was offered in an online format only. It is possible that individuals who chose to participate were more comfortable with technology compared to those who did not respond. This self-selection may have affected data on the types of resources that participants used. For example, many respondents indicated an awareness in and use of technology-based resources. This phenomenon may be a result of the self-selected participant sample.

Directions for future study and implications for practice

Data presented in this manuscript suggest that EIVI content may be absent in some visual impairment personnel preparation programs. Future investigation should evaluate university programs to verify the perspectives gathered from participants in the 11 target states and to assess the adequacy of teacher education programs to prepare EIVI professionals. Further, the field of visual impairment would benefit from investigating the basic skills and competencies in early intervention that EIVI professionals need to demonstrate upon completing a training program in visual impairment. Collaboration between major stakeholders in the field of visual impairment and relevant professional organizations (e.g., the Division for Early Childhood of the Council for Exceptional Children or the Association for Education and Rehabilitation of the Blind and Visually Impaired) may be needed to identify early intervention skills and competencies for professionals who work with very young children with visual impairments and their families.

The results also suggest a need for ongoing professional development for individuals who do not feel well prepared to serve infants and toddlers with visual impairments. Such professional development should involve active learning opportunities including multiple occasions to reflect on one's own practice. Administrators and developers of training materials should be cognizant of the fact that EIVI providers report that they utilize a variety of platforms, including workshops, websites, and professional communication with colleagues, to meet their professional development needs. Also, given the fact that most respondents use workshops and online platforms to meet their professional development needs, research on the quality and effectiveness of such resources focused on children aged birth to 3 years would inform the field of EIVI about priorities related to the development of new resources. In addition, data should be gathered on specific topical areas that EIVI professionals access to address their specific roles, responsibilities, and practice needs in early intervention.

Since web-based training seems to be the future of professional development (Bruder et al., 2009; Ruiz et al., 2006), and since EIVI professionals do not appear to access eLearning opportunities, researchers should explore the reasons behind this phenomenon. It is possible that topics, module length, cost, and the current eLearning formats are reasons for the limited use of these types of resources. Perhaps online learning communities in conjunction with eLearning modules would better meet the needs of EIVI professionals. Research is needed to investigate these questions.

Finally, collaboration between personnel programs and professional development providers in the areas of visual impairment and early intervention could provide a rich resource that would be mutually beneficial to both fields. As noted earlier, family-centered practices are significantly different than practices typically used by teachers working with older children in school settings. The field of visual impairment would benefit from knowledge of family-centered practices, since they have proven successful in meeting the needs of young children and their families being served in home-based settings. Further, EIVI professionals bring unique skills to early intervention teams. When primary provider models are used, knowledge of professional roles and collaboration are keys to successful teaming and service provision. Thus, leaders in the field of visual impairments should seek opportunities to coordinate efforts for collaboration with those from the field of early intervention in an effort to develop resources that can inform and enhance practice.

Conclusion

This survey study of more than 100 EIVI professionals provides information to the field of visual impairment related to the workforce and its training needs. Participants reported that some personnel preparation programs do not adequately prepare personnel to work as EIVI professionals, therefore suggesting a need to evaluate training programs in an effort to better prepare the future workforce. In addition, data revealed that EIVI personnel use various resources to meet their professional development needs. In addition to workshops, the use of geo-

graphically neutral media such as websites and electronic mailing lists may be beneficial and worthy of further exploration. Providing access to high-quality resources continues to be important for training current and future EIVI professionals. The creation of high-quality professional development has the potential to improve the current and future workforce serving infants and toddlers with visual impairments and their families.

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*Note: References marked with an * indicate resources included in the survey.*

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