Teleconsultation to Support the Education of Students with Visual Impairments: A Program Evaluation

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Teleconsultation to Support the Education of Students with Visual Impairments: A Program Evaluation

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ABSTRACT
Teleconsultation is being increasingly used in schools to support children with disabilities; however, further evaluation of the impact of this practice is needed. This study describes a teleconsultation model used to provide educational support for students with visual impairments being educated in their local school districts and examines the initial acceptability and feasibility of this teleconsultation model. In addition, the current study discusses some of the recommendations for improvement regarding program implementation, with the goal of increasing the ease of use of teleconsultation in schools. Stakeholders reported qualitative and quantitative data indicating that the teleconsultation model is acceptable to and feasible for families and school district staff.

Consultation, a model in which school psychologists work directly with parents, teachers, and school staff to indirectly address the academic, social, or behavioral health needs of students (Erchul & Sheridan, 2014), is a key aspect of school psychology practice (National Association of School Psychology, 2016). Specifically, school psychologists engage in consultation to maximize their service efforts and to increase the capacity of school staff to independently address student concerns (Caplan, 1970). Moreover, several reviews have pointed to the positive impact of these practices on various aspects of student functioning (Dufrene, Lestremau, & Zoder-Martell, 2014; Sheridan, Bovaird, Glover, Garbacz, & Witte, 2012).

School-based consultation has historically relied on in-person meetings with consultees (Dufrene et al., 2014; Sheridan et al., 2012). However, there are several barriers to this practice, including scheduling challenges related to teachers’ limited availability during the school day and time demands placed on school psychologists required to travel between schools (Simpson, 2009), a common aspect of practice among school psychologists in rural areas (Goforth, Yosai, Brown, & Shindorf, 2017). The latter is of particular concern considering the existing heavy workload of most school psychologists (Auster, Feeney-Kettler, & Kratochwill, 2006) and associated mileage.

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reimbursement costs incurred by the school districts (Bice-Urbach & Kratochwill, 2016). The reality of limited school resources (Hanushek, 1997) has underscored the need for school psychologists to engage in highly effective and efficient school-based practices. To facilitate this goal, a recent focus on the integration of technology to facilitate consultation has emerged.

**Teleconsultation**

Teleconsultation, or the use of technology to facilitate consultation efforts, can be grouped under the larger umbrella of *telehealth*, defined as “the use of electronic information and telecommunications technologies to support and promote long-distance clinical health care, patient and professional health-related education, public health and health administration” (Lustig, 2012, p. 1). Telehealth represents a promising approach to increasing access to care. The terms *telemental health* and *telepsychiatry* refer to the delivery of mental health care using interactive (or synchronous) technologies, such as videoconferencing (Center for Medicare and Medicaid Services, 2014). Although telehealth has proliferated in various fields, most notably medicine, evaluations of its use are only emerging. Specifically, the majority of telehealth evaluations have focused on how technology can facilitate direct service provision (i.e., assessment or intervention) (e.g., Grady, Lever, Cunningham, & Stephan, 2011; Slone, Reese, & McClellan, 2012).

Teleconsultation incorporates the use of videoconferencing (i.e., connecting two or more individuals via video software in real time) to support consultation efforts (American Psychological Association, 2013). Researchers have noted several barriers to the use of teleconsultation, including challenges with the technology itself (Kennedy & Yellowlees, 2000), initial expense associated with purchasing technological equipment (Hilty, Marks, Urness, Yellowlees, & Nesbitt, 2004), and concerns about the acceptability of the technology (Rohland, Saleh, Rohrer, & Romitti, 2000)—including the confidentiality of the process (Fischer, Schultz, Collier-Meek, Zoder-Martell, & Erchul, 2016). However, researchers have also identified multiple benefits to the practice. Examples of these benefits include increased contact between the consultant and consultee (Brownlee, Graham, Doucette, Hotson, & Halverson, 2010), improved access to rural youth (Bice-Urbach & Kratochwill, 2016), additional opportunities to observe problem behavior (Bice-Urbach & Kratochwill, 2016), and the cost benefit of the use of teleconsultation (Gibson, Pennington, Stenhoff, & Hopper, 2010). Although few in number, initial evaluations of videoconferencing generally (Antonacci, Bloch, Saeed, Yildirim, & Talley, 2008) and the use of teleconsultation in particular (Mackert & Whitten, 2007; Miller, Kraus, Kaak, Sprang, & Burton, 2002; Rule, Salzberg, Higbee, Menlove, & Smith, 2006; Young & Ireson, 2003) have demonstrated that such methods are both acceptable and effective.
Teleconsultation in schools

Despite the potential benefits and related success associated with teleconsultation, this practice has remained underutilized in schools, and few studies examining the use of teleconsultation in schools exist. In an investigation of videoconferencing with general and special education elementary school teachers using a $2 \times 2$ mixed factorial design, Fischer, Dart, LeBlanc, and colleagues (2016) found that teachers rated the communication medium as a highly acceptable manner in which to engage in consultation. Further, after both in-person and videoconferencing interviews, teachers rated their comfort with the latter as higher than with traditional in-person communication (Fischer et al., 2016). In another study of the effectiveness and acceptability of school-based teleconsultation using a randomized multiple baseline design, Bice-Urbach and Kratochwill (2016) found that using teleconsultation to facilitate the development of an individualized behavior support plan resulted in a reduction in disruptive behavior among rural elementary school-aged students. Further, they found that teachers deemed this teleconsultation both acceptable and feasible (Bice-Urbach & Kratochwill, 2016). Finally, in an evaluation of the effectiveness and acceptability of teleconsultation to deliver behavioral consultation support to general education and special education teachers serving youth with disruptive behavior or with autism spectrum disorder, results from a nonconcurrent multiple-baseline design indicated that teleconsultation supported the development and implementation of individualized behavioral interventions. These interventions resulted in improvements in student behavior and were highly acceptable to teachers (Fischer et al., 2016). Taken together, these studies indicate that school-based teleconsultation is a promising medium for supporting effective and highly acceptable school psychology practice. However, research evaluating these efforts is only now emerging and additional research is needed to develop the literature base supporting teleconsultation efforts. In particular, an examination of the use of teleconsultation with underserved youth, such as youth with visual impairments, is needed. Moreover, considering the potential challenges associated with the actual implementation of teleconsultation (Hilty et al., 2004; Kennedy & Yellowlees, 2000; Rohland et al., 2000), additional efforts detailing the potential uses of teleconsultation in schools are needed.

Visual impairment in youth

Youth visual problems range in nature and severity from mild refractive errors (e.g., nearsightedness or farsightedness) to blindness. An estimated 20% of school-aged youth suffer from visual problems (Ferebee, 2004), with the majority being due to uncorrected refractive errors (Vitale, Cotch, & Sperduto, 2006). Severe visual impairment and blindness, though less
common, still impact a significant portion of youth, with approximately 25 per 1,000 youth under 18 years of age being blind or visually impaired (Cotch et al., 2005).

Youth with visual impairments experience significant academic and social-emotional concerns. With regard to educational outcomes, untreated visual impairments can lead to lower academic achievement (Basch, 2011). Further, youth with visual impairments frequently have trouble finding employment after completing school, with only 28% of such youth having consistent employment (Cameto & Nagle, 2007). In addition, youth with visual impairments are often more isolated, have significantly less social support, and have smaller social circles than their sighted peers (Huurre, 2000; Sacks & Wolffe, 1998). These deficits, moreover, have been linked to concerns with emotional well-being among youth with visual impairments (Kef & Deković, 2004).

To address the particular academic and social-emotional needs of youth with visual impairments, additional support in the school context is often needed. Federal law mandates that all youth receive a free and appropriate education in the least restrictive environment (Individuals with Disabilities Education Improvement Act, 2004), but many local school districts lack resources to provide an appropriate education to students with visual impairments, in part due to the low incidence of this disability (Daugherty, 2014). Many states have established public residential schools for youth with visual impairments to offer educational programming that meets these students’ needs. Although they provide quality specialized instruction, these schools are considered highly restrictive as they preclude the ability for a student to be educated with typical peers (Texas Education Agency, 2014). Furthermore, these schools are often far from the student’s home, which introduces additional challenges, including limited access to family and community support systems (Daugherty, 2014). Accordingly, school administrators and staff have worked to limit the length of stay in these restrictive residential settings and to educate students in their local school district to the greatest extent possible (Daugherty, 2014). Specifically, many have sought to provide consultation to educators and administrators assisting this population in general education settings (McMahon, 2014).

Texas provides one example of such an arrangement. As of 2016, approximately 9,844 students with visual impairments resided in Texas (Texas Legislative Budget Board, 2016). Although some students with visual impairment attended residential schools such as the Texas School for the Blind and Visually Impaired (TSBVI) full time, the majority of these students attended schools in their local districts. Over 98% of students who met eligibility criteria as a student with a visual impairment in Texas attended school in their local education agency during the 2015–2016 school year (Texas Legislative Budget Board, 2016). In an attempt to balance the need for specialized instruction with the goal of allowing youth to receive an
education in the least restrictive environment, TSBVI developed an innovative model that incorporates teleconsultation aimed at supporting students’ local districts and a brief residential stay at TSBVI to allow for intensive assessment and intervention. Such efforts have been crucial for students with visual impairments residing in their home districts who need further specialized support to achieve academically.

**Current study**

The current study describes the innovative use of a teleconsultation model with an understudied population. Specifically, the current article describes how the educational team at one state residential school for students with visual impairments, TSBVI, used teleconsultation to provide psychological and educational consultation to families, school district staff, and key community organizations, with the goals of developing high-quality individualized education plans and supporting effective educational programming for students with visual impairments in their local communities. In addition, the current study evaluates the initial acceptability and feasibility of this model to provide guidance on the practical use of teleconsultation to support students with low-incidence disabilities. The manuscript concludes with a discussion of areas for future development of this model, with emphasis on recommendations to support improved program implementation.

**Methods**

We begin by presenting an overview of the teleconsultation program before discussing its evaluation.

**The TSBVI teleconsultation program**

In addition to providing residential education, TSBVI offers a range of short-term programs providing educational programming for youth with visual impairments being educated in their home communities. These short-term programs support students whose home school districts are able to meet most of their educational needs, but who also require a level of specialized instruction, academic assessment, or expertise in a specific area that their home school district lacks the resources to provide.

Short-term programs typically require a residential stay of three to five days at TSBVI, during which staff assess a student’s skills and provide intensive daily instruction in the identified area of academic need. During their stay, TSBVI also provides evening programming targeting the disability-specific needs of students with visual impairments, particularly in the areas of social interaction, orientation and mobility, and independent living.
(For information on the Expanded Core Curriculum for students with visual impairments, see Hatlen, 1996.) In addition to the in-person assessment and instruction provided by TSBVI, teleconsultation is used to provide the continued support needed for youth to fully benefit from the short-term instruction provided through these programs. Specifically, through the use of teleconsultation, email, and phone calls, TSBVI staff share their assessment of the student’s needs with the student’s local school district staff, family, and relevant community organizations, provide individualized recommendations for further instruction, and offer educational and behavioral guidance to support the implementation of these recommendations.

During the 2015–2016 school year, TSBVI offered three distinct short-term programs: elementary, upper-level, and individualized distance instruction programs. As the needs of the students, families, and local school district staff in each of these categories varied by group, TSBVI developed a distinct teleconsultation protocol that they used with each of the categories. These categories and the specific teleconsultation models that TSBVI has developed for working with them are discussed in the following, and a summary of the characteristics of the three programs is shown in Table 1.

**Elementary program**

For elementary-level students with visual impairments who need specialized support in technology, literacy skills, or mathematics, TSBVI developed a hybrid of ongoing teleconsultation and short-term residential education. When a referral was made, a TSBVI teacher communicated with the student’s family and local school district educational staff via email, phone, and/or videoconferencing to determine the appropriateness of the referral, discuss the student’s needs, and collaboratively establish individualized goals for participation in the program. The student then attended a series of three 3-day-

<table>
<thead>
<tr>
<th>Table 1. Summary of TSBVI Short-Term Programs.</th>
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<tbody>
<tr>
<td>Grades served</td>
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<tr>
<td>----------------</td>
</tr>
<tr>
<td>Elementary programs</td>
</tr>
<tr>
<td>Upper-level programs</td>
</tr>
<tr>
<td>Individualized distance education programs</td>
</tr>
</tbody>
</table>
long intensive courses in his or her area of academic need at TSBVI, spread throughout the school year. This series was designed to provide targeted support throughout the school year and to deliver intensive, early intervention in frequent areas of difficulty for young students with visual impairments. After each course, TSBVI staff provided a report to the family and local school district educational staff with a written summary of the goals and objectives for the student’s participation in the course, the student’s progress during his or her stay, and recommendations for how to support the student’s skill development going forward. In addition, TSBVI staff provided teleconsultation to the student’s family and local school district educational staff using Zoom Meeting (see https://zoom.us/) during regularly scheduled videoconference meetings interspersed between these courses. During these meetings, the TSBVI teacher, the student’s family, and local school district educational staff discussed the student’s needs, available support, and possible solutions to any difficulties that the family or district had in implementing and continuing the instruction that was begun at TSBVI.

The school also used a digital learning platform called Edmodo (see https://www.edmodo.com/) to further supplement teleconsultation and assist in the provision of these services. An Edmodo page was created for each student participating in a TSBVI course, and TSBVI staff, the student, the student’s family, and the student’s local school district educational staff used this platform to communicate about the implementation of the child’s individualized education program (IEP), particularly with respect to the area of difficulty that the child was referred to TSBVI to help remediate. Using this platform, participants could share pictures and videos of instructional techniques being used with the student; pass along documents, work samples, and resources; and communicate about challenges and successes. Further, the Edmodo page supplemented the formal end of course reports (see the preceding) by serving as an easily accessible digital record of the consultation and communication around the student’s needs and progress.

**Upper-level program**

For middle and high school students referred for support, TSBVI developed a second protocol combining teleconsultation and residential education. To provide as little disruption as possible in their courses at their local school, students completed the residential education component for these students in one stay of 3–5 days, and TSBVI provided teleconsultation before and after the student participated. Specifically, when a student was referred for a program, the TSBVI short-term programs teacher communicated with family and local school district educational staff via a combination of email, phone

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1 The study authors declare that they have no competing financial interests in any of the web-based resources referenced in this article.
meetings, and/or videoconferencing using Zoom Meeting to determine the appropriateness of the referral, discuss the student’s particular areas of difficulty, and collaboratively establish individualized goals for the student’s participation in the short-term program. When the student returned home after the program, TSBVI provided the family and local school district with a written report of the student’s progress toward his or her goals and recommendations to support the student’s continued development. TSBVI also provided follow-up teleconsultation support as requested to assist the family and local school district in implementing these recommendations. Edmodo was also used to facilitate communication among TSBVI, the family, and the local school district for these middle and high school students.

**Individualized distance instruction program**

Some students who could benefit from TSBVI curriculum and expertise could not attend a short-term residential program at TSBVI due to either time or financial constraints. For this reason, TSBVI also offered “You Want It, You Got It: Individualized Distance Instruction” courses, which provided intensive teleconsultation services and did not require a residential stay at TSBVI. For these courses, local school district staff contacted TSBVI staff to request assistance; then, using a combination of email, phone calls, and videoconferencing through the Zoom Meeting platform, TSBVI staff, local school district staff, and the student’s family discussed the student’s needs and collaboratively established goals for participation in TSBVI’s distance instruction program. During the weeks following the referral meeting, the TSBVI short-term programs teacher collaborated remotely with local school district educational staff members to design an individualized course of instruction targeting the student’s area of need. After the course content was created, the teacher from TSBVI held a series of videoconference meetings via Zoom Meeting with the student and his or her local school district teacher to deliver the academic content using a remote team-teaching approach; the teacher from TSBVI provided most of the direct instruction to the student and his or her local school district teacher, and the local school district teacher provided in-person support and guided practice. After the content was delivered, TSBVI provided teleconsultation to the local school district educational staff to support the student’s continued development in the area of requested support.

For example, a frequent request for an individualized instruction course involved a student and his or her local school district teacher who needed assistance using a screen reader with a relatively complicated computer program, such as Microsoft Excel. In such a case, the TSBVI teacher provided direct instruction on the process of setting up and using a screen reader with Excel via Zoom Meeting’s videoconferencing to the local school district teacher and the student. The local school district teacher, sitting beside the
student, provided physical assistance with equipment, learned the process of using the technology along with the student, and took notes to assist the student later. As Zoom Meeting allows for screen sharing, the TSBVI teacher could see the student’s computer screen and troubleshoot difficulties as they arose. After delivery of the instruction, the TSBVI teacher provided teleconsultation support to the local school district teacher to ensure the student’s continued progress in using the screen reader.

**Participants**

Data were gathered during the 2015–2016 school year, during which TSBVI short-term programs provided services to 153 students, representing 86 school districts from 18 of the 20 regional education service areas in the state of Texas. Slightly more than half of the students who enrolled in short-term programs during this time were female, and students were primarily White (43%) or Hispanic (33%). Students’ grade levels ranged from Grade 2 to Grade 12. All students who enrolled in short-term programs had met state eligibility criteria as a student with a visual impairment and received special education services for this disability in their local school district. See Table 2 for student demographic data for all students enrolled in a TSBVI short-term program during the 2015–2016 school year. Participants in the study were staff from participating students’ local school districts (e.g., teachers, etc.) \((n = 42)\) and their families \((n = 25)\) who responded to a request for feedback on the program. Of the participants, 52% \((n = 35)\) had a student who enrolled in an upper division program, 43% \((n = 29)\) had a student who enrolled in an elementary program, and 4% \((n = 3)\) had a student who enrolled in the individualized distance education program.

**Table 2.** Student Demographic Data for TSBVI Short-Term Programs, 2015–2016.

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>69</td>
<td>45</td>
</tr>
<tr>
<td>Female</td>
<td>84</td>
<td>55</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>66</td>
<td>43</td>
</tr>
<tr>
<td>Hispanic</td>
<td>50</td>
<td>33</td>
</tr>
<tr>
<td>Black</td>
<td>21</td>
<td>14</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>American Indian</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>School</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary (Grades 2–5)</td>
<td>31</td>
<td>20</td>
</tr>
<tr>
<td>Middle (Grades 6–8)</td>
<td>40</td>
<td>26</td>
</tr>
<tr>
<td>High (Grades 9–12)</td>
<td>82</td>
<td>54</td>
</tr>
</tbody>
</table>
Measures

TSBVI short-term programs administrative staff developed a survey assessing local school district staff and family perceptions of the acceptability and feasibility of the program for the purposes of internal quality improvement and evaluation. Questions on the survey included seven Likert-type items—with possible responses ranging from *outstanding* (1) to *very unsatisfactory* (5)—and nine open-ended questions requesting narrative written responses.

The survey included 12 items assessing acceptability and three items assessing feasibility, in addition to a request for general comments in narrative form as a final item on the survey, for a total of 16 items. Acceptability was assessed with questions about overall satisfaction with the experience, as well as satisfaction with the learning outcomes for the student, the ability of families and local school district staff to understand and use the information received, timeliness of the information provided, the quality of the TSBVI website, and the knowledge and professionalism of TSBVI staff. Items inquiring about appropriateness of course length and additional support from TSBVI staff with homework completion (i.e., support from TSBVI with competing district-assigned homework in the evenings to support easier reintegration upon return home) were used to assess feasibility. A summary of the questions on the survey can be found in Table 3. After removing the homework item because it applied to only 39% of cases, the internal consistency of the quantitative survey data appeared acceptable ($\alpha = 0.76$).

Procedure

Feedback from local school district staff and families was solicited after the TSBVI short-term course had ended and copies of the final summary report for the student were sent to the family and school district. Families were mailed a letter outlining the request for feedback, a copy of the survey, and a return envelope. The letter to families also included a web address where the survey could be completed online, if preferred. School district personnel were sent an email requesting feedback, with a link to the online survey. Twenty-five families (16% of those solicited) and 42 local school district personnel (27% of those solicited) completed the survey.

Data analysis

Research team members compiled descriptive quantitative data regarding program acceptability and feasibility for Likert-type survey responses from families and local school district staff. Means and standard deviations for quantitative survey items are shown in Table 4. A multivariate analysis using
Hotelling's $T^2$ was conducted to determine whether there were differences between family and local school district staff responses to the survey items.

Qualitative survey responses from families and local school district staff regarding acceptability and feasibility of the model were coded and analyzed for themes. Using an approach outlined by Bradley, Curry, and Devers (2007), three research team members analyzed the qualitative data using an integrated (inductive/deductive) method of code development paired with consensus coding. An a priori code structure was created on the basis of the administered survey questions and Proctor and colleagues' (2011) recommendations for conceptualizing and evaluating successful program implementation. The research team members were also asked to identify and tentatively code any other concepts that they noticed emerging from the data while they coded using the a priori codes. After coding the data individually, the research team members met to discuss emerging concepts and determine the final code structure. They then recoded the data using this

<table>
<thead>
<tr>
<th>Table 3. Survey Items.</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acceptability</strong></td>
<td>How beneficial was the learning your student obtained at TSBVI to his or her continued learning in your school district? (Likert rating and narrative response requested)</td>
</tr>
<tr>
<td></td>
<td>How would you rate your overall satisfaction with your student's experience in TSBVI's short class? (Likert rating and narrative response requested)</td>
</tr>
<tr>
<td></td>
<td>How would you rate the knowledge, professionalism, and courteousness of TBSVI staff? (Likert rating and narrative response requested)</td>
</tr>
<tr>
<td></td>
<td>How would you rate the timeliness of receipt of your student's report? (Likert rating and narrative response requested)</td>
</tr>
<tr>
<td></td>
<td>How would you rate the informativeness and understandability of information received about your student? (Likert rating and narrative response requested)</td>
</tr>
<tr>
<td></td>
<td>How would you rate the information found in TSBVI's Internet site? (Likert rating and narrative response requested)</td>
</tr>
<tr>
<td><strong>Feasibility</strong></td>
<td>How would you rate TSBVI's efforts to assist your student with homework during his or her time on our campus? (Likert rating and narrative response requested)</td>
</tr>
<tr>
<td></td>
<td>Would you ever be interested in a short class that lasted longer than one week? If so, please describe: (Narrative response requested)</td>
</tr>
<tr>
<td><strong>Both</strong></td>
<td>Please add any additional comments you would like to offer (Narrative response requested)</td>
</tr>
</tbody>
</table>

| Table 4. Means and Standard Deviations of Quantitative Survey Items. |
|------------------------|------------------|------------------|------------------|------------------|------------------|
| Item                  | Area assessed   | District mean    | District standard deviation | Family mean | Family standard deviation |
| Overall experience    | Acceptability   | 1.26             | 0.50             | 1.21             | 0.44             |
| Learning outcomes     | Acceptability   | 1.74             | 0.73             | 1.24             | 0.55             |
| Staff                 | Acceptability   | 1.24             | 0.55             | 1.17             | 0.48             |
| Timely communication  | Acceptability   | 1.43             | 0.56             | 1.33             | 0.64             |
| Useful resources      | Acceptability   | 1.31             | 0.63             | 1.32             | 0.76             |
| Website information   | Acceptability   | 1.63             | 0.73             | 1.63             | 1.04             |

*Note: Possible responses ranged from Outstanding (1) to Very Unsatisfactory (5).*
finalized code structure and met again to resolve any coding disagreements by consensus.

**Results**

Results from the quantitative analysis are provided first, followed by qualitative analysis.

**Quantitative findings**

Survey data indicated that all assessed aspects of the program were deemed acceptable, with the respondents’ perceptions of the overall student experience rated most highly and the information included on the TSBVI website rated the lowest. Specifically, 100% of families and 98% of local school district staff indicated that their overall satisfaction with their student’s experiences was *Very Satisfactory* or *Outstanding* ($M = 1.24, SD = 0.47$); 96% of families and 94% of local school district staff said that the knowledge, professionalism, and courteousness of TBSVI staff was *Very Satisfactory* or *Outstanding* ($M = 1.24, SD = 0.55$); and 96% of families and 97% of local school district staff said that the timeliness of information received from TSBVI was *Very Satisfactory* or *Outstanding* ($M = 1.41, SD = 0.61$). In addition, 95% of families and 97% of local school district staff indicated that their student’s learning experience as a result of short-term programs at TSBVI was *Very Satisfactory* or *Outstanding* ($M = 1.53, SD = 0.70$), and 91% of families and local school district staff rated the usefulness and helpfulness of the consultation and resources TSBVI provided as being *Very Satisfactory* or *Outstanding* ($M = 1.35, SD = 0.72$). Further, 85% of families and 86% of local school district staff who had accessed the TSBVI short-term programs website indicated that the information provided on it was *Very Satisfactory* or *Outstanding* ($M = 1.70, SD = 0.75$).

Participants also reported good feasibility. To address potential concerns about incomplete work due to missed school days while at the TSBVI campus, short-term programs provide tutoring in the evenings to help students complete make-up work from their school district; 87% of responding families and 100% of responding local school district staff reported that the homework assistance provided to their student at TSBVI was *Very Satisfactory* or *Outstanding* ($M = 1.24, SD = 0.47$). It should be noted that 74% of participating local school district staff and 40% of families did not respond to the question about homework and/or wrote that their student did not require any assistance or was not assigned any work to complete during their absence. In addition, 82% of families and 53% of local school district staff indicated that they would be interested in an even longer class or more intensive support from TSBVI.
The research team conducted a multivariate analysis using Hotelling’s $T^2$ to determine whether there were significant differences in the ways that family members and local school district staff responded to survey items. No significant differences in survey item ratings by respondent were found ($T^2 = 13.39, F(6, 41) = 1.99, p = .089$), indicating that family members and local school district staff tended to give similar ratings to the various aspects of the program.

**Qualitative findings**

Qualitative feedback from the families and local school district staff about their experience receiving consultation services as part of the short-term programs at TSBVI is organized by theme. Themes are presented in order from most to least commonly endorsed.

**Positive student outcomes**

The most frequent theme endorsed from families and local school district staff ($n = 49, 73\%$) related to student progress. Many respondents indicated positive student outcomes as a result of participating in the program. For example, a local school district staff member wrote, “My student has increased success of her use with her abacus. She was prepared for her upcoming math units. . . . She was able to learn right along with the class [back in her local school district].” Another local school district staff member said, “My student made progress in her self-esteem, self-efficiency, and desire to be more independent.” Family members reported, “My child was excited to learn about these different programs and pieces of technology. She was talking nonstop to me about the different concepts she was learning” and “[The program] helped with her social skills.” In particular, respondents indicated positive student outcomes in the areas of student self-determination and confidence ($n = 22, 33\%$), social skills ($n = 20, 30\%$), technology skills ($n = 20, 30\%$), specific academic areas (e.g., Braille reading, $n = 8, 12\%$), independent living ($n = 8, 12\%$), orientation and mobility ($n = 4, 6\%$), and transition to adult life ($n = 4, 6\%$).

**Increased access to educational opportunities**

Families and local school district staff ($n = 29, 43\%$) further indicated that participation in the program permitted students access to educational opportunities that they would not otherwise have had, due to either lack of resources and expertise in their local school district or the inability of the local school district to provide certain types of experiences, such as an opportunity to establish relationships with peers who also have visual impairments. One local school district staff member wrote, “I love short-term programs for my students because they do not have the same type of
opportunities in our school district,” and another reported, “My student learned more about JAWS [screen reading software] than she had ever been exposed to.” A third local school district staff member commented on how the opportunity to interact with peers who also have visual impairments translated to improved outcomes for the student when he returned home: “My student was struggling with social interaction and finding things he had in common with peers at school. [Participating in this program] has given him the courage to step outside his comfort zone and he is now willing to open up more with peers.”

**Improved understanding of the student**

Families and local school district staff (n = 29, 43%) also indicated that they felt participation in the program improved their understanding of their students, their students’ individual needs, and methods to work toward meeting these needs. For example, a local school district staff member wrote, “It was very beneficial talking to the teacher and getting her insights and opinions as well as verbal comments on the student’s progress.” Further, staff and families wrote that the information TSBVI provided as part of the teleconsultation process (including verbal information, written reports, pictures, videos, etc.) helped them better understand how to assist their student in continuing to work toward desired learning outcomes. Another local school district staff member wrote, “Such a great report, full of the information we need to carry out more skill development back here at home” and a family member reported, “This is a great tool for me as a parent to use in order to ensure that my child is doing what she needs to do to be successful.” Some families and local school district staff also shared specific things they had learned about how to more effectively support their student. One district staff member wrote, “I guess the most helpful part has been that it has opened up the conversation of why he needs to use his [low vision] tools in class and the possible need for some orientation and mobility sessions.” Another said, “The program gave her insights into the computer program JAWS. We are currently practicing on it and I can write better AIEP [goals] with the information received.”

**Positive interactions with TSBVI staff**

Families and local school district staff (n = 24, 36%) also reported that they had positive interactions with TSBVI staff and that TSBVI staff were helpful, friendly, and responsive. A family member wrote, “They were friendly in my conversations with them. I appreciate how easy they were to talk to,” and a local school district staff member wrote, “The staff is always professional, knowledgeable, and eager to help!” Further, many respondents indicated that they perceived TSBVI staff as being highly invested in their student’s progress; for example, one school district staff member wrote, “I was very
pleased with how involved the TSBVI teacher was with ensuring that my student was benefitting from the program.” Another wrote, “The staff did an excellent job preparing my student to come (he was extremely anxious) and then planning and providing an awesome experience [during his stay at TSBVI].”

**Concerns about maintaining positive outcomes**

Although participants indicated that the program provides increased access to important educational opportunities for participating students, several respondents ($n = 7, 10\%$) voiced concerns about the inability of their student to maintain these gains and/or noted a lack of resources in their local school district, which would significantly hinder the student’s ability to continue practicing the skills they learned. For example, a family member wrote, “I think this is exactly what she needed . . . [but] she is not able to utilize the information she learned. . . . I feel she will lose everything she learned.” A local school district staff member stated, “My student does not have a computer with JAWS [screen reading software] on it.” In a similar vein, some families noted concerns regarding the brevity of the program ($n = 2, 3\%$), with one family member writing, “The culture at public school is so different that a few days is a drop in the bucket and I wish for more exposure to TSBVI for him.”

**Concerns about feasibility**

In contrast to family members who wished that the programs could be longer, a few ($n = 3, 4\%$) local school district staff members expressed concerns regarding the student getting behind at school or doing poorly on standardized tests because of missed school as a result of spending time in a residential program at TSBVI. For example, a local school district staff member wrote, “For my student, [missing] even one week during the school year was difficult, if she missed a graded assignment or needed to make up work.” Two local school district staff members also expressed concerns about the feasibility of their own participation in the consultation aspects of the program, due to the limited amount of time allotted for the staff member to provide services for the student in question, with one of them writing, “Some of us see students monthly and cannot [participate in all the requested activities].”

Similarly, some local school district staff ($n = 5, 7\%$) said that they wanted information about TSBVI’s short-term programs to be more readily accessible and/or would have liked to receive information about the available programs with more lead time before they began. One local school district staff members wrote, “[I] liked seeing the schedule for the entire year [on the website] and [having the] ability to have a large window of time to register. Being able to start the referral process earlier when the program is very close
to the beginning of the school year [would have been helpful]. At least have the dates a little earlier.” Another indicated, “It would be nice to know what the theme will be and particular activities in advance. This may heighten the interest of the student.”

Finally, one family member (1%) also indicated that full participation in the program was not feasible for him or her due to a language barrier, writing, “I would greatly appreciate if you could send the reports and survey in Spanish in the future; it is hard to find someone to help me translate.” Although only one respondent expressed this concern, given the effort that this family member had to expend to complete the survey, it is possible that other families may have encountered similar language barriers that prevented them from fully participating in the program, but did not provide feedback.

**Discussion**

Research evaluating teleconsultation efforts in schools addressing the needs of underserved youth has been limited. Considering the potential challenges associated with the implementation of teleconsultation in schools, additional information regarding the acceptability and feasibility of these efforts to guide implementation is needed. With the goal of contributing to the literature base supporting teleconsultation in schools and increasing the ease of implementation for programs wishing to incorporate teleconsultation services, this study sought to describe an innovative model of teleconsultation being used to support educational parity for youth with visual impairment. Both quantitative and qualitative results indicate that TSBVI’s short-term programs teleconsultation model shows good initial acceptability and feasibility. In particular, quantitative survey data indicate that participating family members and local school district staff viewed all assessed aspects of the program as having high acceptability, including high overall satisfaction with students’ experiences in the program, as well as positive views of the TSBVI staff, the timeliness of the information provided, students’ learning experiences, the consultation and resources provided, and the program website. Further, most respondents indicated that participation in the current program was feasible, and many reported that the program could even be lengthened.

In addition, responding families and local school district staff provided qualitative feedback indicating that they observed improved student outcomes, and respondents also noted that TSBVI short-term programs provided access to educational opportunities that the student would not have otherwise had access to. Qualitative feedback from responding families and local school district staff also suggested that the program’s teleconsultation component increased their understanding of their student by providing them with additional ways in which to support him or her, and indicated that they
had positive interactions with program staff. Although respondents viewed the program favorably, a few also noted insufficient resources in their local school district and consequent concerns about maintaining the positive outcomes that resulted from their students’ participation. Finally, some concerns about feasibility emerged from the participants’ qualitative responses. A few local school district staff members reported they were pressed for time and/or had concerns about students missing even a few days of school, and others said they wished more specific information was available in advance of the program start date. One family member also reported that language was a barrier to his or her full participation in the program.

These findings are consistent with previous research showing that teleconsultation is acceptable and feasible for use in schools. For example, Bice-Urbach and Kratochwill (2016) found that teachers who were provided with teleconsultation support for classroom behavior problems reported that it was both acceptable and feasible for this purpose; these teachers further indicated they were satisfied with their overall experience. Similarly, Fischer et al. (2016) found that the teachers in their study rated the behavioral teleconsultation services they received as being highly acceptable. The present study adds to and expands on the limited available research supporting the use of teleconsultation in schools by examining the use of teleconsultation in a unique context that addresses the needs of an underserved population.

**Limitations and future directions**

Despite the strengths of this study, several limitations exist. First, because the data used in this study were collected as part of program evaluation efforts at TSBVI, the results do not represent a systematic or well-controlled evaluation of the acceptability or feasibility of TSBVI short-term programs’ teleconsultation model. Although the reliability of the data used to assess the model was calculated using the present study sample, the psychometric properties of the measure have not been established and the results should be interpreted with caution. In addition, although the teleconsultation methods were similar across TSBVI’s short-term programs, there was variation in the methods used by different TSBVI staff and for different courses, and this lack of standardization may have impacted the results. Further, no assessment of the implementation process was conducted, and fidelity cannot be determined. Future studies should seek to engage in a systematic evaluation of the teleconsultation model, incorporating psychometrically validated instruments and a standardized teleconsultation protocol, and should assess the quality of the implementation process. In particular, the use of educational social media platforms (e.g., Edmodo) as part of a school-based teleconsultation model may be an area of further investigation. Finally, the study only examined the feasibility and acceptability of the teleconsultation model. Future studies...
should seek to move beyond these aspects to also assess additional relevant outcomes, including the effectiveness and sustainability of such models.

Another crucial limitation of the study is that, although teleconsultation represents a significant component of the program, it was not the only aspect of the program that was evaluated. Thus, local school district staff and family perceptions of the acceptability and feasibility of the teleconsultation component of TSBVI’s short-term programs may be confounded with their perceptions of the program as a whole. Although the individualization that resulted from the consultation process could increase satisfaction with the instruction, it is also true that satisfaction with the residential instruction could positively impact participants’ feelings about the consultation process. Future studies should seek to isolate the impact of the teleconsultation component and study this component separately.

Finally, response rates for surveys were low, precluding the ability to gain a full understanding of the breadth of family and local school district staff experiences with the program. It is possible that families and local school district staff members who had negative experiences opted not to respond to the survey, resulting in an overestimate of the program’s positive attributes. Despite these limitations, study findings point to the potential promise of the use of teleconsultation in the schools and highlight the need to conduct further investigation into the acceptability and feasibility of these practices, as well as other relevant outcomes.

**Implications**

Researchers have called for further investigation into teleconsultation as it is practically employed in schools (e.g., Fischer et al., 2016; Hilty et al., 2004). The current study provides a comprehensive picture of a teleconsultation model used in a school setting that demonstrates good initial acceptability and feasibility. Given the preliminary success of the TSBVI short-term programs teleconsultation model, schools or education systems could use study findings to incorporate aspects of the model into the development of their own program of school-based teleconsultation.

Several recommendations for improvement from this study could be used to support increased ease of implementation of such models in schools. In particular, the participant feedback associated with time constraints on the part of the participating school districts, the need for school district administrative support, and the dissemination of information about the program will be important for programs to consider.

Concerns regarding time demands on school staff have been documented in the literature (e.g., Farber, 1991; Simpson, 2009), and local school district staff in the present study indicated in their qualitative survey responses that time pressure persists as a concern. TSBVI short-term programs provided the
youth’s local school district educational staff with support and resources, but the teleconsultation and brief residential stay at TSBVI also required a time investment that some local school district staff reported was problematic, given their workload and the learning demands on their students. As participating in a program like this can take a significant amount of time, time constraints appear to have limited the ability of local school district staff to use and fully benefit from teleconsultation. By contrast, some family members reported that they wished the program was longer. As time concerns are ever-present in educational settings, organizations will want to continue to work toward understanding and establishing an acceptable balance between providing meaningful and effective resources and requiring minimal time from participating school staff.

Although it appears that the TSBVI website may have been a factor supporting the feasibility of the program, TSBVI may be able to use this tool more effectively. Specifically, TSBVI maintains a comprehensive website that provides information about programs as well as a wealth of free resources for educating students with visual impairment. One hundred percent of local school district staff and 76% of families indicated that they had accessed the website; as noted, of those who had accessed the website, 86% rated it positively. Although respondents tended to view the website positively, some local school district staff also indicated qualitatively that they wished they had been provided with more comprehensive information about program specifics. This information could easily be made accessible via TSBVI’s website and could strengthen the website as a resource for families and local school district staff. As successful teleconsultation relies heavily on effective use of available technology (Kennedy & Yellowlees, 2000; Rohland et al., 2000), programs may want to consider the role their web presence plays in educating potential consultees about the services they offer.

Students with visual impairments often need access to specialized and costly resources, and previous research has shown that students with disabilities requiring a high level of district resources are often underserved (Palmer, Blanchard, Jean, & Mandell, 2005). In accordance with this research, some families and local school district staff in the study indicated concerns with their school districts not providing enough financial and/or personnel support for the program’s teleconsultation model to be optimally successful. Further, in contrast to local school district staff members who indicated that they were concerned about the amount of time required to participate in the program, some family members reported that they felt more time with the program was necessary for their child to fully realize its benefits, in part due to concerns about the educational resources available in their local school districts. Thus, although participation in the program creates gains for students in the short term, local school district administration must provide a relatively high level of support to
ensure that students have continued access to the resources required to allow them to maintain these gains. Some school districts may be hesitant to invest in providing adequate resources to allow students to fully benefit from teleconsultation, particularly as they may lack an understanding of what is necessary to provide a high-quality education to students with low-incidence disabilities. Thus, it will also be important for similar organizations using teleconsultation to consider ways they could use teleconsultation (or other methods) to expand awareness, advocate for the needs of youth with low-incidence disabilities, and otherwise ensure that the necessary supports are available for the students they wish to serve.

**Conclusions**

This article described a teleconsultation model used to provide educational support for students with visual impairments who are educated in their local school districts. Results of the mixed methods evaluation indicate that families and local school district staff found the teleconsultation model to be both acceptable and feasible. In particular, respondents indicated that the model supported them in developing an improved understanding of their student’s needs, provided increased access to educational opportunities, and ultimately led to positive student outcomes. In addition, with the goal of increasing the ease of use of teleconsultation in schools, the current article discussed some possible areas for improvement regarding program implementation, including issues associated with time constraints on the part of the participating school districts, the need for school district administrative support, and the effective dissemination of information about the program to potential participants. Overall, results of this study contribute to the limited research on teleconsultation efforts in schools, providing promising support for their continued use and examination. Despite the study’s limitations, we anticipate that findings from this study can be integrated into current efforts to integrate teleconsultation in schools, thus improving outcomes for diverse youth in school settings.

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