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Outcomes from In-Person Interdisciplinary Continuing Education for Autism and Online Delivery of the Same Content

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ABSTRACT

Outcomes from In-Person Interdisciplinary Continuing Education for Autism and
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Because of the growing prevalence of Autism Spectrum Disorder (ASD), there is an increased need for effective professional training models for autism treatment and education. Individuals with ASD receive care and therapy across multiple disciplines, so such training models should also be interdisciplinary in nature. In the medical field, pediatricians, nurses, psychiatrists, and many others work with individuals with ASD. In the education field, teachers, speech language pathologists, school psychologists, and others work with children with ASD. Some therapists work in both systems. Thus far, there has been little research done considering training delivery models (i.e., in-person and online training) in interdisciplinary best practices in ASD. This study examined outcomes of both an in-person delivery of an interdisciplinary, professional continuing education workshop and online (remote) delivery of the same content. We looked at preferred delivery methods, social validity, and dissemination of information related to each training format according to profession, experience, and levels of previous training. Results indicate that a one-day interdisciplinary training program can result in 70% of participants self-reporting changes in practice and at least 60% report they feel more confident working with children who have ASD. Participants also reported an increased rate of referrals for services outside of their own discipline and increased interest in training in ASD best practices (91% interested at follow up). The social validity of the training was very high with 91% agreeing that the training was worth their time.

ACKNOWLEDGMENTS

I would like to express gratitude to my thesis chair, Dr. Terisa Gabrielsen. Her help, guidance, expertise, and support have been instrumental in my growth and success in my graduate work. Her passion for autism and the field of school psychology has inspired me to continuously strive to be a better professional.

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INTRODUCTION

The prevalence of Autism Spectrum Disorder (ASD) has dramatically increased over the past few years. In the United States, statistics currently show that an average of one child in every 68 children (1:68) is diagnosed with a form of ASD, which compares with a rate of one in 88 (1:88) just two years prior. This trend has shown steady increase since prevalence was first reported as 1:125 in 2004 (Centers for Disease Control and Prevention, 2014).

Because of the increasing prevalence of ASD in the United States, there is an increased need to educate practicing professionals from multiple disciplines in the best practices and resources relevant to ASD. For example, according to the U.S. Department of Education, 56% of teachers working in 2007 were older than 40 (U.S. Department of Education, 2010). These same data previously mentioned from the CDC document the increasing autism prevalence rate beginning in 2006 (Centers for Disease Control and Prevention, 2014). It is likely that many of these teachers over the age of 40 were trained and entered the workforce before the increase of ASD and may not have had appropriate training to meet the current increased needs in their classrooms.

To meet these demands, the use of accessible technology, such as online learning, can be explored to maximize dissemination of up-to-date best practices and resources in ASD. New training models are needed to efficiently serve the disciplines that work directly with children who have ASD. Online technology can be such a model to reach a greater number of professionals across disciplines. These professionals can include general education teachers, special education teachers, school psychologists, clinical psychologists, speech language pathologists, occupational therapists, and pediatricians among others.

Additionally, thus far, there is very little research regarding an interdisciplinary approach to teaching best practices in ASD. Only one article was found regarding research done at the University of Regina in Canada (Loutzenhiser & Hadjistravropoulos, 2008). Some literature regarding different delivery methods in ASD training exists, but it has not considered interdisciplinary training. Research has been done using online learning and telehealth, exploring the outcomes of training professionals and family members in autism interventions (Vismara, 2012). There is also research about the importance of an interdisciplinary approach, but no literature has been found regarding an interdisciplinary training for professionals using online technology. This study was designed to explore two delivery methods, in-person and online, for an interdisciplinary approach to continuing education in best practices ASD for in-service professionals.

LITERATURE REVIEW

Autism Spectrum Disorder is often characterized by difficulties in social interactions. These difficulties may include nonverbal and verbal communication impairments or restricted interests and repetitive behaviors. In 1943, Dr. Leo Kanner, a child psychiatrist, first described what is now known as autism spectrum disorder. Dr. Kanner used the word "autism" which was previously a word used for describing self-centered thinking (seen in schizophrenia) to describe 11 children in his practice who preferred isolation over social interactions. Socially, early signs of ASD can include difficulty in recognizing and showing appropriate facial expressions or little to no eye contact.

Children with ASD also show difficulties in communication. Early signs of ASD in communication and development can include lack of single word utterances by 15 months and no 2-word phrases by 24 months, repeating exactly what is overheard (echolalia), or lack of interest in pretend play with toys. Difficulties related to repetitive behavior can also be present with ASD. Early signs of impairment in behavior development include rocking, flapping hands, resistance to change in routine, and greater interest in specific parts of a toy rather than the toy as a whole (Rosenblatt, Carbone, & Yu, 2013). To receive a diagnosis of autism, an individual must meet two diagnostic criteria according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). An individual must have persistent deficits in social communication and interaction across multiple settings and restricted, repetitive patterns of behavior, interests, or activities (American Psychological Association, 2013).

As individuals grow and develop, their autism symptoms change as well. Restricted interests and stereotypical movements tend to change over time in some individuals. Academic problems may begin to affect some individuals with autism in the middle elementary years with

increased demands on reading comprehension abilities. Social difficulties and differences often lead to co-morbid depression and anxiety as well (National Institutes of Health, 2011).

While there is a great deal of current research underway to determine causes of autism, a single cause has not yet has been pinpointed. The origin of autism is thought to be a combination of a genetic predisposition and a reflection of environmental factors. However, genetics may not explain all cases of ASD. One study found only 25% of new diagnoses could be directly linked to genetic causes (Huguet, Ey, & Bourgeron, 2013). ASD is known to be a brain-based or developmental disability with an apparent origin within early brain development. Developmental disabilities such as autism are manifested through impairments in learning, language, behavior or physical development (APA, 2013; Rubin & Crocker, 1989).

Unmet Needs in Health Care for Children with ASD

There are documented unmet needs in health care for children with autism. Data gathered from the 2005-2006 National Survey of Children with Special Health Care Needs found that children with autism are more likely than other groups to have unmet needs along with accessibility problems for health care. More specifically, researchers found that families of children with autism spectrum disorders are more likely to report provider lack of skills to treat the child as a barrier to obtaining therapy and mental health services (Chiri & Warfield, 2012).

Experiences with doctor visits. The documented disparities in health care are further complicated by increased needs for health care services. Children with ASD experience more visits to the doctor than typically functioning children, leading to significantly higher costs of care. Three national surveys drew information about 80 children with ASD. The Medical Expenditure Panel Survey (MEPS), the National Ambulatory Medical Care Survey (NAMCS), and the National Hospital Ambulatory Care Survey (NHAMCS) are used to compare health care

experiences of children with ASD to others. From these surveys, it was found that health care for children with ASD cost an average of $6,132 yearly versus the $860 yearly for children without ASD. Additionally, children with ASD experienced an average of 41.5 outpatient visits yearly compared to the 3.3 yearly visits of peers. Visits with physicians average 15.8 minutes for typically developing children, but visits for children with ASD averaged 31.9 minutes. Researchers found that children with autism experience a significant burden of medical illness manifested through health related expenses and activities. (Liptak, Stuart, & Auinger, 2006).

Additionally, pediatricians may not have been trained to identify children with ASD during the brief span of routine medical visits. During brief visits, very young children with ASD can show more typical behaviors than atypical behaviors, making it difficult for pediatricians to form accurate impressions about autism risk. In a recent study of observable behaviors and related referral decisions, even autism experts missed referrals in 39% of children with signs of early autism under conditions of brief observation (Gabrielsen et al., 2015).

Parent Perspective

Parents reported concerns about their relationships with health care providers in a recent qualitative study. Among the 12 parents interviewed, four themes emerged regarding their experiences. One of the themes found was frustration with health care services. Parents felt there was a lack of general knowledge about ASD, which resulted in little faith in the health care provider's care. Parents were not happy with the quality of attention and care their adolescent received from their primary care providers. Additionally, parents felt they were perceived negatively along with their adolescent with ASD. One parent reported, "Some doctors acted like we were just totally stupid and would not listen [to us]" (Strunk, Picker, McCain, Ameringer, & Myers, 2014, p .332).

In another study, parents of children with ASD and primary care providers (PCPs) completed surveys regarding the PCP's ability to address needs of the child with ASD. The PCP's rated themselves as "good" in addressing the needs of a child with ASD; however, the parents rated the PCP's ability as "not good" in the majority of areas. The discrepancy between parent and PCP perspectives is clear. Parents and PCPs identified that PCPs can improve treatment by recommending and utilizing evidence-based interventions (Carbone et al., 2013).

Unmet Needs in Educational Services for Children with ASD

Little research is available regarding unmet needs for children with ASD in public school settings. However, consistent with health care disparities, it has been found that socioeconomic factors, not the severity of ASD, play a large role in whether children receive educational services under an Individualized Education Programs (IEP) in schools (Harstad, Huntington, Bacic, & Barbaresi, 2013).

Additionally, children with autism missed an average of 25 days of school per year, compared to typically developing children who missed an average of 3 days per year. Other populations, such as children with depression and intellectual disability missed an average of 10.3 and 4.7 days per year, respectively (Liptak, Stuart, & Auinger, 2006). This is another factor to consider as educators strive to meet the educational needs of a child with ASD. While the reasons children with ASD miss school more often than children with other disabilities are not specified, it is possible that health problems play a role in the higher absentee rates. An interdisciplinary approach may be a necessary consideration when serving a population with multiple care needs as the student with autism may need support from more than just the educational setting to be successful.

Training Delivery Models

Given the challenges for those with ASD, efforts have been undertaken by various professions to address training needs for ASD care and education. Methods that do not require the resource intensity of face-to-face instruction have been the focus of recent research.

Two such methods are telehealth and online learning (e-learning). Telehealth involves a live streaming feed in which participation is possible on both ends. Technology such as Skype or teleconferencing is used. Online learning (e-learning) can be seen as an online, or virtual classroom. Participants access information through a website. The information may or may not be given in a live format and participation is done through means of an online chat room or message board.

 Telehealth. Recent research has shown that distance training of professionals via telehealth technology (Skype and teleconferencing) can be beneficial. In one study, researchers had three sets of therapists trained on a new intervention dealing with children with ASD. One group participated in the training in person while the other two participated through live sessions via telehealth technology. It was found that all groups, live and telehealth, gained understanding, comfort, and ability to utilize the new intervention effectively (Vismara, Young, Stahmer, Griffith, & Rogers, 2009).

The benefits of telehealth delivery of autism education can also be found beyond professional training. In home settings, telehealth has been utilized as a method for early autism training for parents. For example, researchers recruited 9 families who had a child with autism for weekly training (one hour per week). During these sessions, the therapist talked with the parent about any progress made from the previous week and any concerns or questions the parent was experiencing. The therapists then would discuss the next topic or strategy with the parent

and provide supporting materials to the parent. Using the Early Start Denver Model (ESDM) of behavioral treatment, therapists taught the parent interventions regarding expressive communication, receptive communication, joint attention, social interaction, and imitation among other things (Rogers & Dawson, 2010).

After the conclusion of the 12 weeks, researchers followed up with the parent participants to assess the parents' maintenance with the ESDM model along with a survey regarding social validity of the training. At follow-up, it was found that the children with ASD experienced a significant increase in vocabulary production and comprehension, and parents maintained skills gained through training.

Initially, through parent feedback, researchers found that eight out of the nine parents experienced concern regarding whether the telehealth model would provide sufficient support. Ultimately however, at follow-up, all parents agreed that they would recommend this approach to other parents of children with ASD, particularly when community services are scarce and/or confronted with long wait lists (Vismara, Young, & Rogers, 2012).

Online learning. In 2011, a study was done researching the effectiveness of collaboration in online and face-to-face learning formats for professional development regarding autism (Wozniak, 2011). The researchers utilized pre-and post-tests to qualitatively measure effectiveness. Researchers recruited volunteer employees from one school district in the United States and randomly assigned the participants to two groups. One group participated in face-to-face professional development and the other participated via a website (e-learning). To compensate for no face-to-face interaction, participants in the e-learning group were encouraged to participate through a message board where they could communicate with each other. Researchers found that overall, the online group increased positive attitudes about the

efficiency/convenience of online collaboration. Both groups expressed a positive attitude at the end of the trainings (Wozniak, 2011).

Online communities. In designing successful online resources, there needs to be a sense of community for participants (Rovai, 2002). According to Rovai, there are a few key factors in building a community. These are: spirit, trust, interaction, and a common expectation of learning. Rovai's conclusion was that if we can design and deliver courses at a distance that build and sustain community by drawing on these factors, perhaps our actions will help promote satisfaction and retention in e-learning programs.

Convenience and practicality. According to Dark and Perrett, online learning can be a powerful tool for interdisciplinary training that is not limited by geographical and temporal boundaries. Because professionals can pursue continuing education online at their convenience, online learning can be a great advantage to busy healthcare professionals with demanding schedules. The flexibility of online learning, including choices of when and where to participate can be a great draw. However, it is important that the course material is high in quality and the technology and access is simple (Dark & Perrett, 2007).

Interdisciplinary Training

There is little research regarding interdisciplinary training in autism. However, it has been shown that students from various disciplines have found benefits in working and learning together. In Canada, students from Early Childhood Education, Nursing, Psychology, Social Work and Medicine were brought together once a week for 13 weeks to learn about ASD. During these meetings, students were taught about development and interventions. Students were also able to participate in an inter-professional team following a family through the assessment and diagnosis of an ASD (Loutzenhiser & Hadjistavropoulos, 2008). Researchers found that the

students had a positive experience and students' perspectives were broadened, especially regarding the roles other professions play in the life of an individual with ASD. It should be noted that this study was limited in the sense that only five students representing their perspective fields were able to participate.

Purpose of This Study

With challenges such as parent dissatisfaction and increased cost of health care along with absences from school, it is evident that best practice approaches to solving these and other problems transcend disciplinary boundaries. There is an inherent need for continuing education using an interdisciplinary approach, including the innovation of adding online options to the more traditional continuing education workshop format. To increase ease of access and dissemination of best practices, it is important to understand and develop different delivery models of an interdisciplinary training. Through a descriptive study, we were able to identify several factors important for future development of continuing education efforts. We considered outcome information on two delivery methods of interdisciplinary workshop. Data collected from each delivery model will be presented side by side according to questions asked of participants.

Additionally, social validity was considered to measured preference outcomes between the two case studies. It was expected these case studies would demonstrate both in-person and online delivery methods can provide positive outcomes.

Research Questions

1. In the field of autism spectrum disorder care and education, what are the outcomes of in-person, interdisciplinary models of education/training and online delivery of the same content?

    a. What are the participation rates of the various disciplines participating in in-person or online models?

    b. Is there an increase in participants' level of comfort in referrals outside of their disciplines?

    c. Why did participants select in-person or online delivery method and would they select the same delivery model for future workshops?

2. What are participants' perceptions of social validity of in-person, interdisciplinary models of education/training and online delivery of the same content?

    a. What are the participants' perceptions of how much new information was obtained?

    b. Does the delivery model affect participants' willingness to recommend the workshop to others?

    c. Does the delivery model affect participants' satisfaction with training received?

3. Following the workshop, will professionals self-report a change in practice?

    a. What are the self-reported changes participants have made?

    b. Are participants more comfortable making referrals to other disciplines?

4. What effects on geographical dissemination of the training were gained by offering an online option for the workshop?

METHODS

Settings

The study took place during a workshop that was held on May 30th, 2014 at the Conference Center at Brigham Young University (BYU). The workshop was an all-day event from 8:30 AM to 5:00 PM. As an all-day event, lunch was provided for professionals that registered for the full day along with a snack break. The workshop was sponsored by BYU, Timpanogos Regional Hospital, the McKay School of Education, and BYU Continuing Education.

Presenters for the workshop were selected by area of expertise from Utah universities and autism clinics. Lecturers are considered to be the some of the best and most knowledgeable professionals in their disciplines in Utah. A list of the professionals and the workshop schedule can be referenced in Appendix A. The overall theme of the workshop was to use an interdisciplinary approach and best practices when working with children with ASD. Presentations were given regarding screening, language treatment using video modeling, Applied Behavioral Analysis (ABA) and behavioral treatment, education, social communication disorder, psychopharmacology, and co-morbid conditions. A parent and expert panel concluded the workshop.

In addition to the in-person workshop, participants were able to participate online via live streaming. To help cover the costs of the workshop, a fee of $85 was charged for full-day in-person registration (including lunch) and $65 for the online delivery. Archived recordings of the presentations were made for future availability online as well.

Participants

  The professions targeted for the workshop were from multiple disciplines. Professionals were recruited from the education field including teachers (general and special education), speech language pathologists, school psychologists, occupational therapists, and administrators. In other fields, we recruited pediatricians, nurses, social workers, and psychologists. Additionally, since the workshop was hosted by Brigham Young University, it was expected that university faculty and students would participate. Participants in the study were drawn from this group of workshop attendees. Participant consent was explicitly stated on all questionnaires.

Procedures

  Workshop recruitment. Professionals were recruited through professional list-serves, social media, flyers, and word of mouth. We reached out to different groups that represent each of the various professions to negotiate continuing education credit certification and help with recruitment. Continuing Medical Education (CME) and Continuing Nursing Education (CNE) credit was provided by Timpanogos Regional Hospital. Continuing Education Credits from the American Speech, Language and Hearing Association (ASHA) were also secured. Continuing Education Credits through the Utah Chapter of the National Association of Social Workers and the Utah Psychological Association were also provided. Continuing Education Credit is granted by contact hours rather than a specific accreditation organization. It was requested that each of these groups pass along the information and flyers about the workshop provided by researchers. Print and electronic announcements of the workshop were sent through the following professional organizations:

- Utah Medical Association

- Utah Speech, Language and Hearing Association

- Utah Psychological Association

- BYU School of Social Work (Social Work Conference, alumni and students)

- Utah Chapter of National Association of Social Work

- Utah Association of School Psychologists

- McKay School of Education

- Utah school principals

- Utah Baby Watch

- The Autism Council of Utah

- Utah Parent Center

- BYU-public school partnership school psychology directors

In addition to these targeted announcements, social media accounts were also created on Facebook, Twitter, and Pinterest to help build momentum and an online presence.

Research recruitment. Participants for the current study were recruited from the 150 professionals participating in the workshop. As professionals registered, an email was sent inviting them to participate in the research. A drawing for an iPad was offered as incentive for participating in the research. For each survey (pre, post, and follow-up), a drawing was completed for participants in that phase and the winners were notified via email.

Workshop format and procedures. Presenters gave their presentations to the entire audience, including the online audience, in successive sessions. There were no breakout sessions, so all information was available to all participants.

Active participant involvement in presentations. During the workshop, both in-person and online participants with questions were encouraged to ask questions at the conclusion of each presentation. Participants were invited to ask questions by emailing autism@byu.edu, by

texting a cell phone number that was printed in the handouts, or by posting questions to BYU

AutismConnect's Facebook and Twitter accounts. In addition, participants in the in-person

delivery were provided notecards to write questions on during the presentations. All questions

were gathered by the research team, transcribed onto notecards, and then given to the speakers at

the end of their presentations in an attempt to give both the online and in-person participants

equal opportunities to ask questions and build upon the idea that both content delivery methods

are part of the same community.

Parent and autism individuals panel. In addition to the presenters, the final session of

the workshop included parents and family members of children with autism spectrum disorder.

No formal presentations were given during this presentation other than brief introductions. One

married couple, two parents from the Utah Parent Center, a BYU student with autism spectrum

disorder, a sibling of an individual with ASD, and two university professors with children who

have ASD or other disabilities comprised the panel. Audience members, including online

audience members (using text or email), were able to ask questions directly to the panel.

Lunch. As part of the workshop, lunch was provided to allow participants opportunities

for networking. It was the only aspect of the workshop that was not available to online

participants. No presentations were given during lunch.

Livestreaming difficulties. For some online participants, livestreaming worked well.

For others, the feed stopped intermittently. Online participants were in contact with workshop

staff during the workshop when this happened (using the provided email and text contact

information). Instructions for retrieving the feed, if lost, had been provided with registration, but

these instructions were not helpful, as the feed resumed where it had left off, so participants were

missing the current livestream of content. These difficulties were ultimately resolved by having

participants log on to the website again, and re-establishing the livestream content in real time. On at least one occasion, the streaming camera "timed out," and needed to be re-activated.

Data Collection

Data were collected directly from both online and in-person participants. All professionals participating in both the in-person and online workshops were invited to complete three surveys during the study. Each survey was created specifically for the workshop to measure outcomes of our goals and research questions. Using Qualtrics (an electronic survey package), the first survey was emailed to the professionals after they registered for the conference. This survey used both Likert-type scale questions and open-ended questions. Information gathered on this survey did not include any identifying information but did include profession, years in profession, level of comfort with interdisciplinary referrals regarding ASD, level of knowledge in ASD, and other information (see Appendix B). The next survey was distributed at the end of the workshop day (or sent electronically via Qualtrics to online participants). This survey gathered information similar to the first survey completed at registration (see Appendix C). A final survey was sent using the same methods (i.e., Qualtrics) two months following the workshop. Follow-up surveys were completed on Qualtrics only. All workshop registrants were emailed an offer of research participation with a link to the survey. In addition to the previous questions, this follow up survey asked what, if any, changes had been made in practice following the workshop. It also asked about the relative value of the online resources provided in conjunction with the workshop (see Appendix D for survey questions).

Outcomes

Outcome measures were employed to determine the effects of the workshop by delivery methods. Changes in practice as a result of workshop attendance were the first outcomes

measured by the pre-, post-, and follow-up surveys. Social validity data were gathered to determine the acceptability of the workshop format for learning.

Changes in practice. We looked at changes in practice as a result of workshop participation.   We considered information gathered at registration, at the conclusion of the workshop, and the follow-up survey. The surveys included profession, years in profession, level of comfort with interdisciplinary referrals regarding ASD, level of knowledge in ASD, and other information (see Appendices B, C, D for survey questions). For example, we wanted to know if participants felt more confident working with children with ASD because of workshop participation, what changes they have made since participating in the workshop, whether referrals to other disciplines has increased, among other things.

Social validity. With the same surveys, researchers considered the social validity of each workshop. To evaluate the perceptions of value and acceptability, questions regarding selection of online or in-person workshop, interest in further training in best practices, future preference for delivery method, willingness to recommend the workshop to others, and whether the workshop was worth participants' time.

Other data. Aside from changes in practice and social validity, we also collected data by asking if the professionals were presented with new information, if they perceived barriers to implementation of best practices, whether an interdisciplinary approach is valuable, and which online resources were most and least helpful for the participants.

Data Analysis

Pre-workshop surveys were consolidated across delivery methods for analysis, as no differences were expected prior to the workshop. Data from the post-workshop and follow-up surveys were analyzed separately according to delivery methods (surveys from the in-person

workshop constituted one data set, and the online workshop was another). Questions that were not open-ended were presented with a Likert-type scale and were analyzed using descriptive statistical methods. Open-ended questions were analyzed using Consensual Qualitative Research (CQR) methods to code responses by themes (Hill et al., 2005). The study author, Rachel Trayner, and advisor, Terisa Gabrielsen, performed the process of interpreting and establishing themes within the responses.

RESULTS

Participants

By the day of the workshop, 150 professionals were registered for the workshop (25 online and 125 in-person), constituting the pools from which participants were drawn. Tables 1 and 2 show the disciplines represented by research participants (drawn from these workshop participants), along with the years in practice. Since registrants for the workshop were not required to participate in any phase of the study, and invitations for participation were offered at each phase, it is important to note that responses gathered during one phase may not have been received from all of the same participants as in other phases. Rather, results are analyzed at a group level without matching results to individual participants. Additionally, participants in the pre-workshop phase were considered to be one group (instead of split between in-person and online), as they had not participated in the different delivery methods prior to the workshop. During post-workshop data collection, participants were separated by in-person and online groups so researchers could look at the outcomes according to delivery method. Participant demographics data were erroneously omitted at follow-up, which could not be remedied when discovered.

Table 1 shows the disciplines of participants at both registration and follow-up. Each of the disciplines targeted for the workshop are represented in the data. School psychologists and psychologists were represented most frequently (21% at registration and 12% and 21% post-workshop, respectively), special and general education teachers (18% at registration and 16% post-workshop), speech language pathologists (10% at registration and post-workshop), and physicians (2% post-workshop). In addition to the targeted disciplines, we found that we had a

Table 1

Participants' Professional Roles

Professional Role	Pre Workshop Survey Total (*n=67*)	Post Workshop Survey		
		In-person (*n=91*)	Online (*n=17*)	Total (*n=108*)
School Psychologist	14 (21%)	11 (12%)	2 (18%)	13 (12%)
General Education Teacher	2 (3%)	2 (2%)	1 (6%)	3 (3%)
Special Education Teacher	10 (15%)	13 (14%)	1 (6%)	14 (13%)
Autism Specialist		2 (2%)		2 (2%)
School Counselor		2 (2%)		2 (2%)
School Administrator			1 (1%)	1 (1%)
Speech Language Pathologist	7 (10%)	9 (10%)	2 (18%)	11 (10%)
Speech Language Technician		1 (1%)		1 (1%)
Board Certified Behavior Analyst		1 (1%)		1 (1%)
Behavior Interventionist		4 (4%)		4 (4%)
Social Worker	16 (24%)	18 (20%)	5 (29%)	23 (21%)
Physician		2 (2%)		2 (2%)
Nurse	3 (4%)	1 (1%)	1 (6%)	2 (2%)
Psychologist	14 (21%)	19 (21%)	1 (6%)	20 (19%)
Certified Mental Health Counselor		1 (1%)		1 (1%)
Parent		1 (1%)		1 (1%)
Physical Therapist		1 (1%)		1 (1%)
Occupational Therapist	1 (1%)		1 (6%)	1 (1%)
Recreation Therapist		1 (1%)		1 (1%)
Therapist		1 (1%)		1 (1%)
University Faculty	2 (3%)		1 (6%)	1 (1%)

Note: Participants were allowed to select multiple professional roles if applicable.

parent participate in the research (1% post-workshop) along with a recreational therapist (1% post-workshop).

At registration, participants were spread almost evenly across the number of years in practice. The highest number of participants at registration had 0-5 years experience (21%) and

the least frequent response was 16-20 years (11%). The post-survey shows that similar

percentages of participants participated in both the in-person and online delivery with the

exception of those with 6-10 years experience where 31% participated online and 17% in-person.

Details of years in practice at both time points are shown in Table 2.

Geographical distribution of participants. The majority of in-person participants came

from Utah. Of the in-person participants, five came from a distance of greater than 120 miles to

attend, including at least one from Idaho. Of the online participants, the majority again were

from Utah with two participants viewing from over 570 miles way (in Arizona).

Table 2

Participants' Years in Practice

	Pre Workshop Survey	Post Workshop Survey		
Years	Total (*n*=71)	In-person (*n=87)*	Online (*n=16*)	Total (*n*=103)
Student	13 (18%)	8 (9%)	1 (6%)	9 (9%)
0-5 Years	15 (21%)	17 (20%)	3 (19%)	20 (19%)
6-10 Years	11 (15%)	15 (17%)	5 (31%)	20 (19%)
11-15 Years	11 (15%)	20 (23%)	2 (13%)	22 (21%)
16-20 Years	8 (11%)	11 (13%)	2 (13%)	13 (13%)
21+ Years	13 (18%)	16 (18%)	3 (19%)	19 (18%)

Registration (Pre-Workshop) Survey Results

The following data were collected at registration (pre-workshop phase). The graphs

describe responses from participants as a whole, not separated by delivery method. The

information gathered at registration was also distributed in advance of the workshop to the

presenters to help them better understand their audience and tailor their presentations as they saw fit.

Frequency of working with children with ASD. To understand more about the registrants of the workshop, participants were asked how often they work with children with ASD. Knowing over half of the participants work with a child with ASD on at least a monthly basis was valuable insight for presenters as they could expect an experienced crowd. Results are shown in Figure 1.
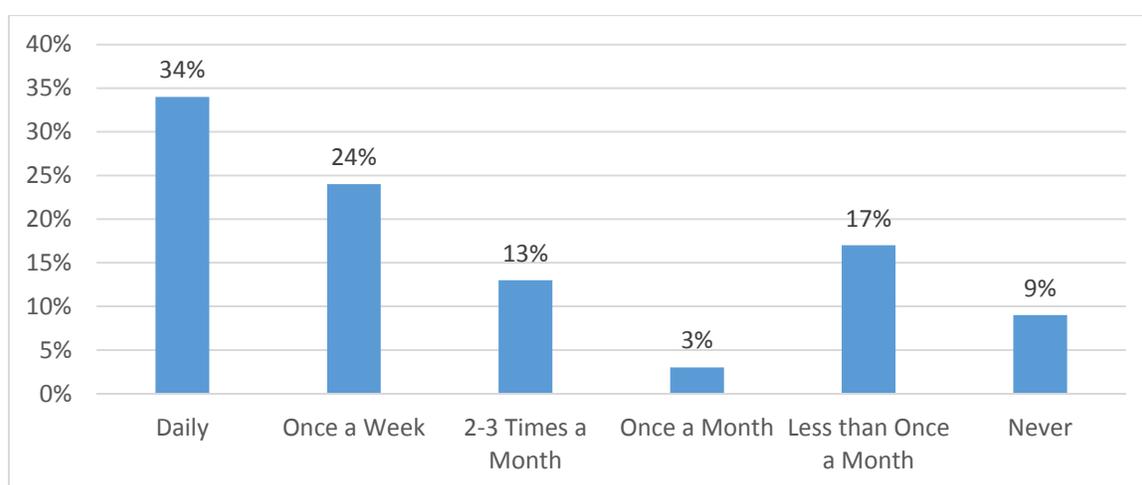

Figure 1. Frequency of working with children with ASD. At registration, participants (*n*=70) were asked how frequently they work with children with ASD.

Need for continuing education. We looked at participants' perceptions of need for continuing education. We hypothesized that many would agree there was a need since they signed up for the workshop, and 86% of participants agreed. It is possible that the 15% that did not agree nor disagree or strongly disagreed signed up for the workshop only to receive continuing education credits for their perspective fields. Results are shown in Figure 2.
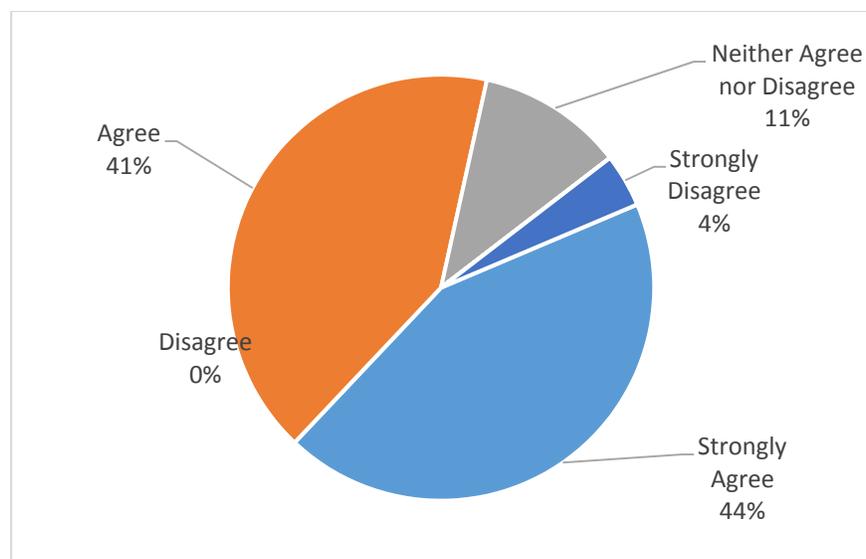
Figure 2. Need for continuing education. At registration, participants (*n*=70) were asked about perceived need for continuing education in ASD.

Prior ASD knowledge. In addition to knowing how often participants work with children with ASD, we wanted to understand how much prior knowledge participants had in ASD. As over half of the participants responded that their level of prior knowledge was "moderate," presenters were able to prepare content aimed for an audience with some existing knowledge of ASD for their lectures. Results are shown in Figure 3.

Topics of interest regarding ASD. Again, to better understand the audience, participants were asked what they would like to learn from the workshop. These data were forwarded to the presenters in advance of the workshop to inform their presentations. They also serve as a guide for future training. Diagnosis and identification were the top priorities for 29% of the audience. Results are shown in Figure 4.
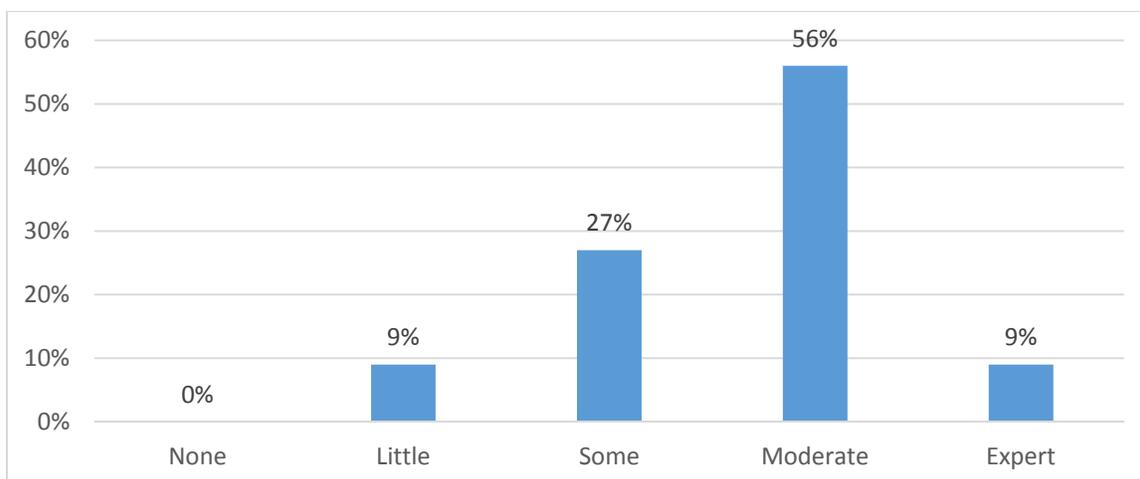
Figure 3. Prior knowledge in ASD. At registration, participants (*n*=70) were asked about self-perceived level of prior knowledge of ASD.
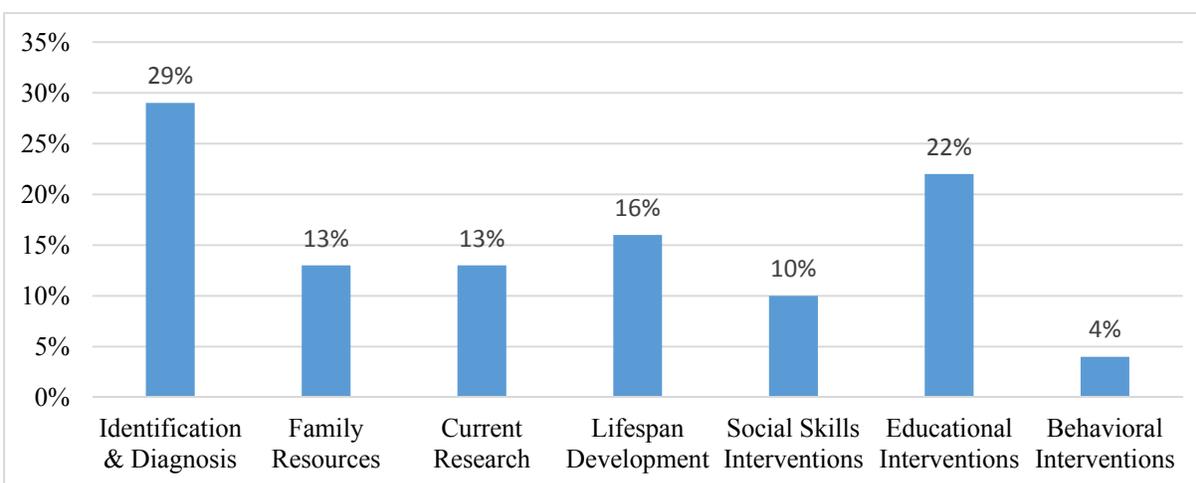
Figure 4. Topics of interest regarding ASD. At registration, participants (*n*=68) were asked what they hope to learn about ASD.

Frequency working with an interdisciplinary team. Because a main focus of the workshop was using an interdisciplinary approach to ASD care and education, we wanted to know how often participants worked in an interdisciplinary team. The majority of participants (78%) were shown to work within interdisciplinary teams at least monthly, confirming that an interdisciplinary approach to training was appropriate for the audience. Results are shown in Figure 5.
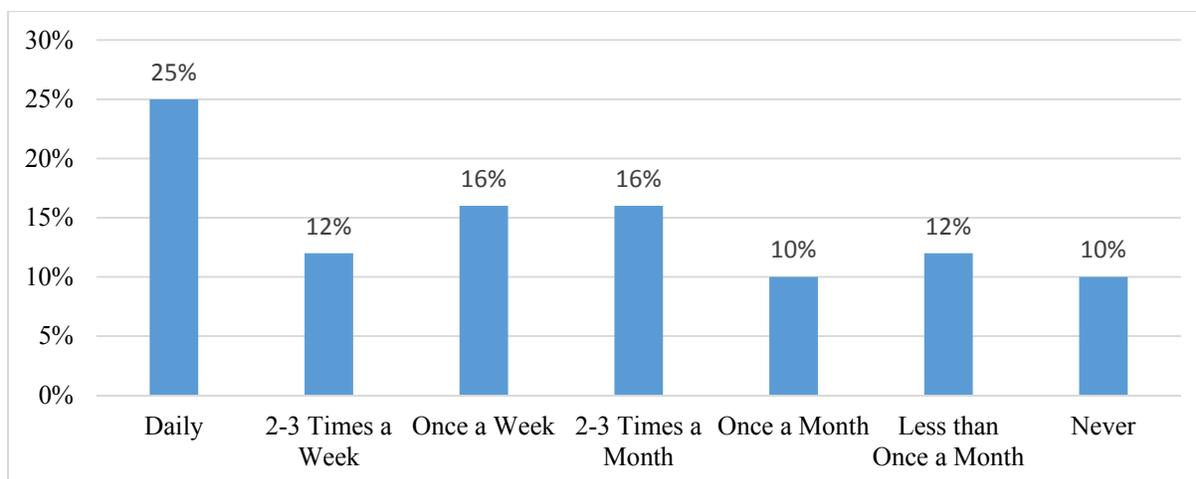
Figure 5. Frequency working with an interdisciplinary team. At registration, participants (*n*=69) were asked how often they work in an interdisciplinary team.

Comfort in referrals outside of discipline. After finding out how often participants work in an interdisciplinary team, we wanted to know how comfortable they felt making referrals outside their disciplines. This question was also asked at post and follow-up. The majority of respondents (86%) were comfortable or neutral. Results are shown in Figure 6.

Barriers to implementation of best practices. We wanted to know about the barriers professionals face when implementing best practices in ASD. Participants indicated a lack of training opportunities and lack of resources as the two most frequently selected answers. This information was relevant to us as the workshop is one way we are trying to overcome some of the barriers. Information regarding barriers was collected later at both the post-workshop and follow-up. The barrier most frequently identified prior to the workshop was lack of training opportunities (31% of respondents). Lack of resources (21%) and lack of time (20%) were also indicated at reasons. Results are shown in Figure 7.
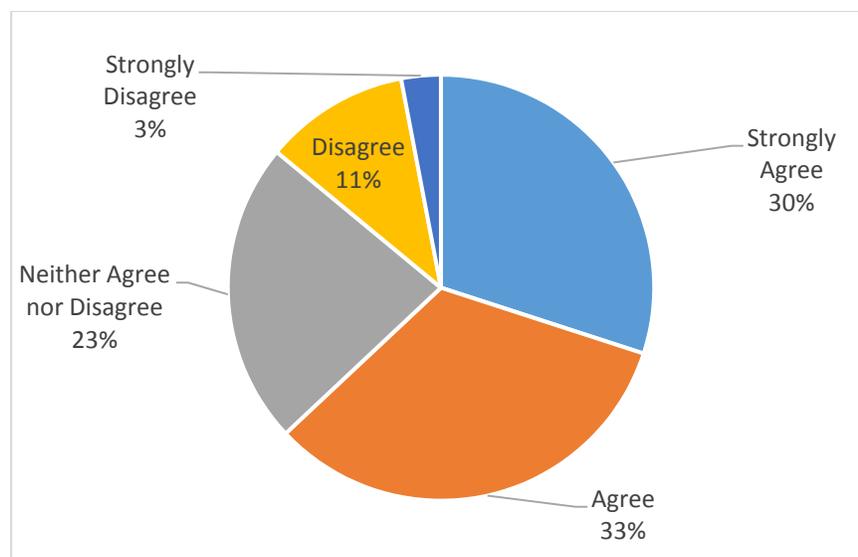
Figure 6. Comfort in referrals outside of discipline. At registration, participants (*n*=70) were asked if they feel comfortable making referrals outside of his/her discipline.
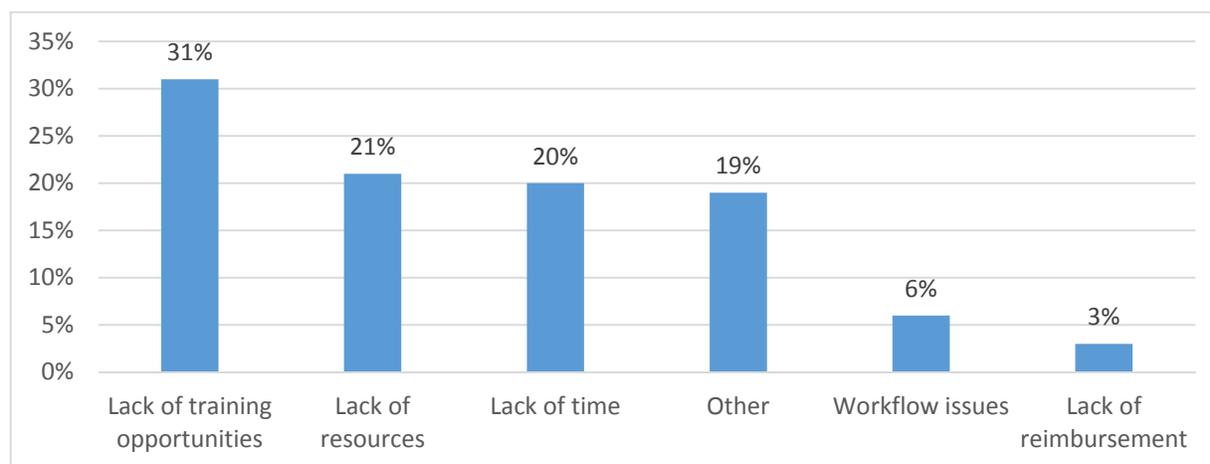

Figure 7. Barriers to implementation of best practices. At registration, participants (*n*=70) were asked to identify the barriers to implementation of best practices in ASD for them.

Practice-Related Outcomes

The following is data collected at the conclusion of the workshop. For each question asked, the data is presented first with the responses from in-person participants followed by the responses of the online participants.

Perceived Barriers Post-Workshop. Participants were asked about their perceptions of barriers of implementation of best practices in ASD. We wanted to see if there was any change from the registration data to the post data collected at the conclusion of the workshop separated by the delivery method. At registration, more participants indicated the most common barrier was a lack of training. However, at post, both the in-person and online participants indicated lack of resources as their biggest barrier (45% of in-person and 47% of online respondents). At registration, the second biggest barrier indicated was lack of resources. Post-workshop, the in-person group indicated lack of training opportunities and the online group indicated lack of time. Figures 8 and 9 show details on other barriers.
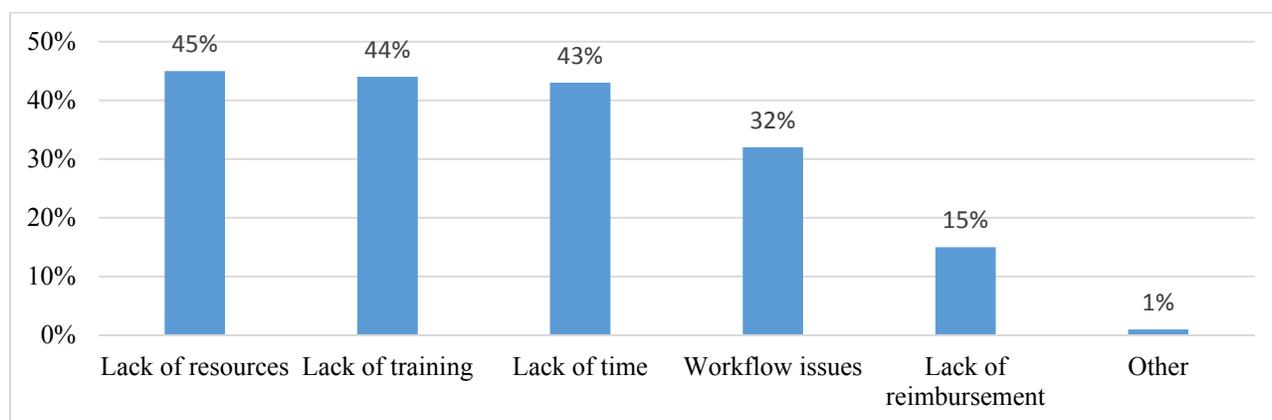
Figure 8. Perceived barriers, in-person. Directly after the workshop, in-person participants (*n*=87) were asked what barriers they experience in implementing best practices in ASD.
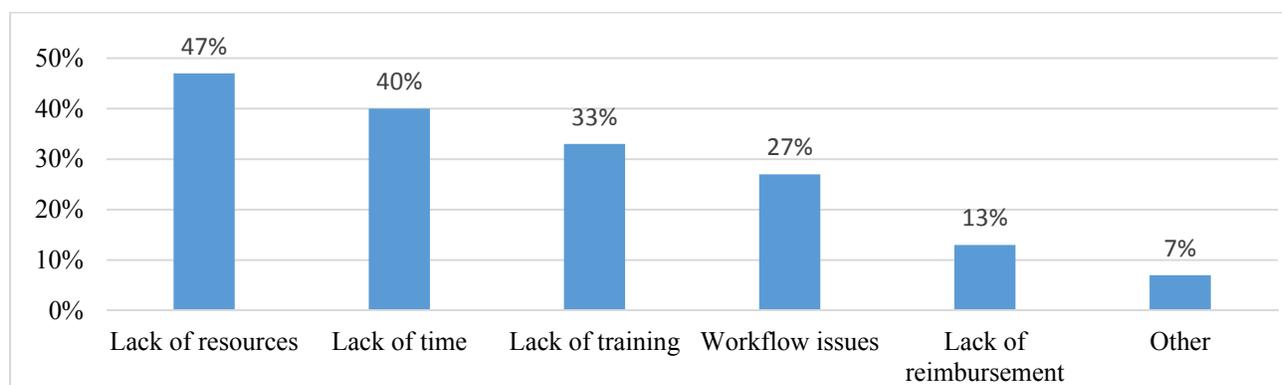
Figure 9. Perceived barriers, online. Directly after the workshop, online participants (*n*=15) reported perceived barriers in implementing best practices in ASD.

Value of an interdisciplinary approach. As this workshop was focused on using an interdisciplinary approach, we wanted to know more about participants' perceptions following the workshop of using an interdisciplinary approach to ASD. Of the in-person participants, 97% agreed that an interdisciplinary approach is valuable. Of the online participants, 100% agreed that an interdisciplinary approach is valuable. Figures 10 and 11 show results.
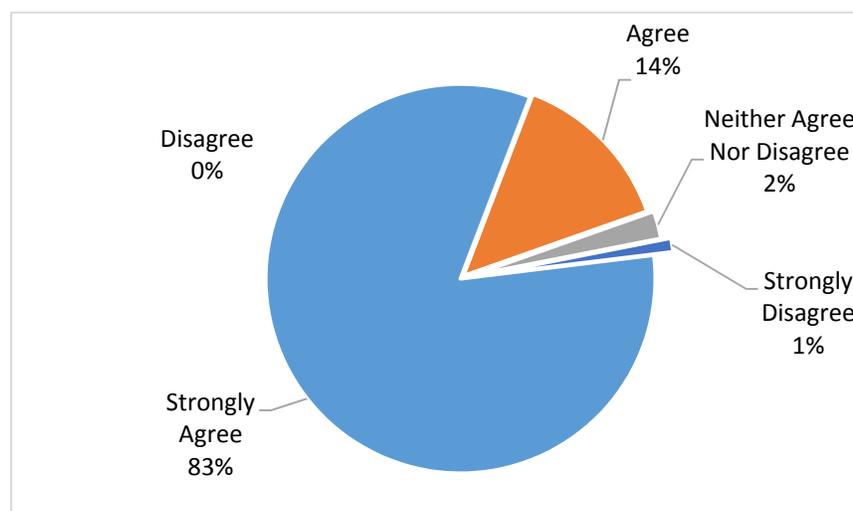

Figure 10. Value of an interdisciplinary approach, in-person. In-person participants (*n*=87) were asked if an interdisciplinary approach to ASD is valuable.
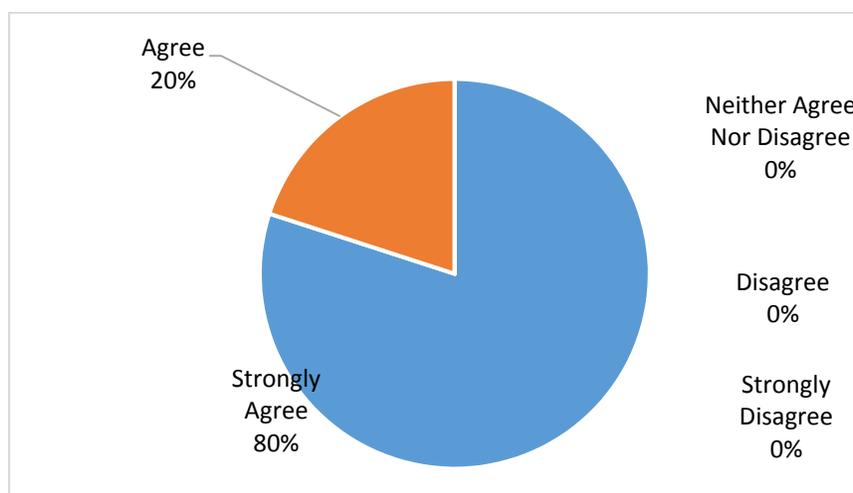
Figure 11. Value of an interdisciplinary approach, online. Online participants (*n*=15) were asked if an interdisciplinary approach to ASD is valuable.

Comfort with referrals. At registration, 66% of participants indicated they agreed (both strongly agreed and agreed) that they felt comfortable making referrals outside of their disciplines. Post-workshop, 84% of in-person participants agreed and 87% of online participants agreed. At registration, 23% neither agreed nor disagreed. Post-workshop, 15% of in-person participants and 13% of online participants neither agreed nor disagreed. At registration, 14% of participants indicated the disagreed (strongly disagreed or disagreed) that they felt comfortable making referrals outside of their discipline. Post-workshop, 1% of in-person participants and no online participants disagreed. Figures 12 and 13 show results.

New information presented. We wanted to understand if participants perceived that they were presented with new information at the workshop. Of in-person participants, 97% agreed, 2% neither agreed nor disagreed, and 1% disagreed. Of online participants, 86% agreed, 7% neither agreed nor disagreed, and 7% disagreed. Figures 14 and 15 show results.

Interest in further training. At registration, 85% of participants agreed that they had a need for continuing education, 11% neither agreed nor disagreed, and 4% disagreed. Post-workshop, 92% of in-person participants agreed they were interested in further training in best practices in ASD and 8% neither agreed nor disagreed. Of online participants, 73% agreed they were interested in further training and 27% neither agreed nor disagreed. Figures 16 and 17 show results.

Social Validity Outcomes

Worth the time. Since the workshop was targeted at working professionals and held during the work week, we assumed that many took the day from work to attend the workshop. We wanted to know if participants found the workshop worth their time. Of the in-person

participants, 91% agreed it was worth their time and 9% neither agreed nor disagreed. Of the

online participants, 100% agreed it was worth their time. Figures 18 and 19 show results.
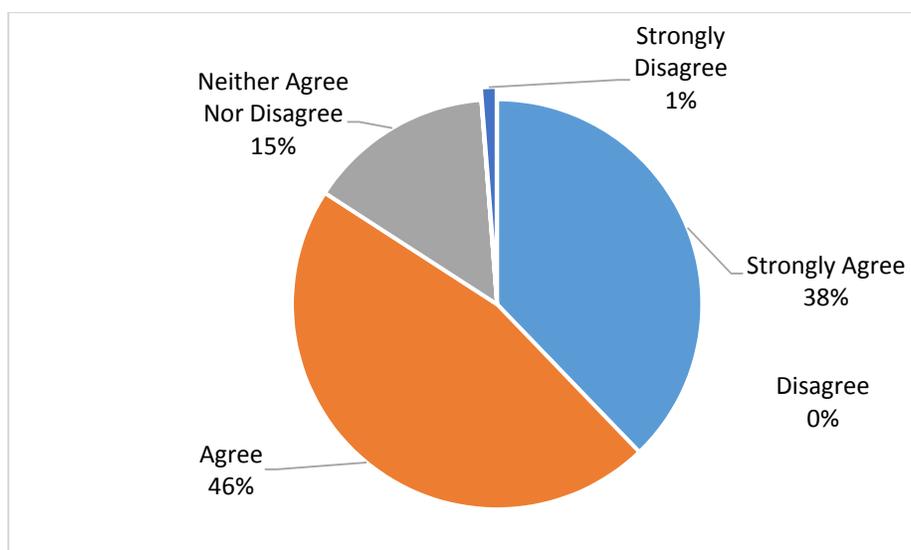

Figure 12. Comfort with referrals, in-person. Following the workshop, in-person participants (*n*=82) were asked if they feel comfortable making referrals outside of their disciplines.
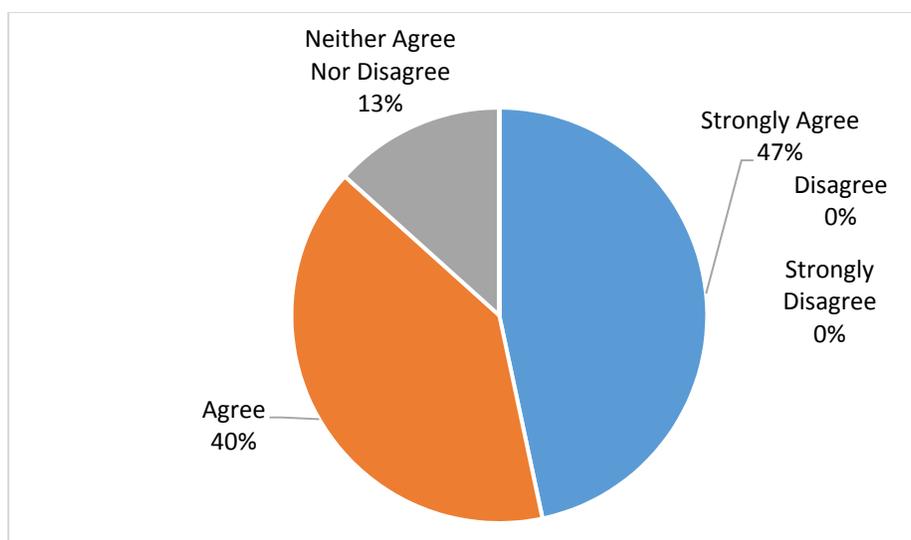

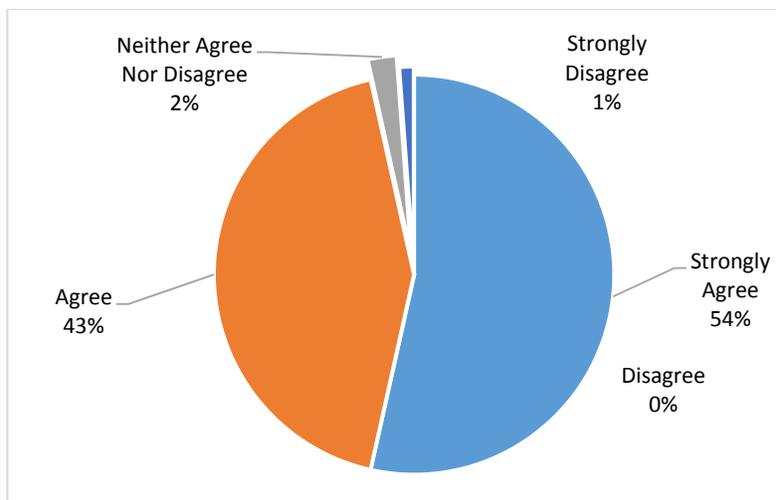*Figure 13.* Comfort with referrals, online. Following the workshop, online participants (*n*=15)were asked if they feel comfortable making referrals outside of their disciplines.

Figure 14. Presented with new information, in-person. In-person participants (*n=86*) were asked if they were presented with new information at the workshop.
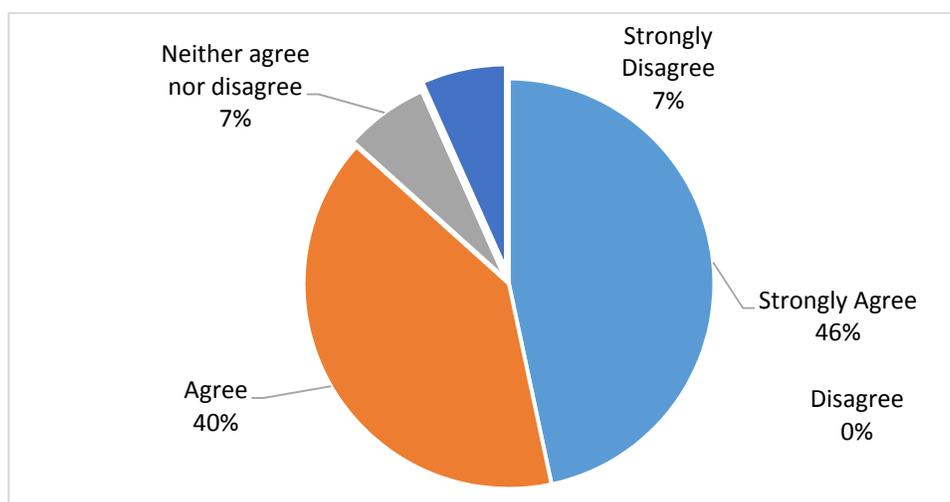
Figure 15. Presented with new information, online. Directly following the workshop, online participants (*n= 15*) were asked if they were presented with new information at the workshop.
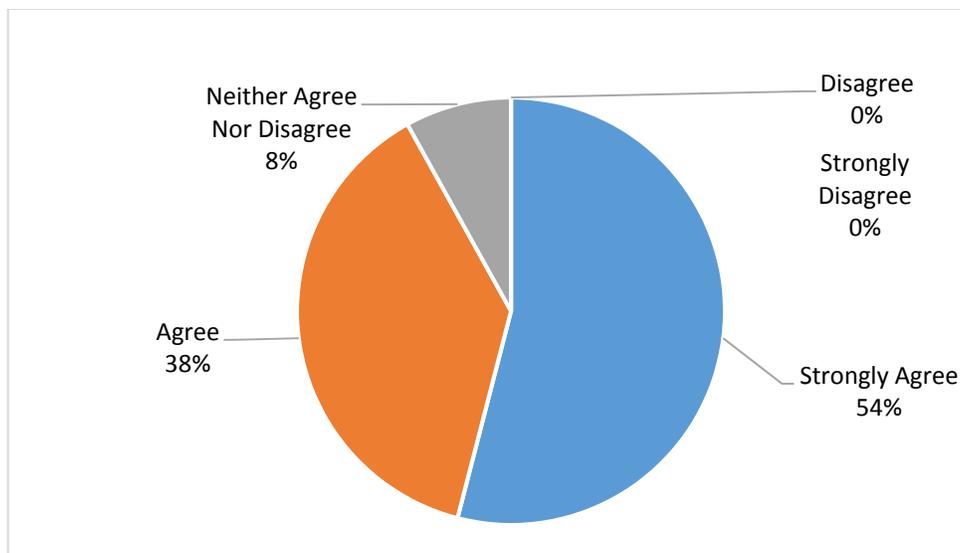
Figure 16. Interest in further training, in-person. In-person participants (*n*=87) were asked if they are interested in further training best practices in ASD.
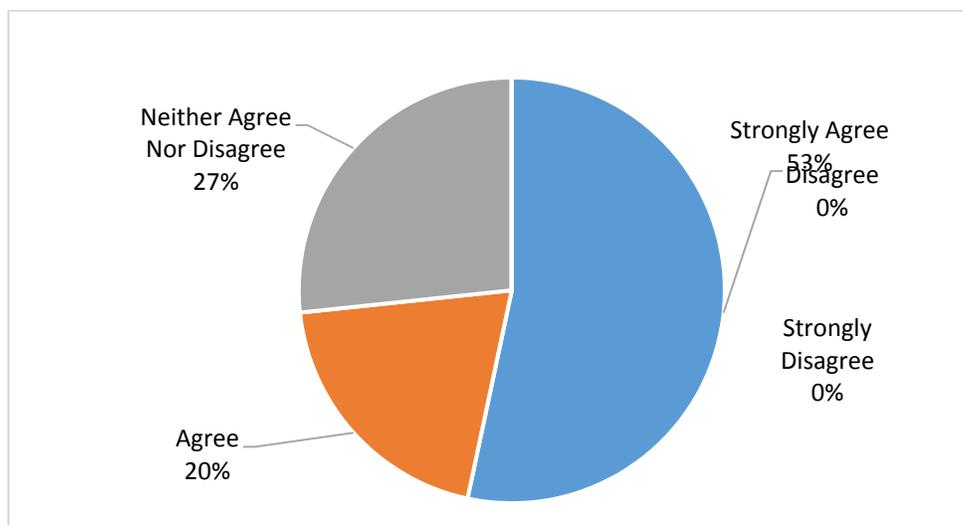

Figure 17. Interest in further training, Online. Online participants (*n*=15) were asked if they are interested in further training in best practices in ASD.
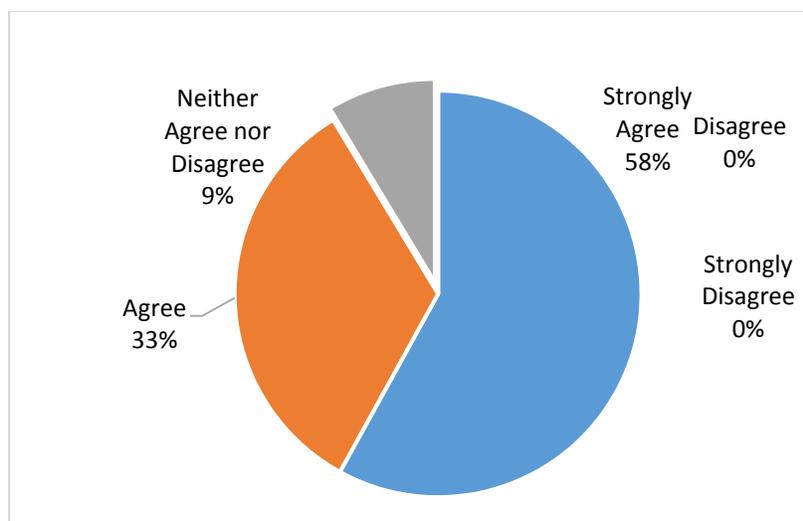
Figure 18. Worth the time, in-person. Of the in-person participants (*n*=81), 58% strongly agreed the workshop was worth their time and 33% agreed while 9% of participants neither agreed nor disagreed.
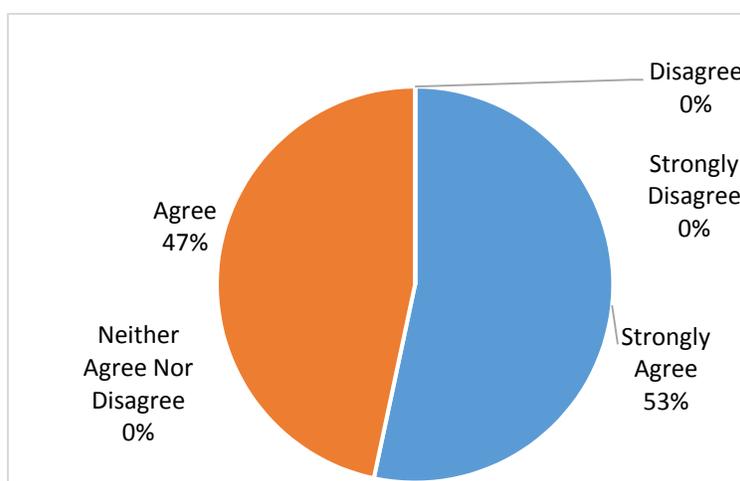

Figure 19. Worth the time, online. Of the online participants (*n*=15), 100% of participants agreed the workshop was worth their time. 53% strongly agreed and 47% agreed.

Recommend to others. We wanted to know if participants would recommend the workshop to others as a measure of satisfaction with the workshop experience. Of the in-person participants, 91% agreed they would recommend the workshop to others and 8% neither agreed nor disagreed. Of the online participants, 100% agreed they would recommend the workshop to others. Figures 20 and 21 show results.
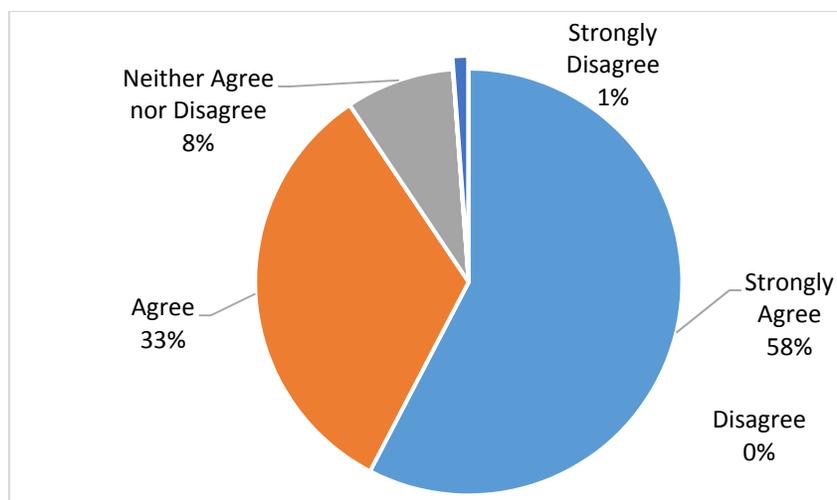
Figure 20. Recommend to others, in-person. To assess social validity, in-person participants (*n*=85) were asked if they would recommend this workshop to others.
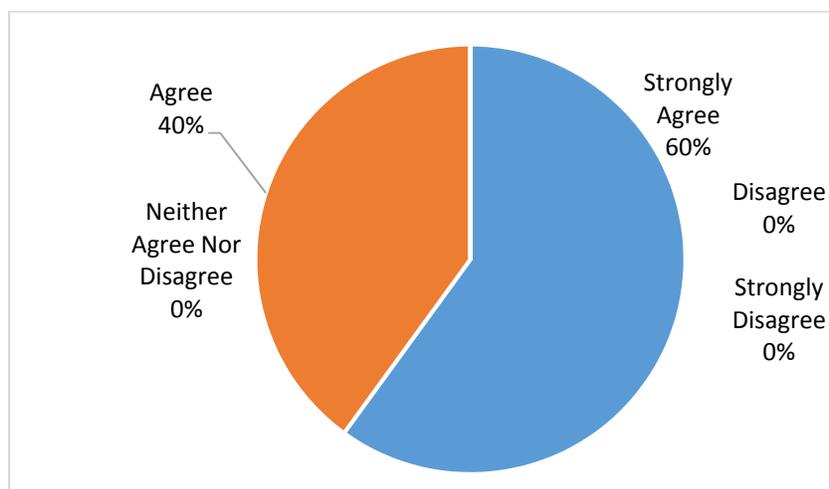

Figure 21. Recommend to others, online. To assess social validity, online participants (*n*=15) were asked if they would recommend the workshop to others.

Online and In-Person Preference Outcomes

Selection of delivery method. To understand if certain delivery methods drew certain participants for specific reasons, we asked participants why they selected the version they did. Of the in-person participants, the most frequently selected answer (72%) was that they had a preference for in-person. Of the online participants, scheduling reasons (47%) and distance

(47%) were the most commonly selected answers with 6% indicating a preference for an online
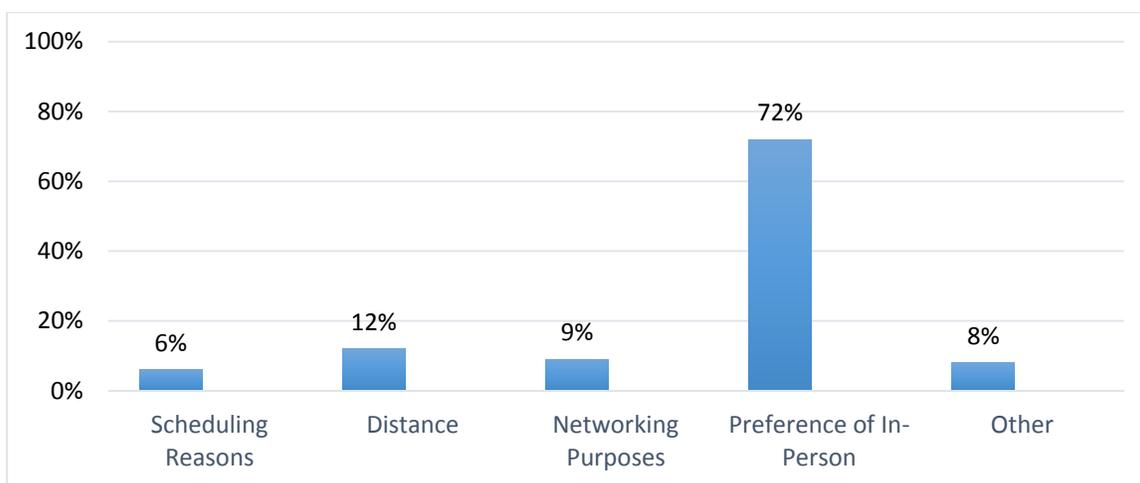
delivery.   Figures 22 and 23 show results.

Figure 22. Why the selected delivery method, in-person. In-person participants (*n*=89) were asked why they selected to participate in the workshop in-person.
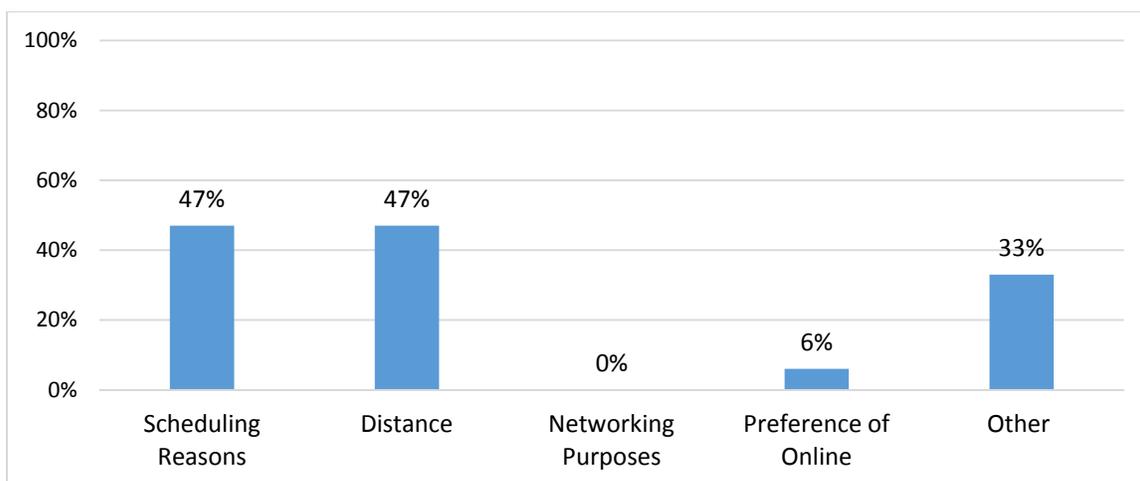

Figure 23. Why the selected delivery method, online. Online participants (*n*=15) were asked why they selected to participate in the workshop online.

Preference for future workshop delivery method. To assist in the planning of future

workshops, participants were asked which delivery method they would prefer in the future. Of

the in-person participants, 96% would prefer to participate in-person with 3% online. Of the

online participants, 67% would prefer to participate online and 33% indicated they would prefer

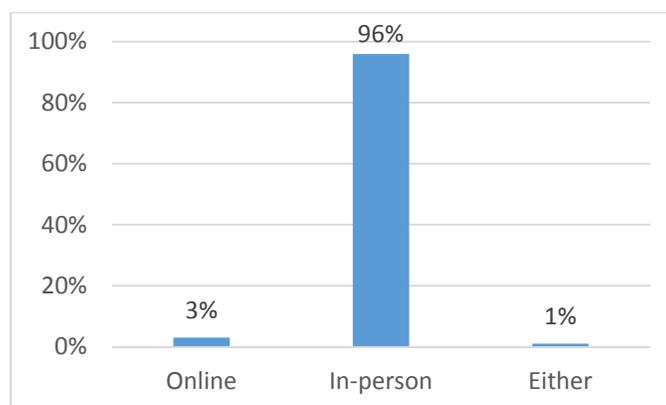to participate in-person. Figures 24 and 25 show results.

Figure 24. Preference for future workshop delivery method, in-person. Immediately following the workshop, in-person participants (*n*=78) responded they would prefer to participate in future workshops in-person, online, or either delivery method.
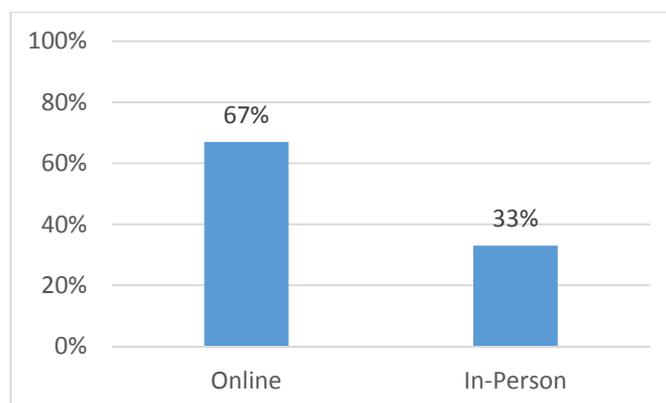

Figure 25. Preference for future workshop delivery method, online. Immediately following the workshop, online participants (*n*=15) reported that 67% would prefer to participant online while 33% would prefer to participate in-person.

Follow Up

Two months after the workshop, all workshop registrants were invited to participate in

the follow-up survey. A link to the Qualtrics survey (Appendix D) was emailed to all registrants.

Perceived barriers at follow-up. Participants were asked about their perceptions of

barriers of implementation of best practices in ASD. We wanted to see if there was any change

from the registration data to the post-workshop data to follow-up. At registration, participants indicated their biggest barrier was a lack of training. Post-workshop, both the in-person and online participants indicated lack of resources as their biggest barrier. At follow-up, in-person participants indicated lack of time as a barrier and the online participants were split evenly between lack of time, lack of training, workflow issues, and lack of resources. Figures 26 and 27 show results.
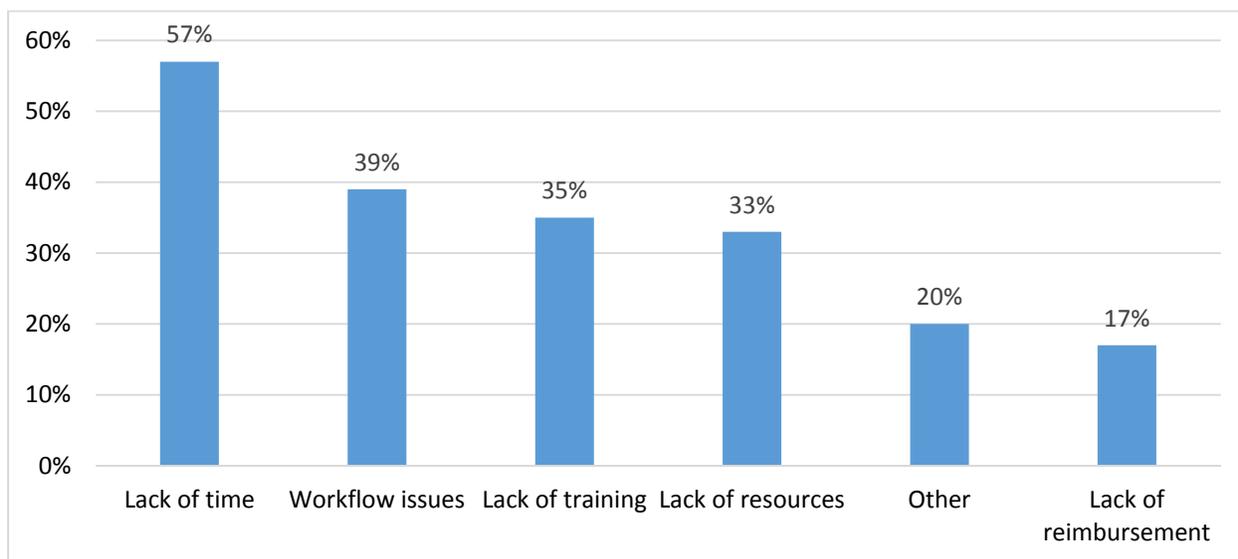

Figure 26. Perceived barriers at follow-up, in-person. At follow-up, in-person participants (*n*=46) were asked what barriers they experience in implementing best practices in ASD.
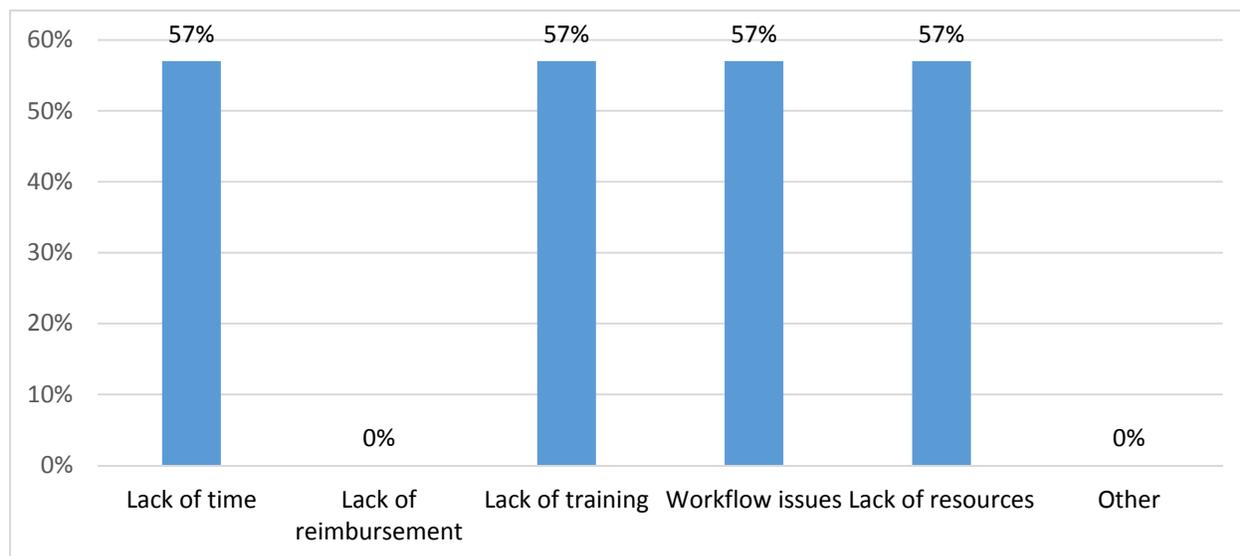
Figure 27. Perceived barriers at follow-up, online. At follow-up, online participants (*n*=7) were asked what barriers they experience in implementing best practices in ASD.
Note. Although the results look identical, the four respondents of each of the items above were not necessarily the same individuals.

Confidence working with children with ASD. At follow-up, participants were asked if they felt more confident working with children with ASD because of the workshop. At follow-up, 65% of in-person participants indicated they felt more confident, 28% "maybe" felt for confident, and 7% were undecided. Of the online participants, 83% said they felt more confident working with children with ASD because of the workshop and 17% responded "maybe", and no one responded not feeling more confident. Figures 28 and 29 show results.

Changes in practice. At follow-up, participants were asked to self-report if any changes in practice were made in response to participating in the workshop. Of in-person participants, 70% said they made changes, 26% said no, and 4% selected "other." Participants that selected other were able to enter text describing why they selected "other." Only one participant filled in the text after "other" indicating he/she has not seen any clients with ASD in his/her practice since the workshop. Figures 30, 31, and 32 show results.

Number of referrals. At registration, 66% of participants indicated they agreed (both strongly agreed and agreed) that they felt comfortable making referrals outside of their disciplines. Post-workshop, 84% of in-person participants agreed and 87% of online participants agreed. At follow-up, participants were asked about the number of referrals to other disciplines in ASD cases. Of in-person participants, 70% indicated the number of referrals to other disciplines has stayed the same whereas 28% indicated their referrals have increased. Of the online participants, 57% of participants indicated their number of referrals has stayed the same whereas 28% indicated an increase. Figures 33 and 34 show results.
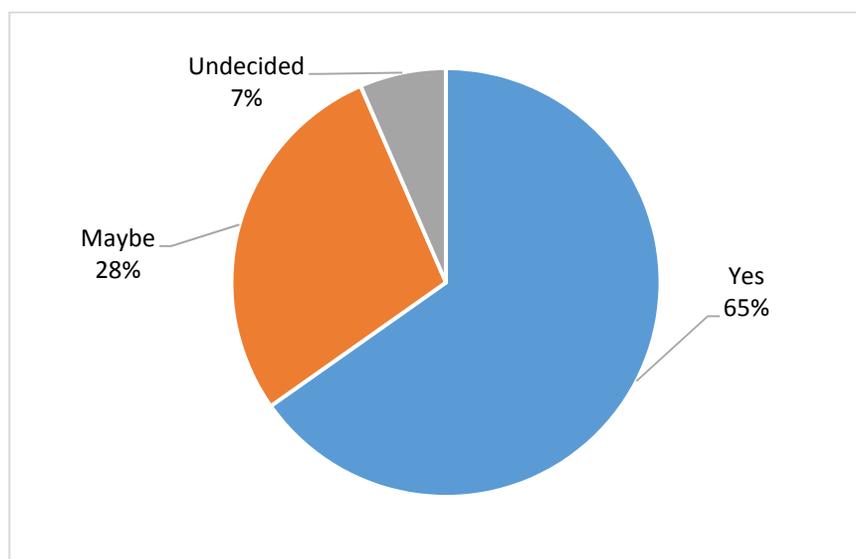

Figure 28. Confidence working with children with ASD, in-person. In-person participants (*n*=46) reported if they feel more confident working with children with ASD because of the workshop.
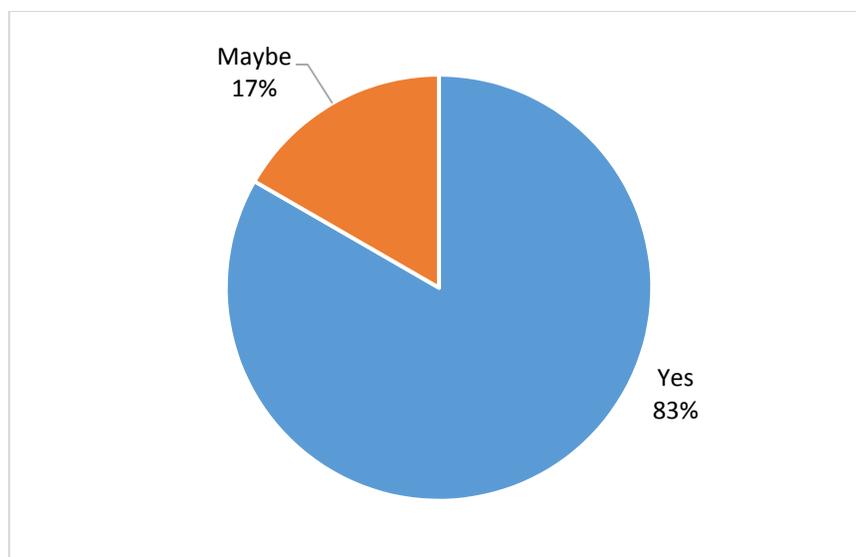
Figure 29. Confidence working with children with ASD, online. Online participants (*n*=6) reported if they feel more comfortable working with children with ASD because of the workshop.

Figure 30. Changes in practice, in-person. In-person participants (*n=46*) reported whether or not they made changes in their practice due to participation in the workshop.
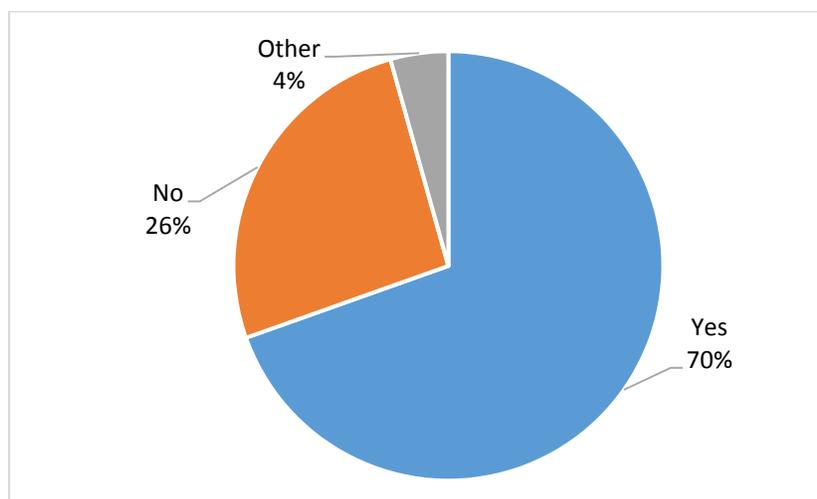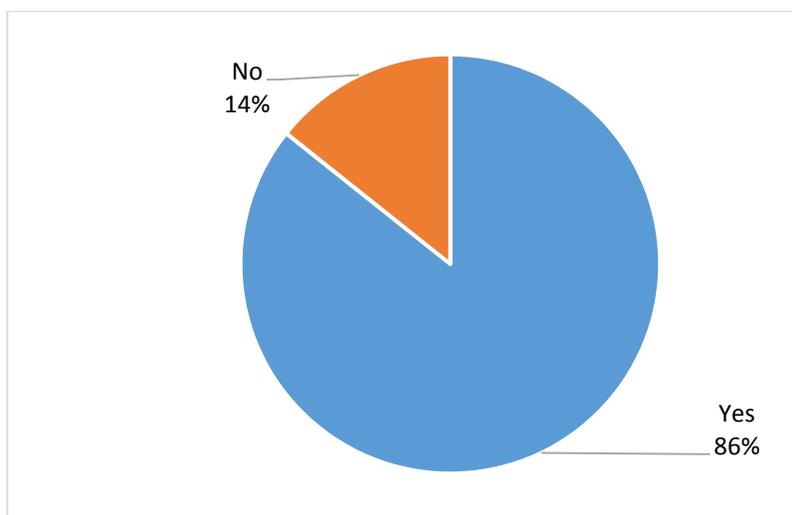
Figure 31. Changes in practice, online. Online participants (*n*=7) reported whether or not they made changes in their practice due to participation in the workshop.
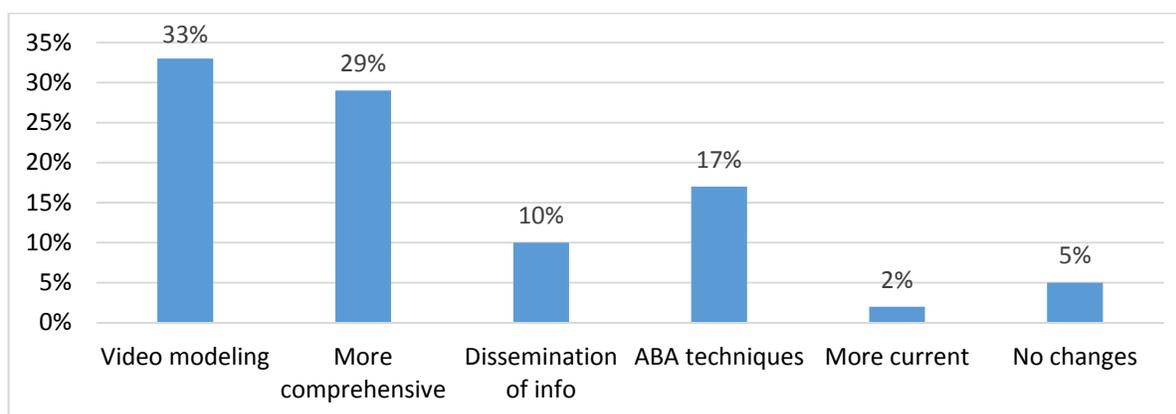

Figure 32. Changes in practice, in-person and online. In-person and online participants (*n*=42) describe changes in practice made following the workshop.
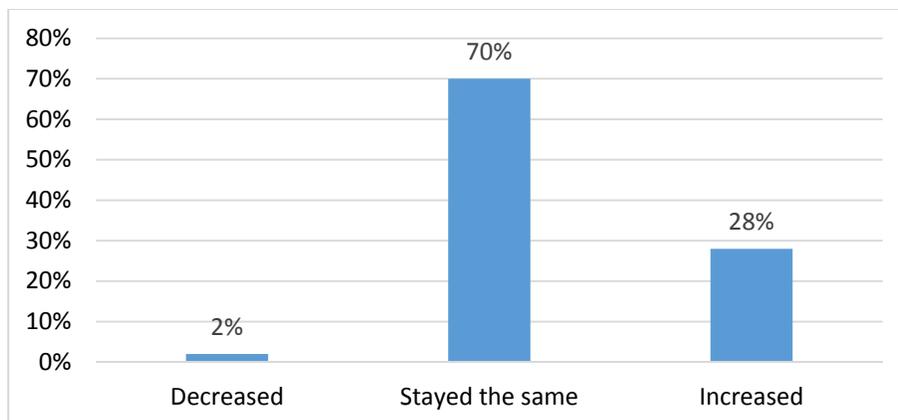
Figure 33. Number of referrals since workshop, in-person. Since the workshop, in-person participants (*n*=46) report changes in amount of referrals to other disciplines.
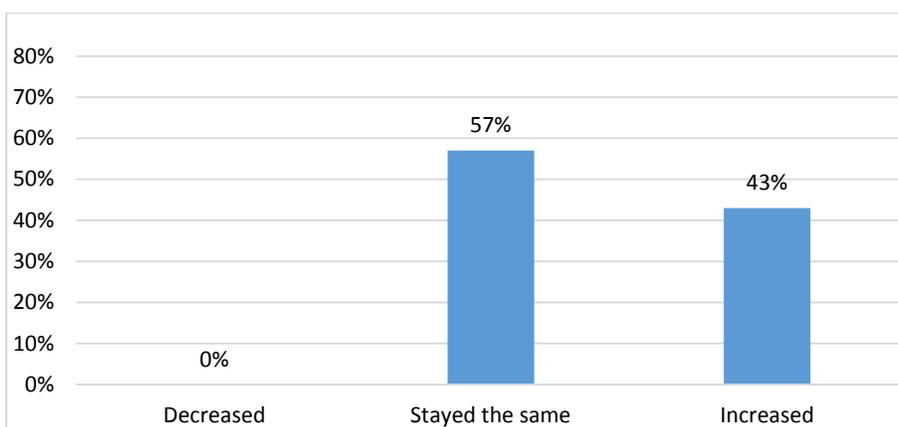
Figure 34. Number of referrals since workshop, online. Since the workshop, online participants (*n*=7) report changes in amount of referrals to other disciplines.

Interest in further training. To further understand the need for continuing education, two months after the workshop participants were asked if they were interested in further training in ASD best practices. Of the in-person participants, 91% said yes, 9% were undecided, and no participants said they were not interested. Of the online participants, 72% indicated they were interested, 14% were unsure, and 14% said they were not interested. Figures 35 and 36 show results.
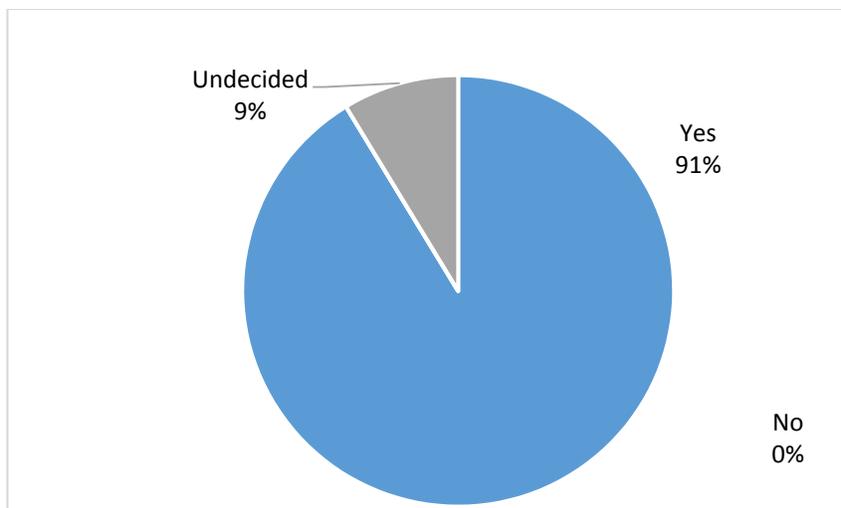
Figure 35. Interest in further training at follow-up, in-person. In-person participants (*n*=7) report interest in further training in ASD best practices.
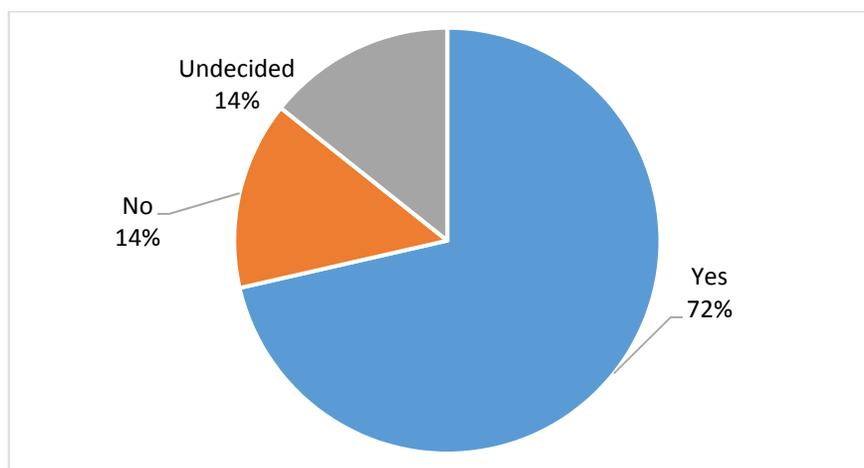
Figure 36. Interest in further training at follow-up, online. Online participants (*n*=7) report interest in further training in ASD best practices.
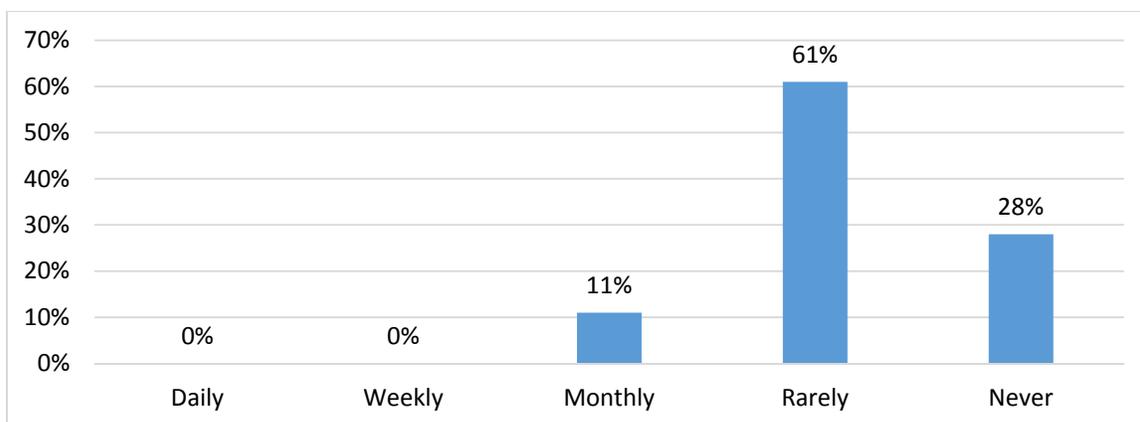
Figure 37. Website access, in-person. In-person participants (*n*=46) report how often they access the website.
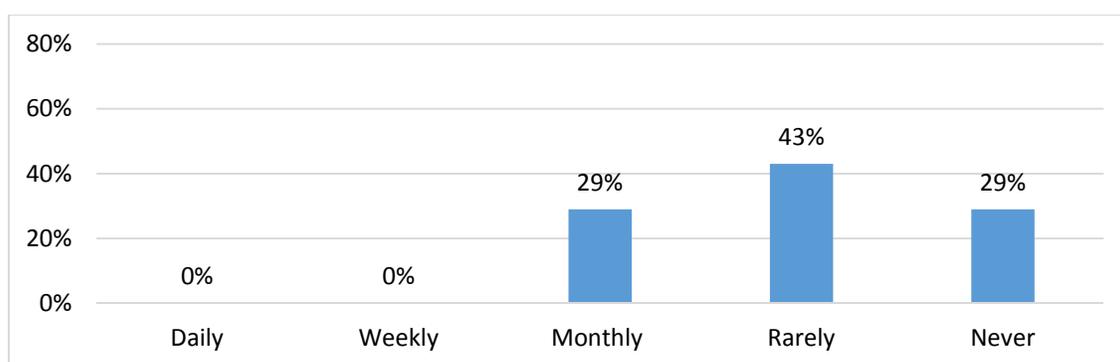
Figure 38. Website access, online. Online participants (*n*=7) report how often they access the website.

Online resources. In an effort to address and understand the lack of resources barrier, we wanted to know which resources available on the website are most and least helpful to participants. Figures 39 and 40 show results.

Most helpful. Both the in-person and online participants indicated the most helpful resource found on the website was "Working with ASD." This section includes many toolkits useful in working with ASD such as information regarding autism applications for smartphones, autism training modules, and information from the Autism Speaks organization among other information.

Least helpful. In-person participants (53%) and online participants (29%) indicated the least helpful resource was vaccine information. This section includes links to articles regarding the safety of vaccines and how they do not cause ASD.
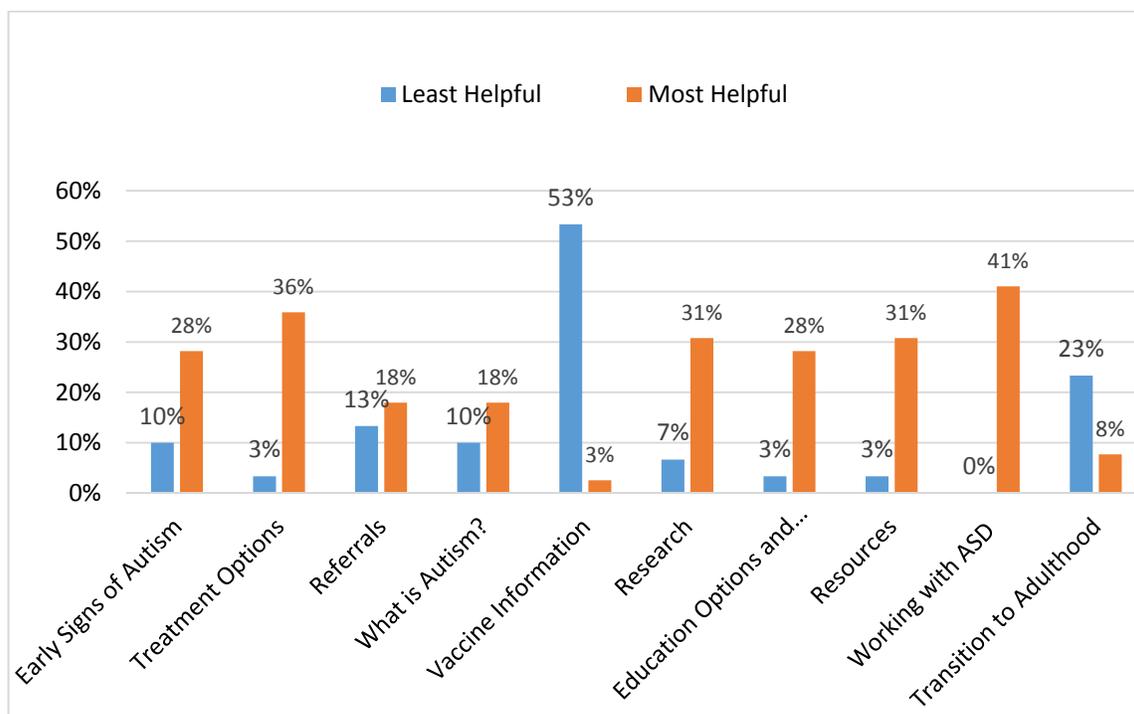
Figure 39. Online resources: least and most helpful, in-person. In-person participants (*n*=39) were asked which online resources they found the least helpful along with which they found the most helpful.
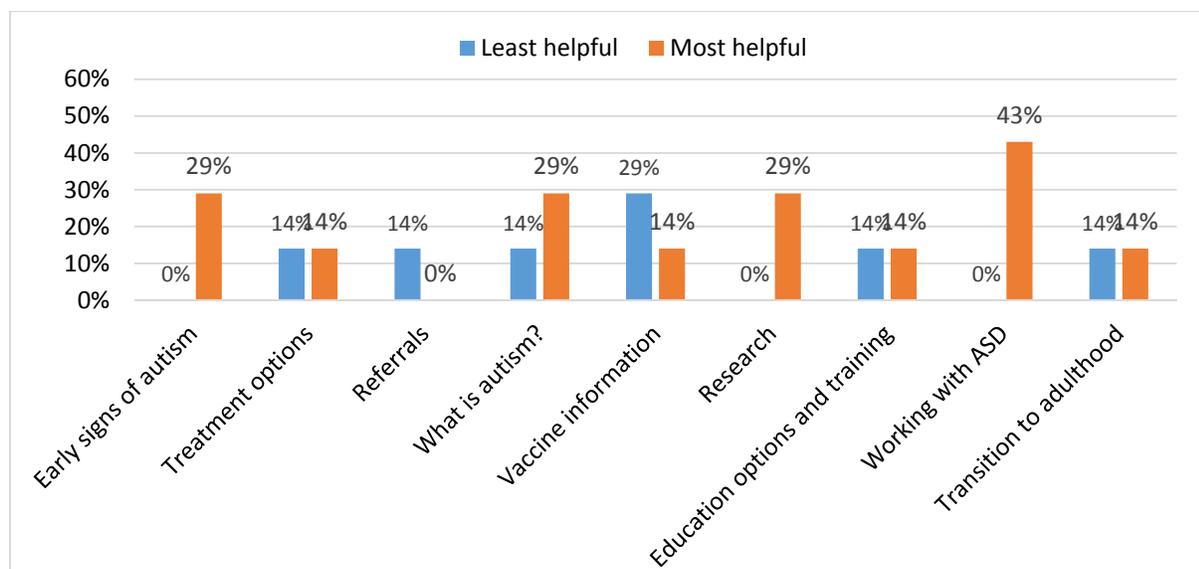
Figure 40. Online resources: least and most helpful, online. Online participants (*n*=7) were asked which online resources they found the least helpful along with which they found the most helpful.

Changes in Perception Over Time

Barriers. As data was collected regarding the barriers of best practices in ASD was collected at all three surveys, we wanted to know if participants perceptions of barriers changed throughout the process. At registration, participants indicated lack of training followed by lack of resources and lack of time most frequently as barriers. Post-workshop, in-person participants' biggest barrier was lack of resources. At follow-up the biggest barrier indicated was lack of time. For the online participants, post-workshop, the biggest barrier indicated was lack of training opportunities. At follow-up, lack of training opportunities, lack of resources, lack of time, and workflow issues were all indicated as the biggest barriers.

Continuing education. At registration, 85% of participants indicated they have a need for continuing education in ASD, 4% indicated they had no need, and 11% were undecided. Post-workshop, 82% of in-person participants indicated they were interested in further training and 8% were undecided while 73% of online participants indicated interest in further training

and 27% were undecided. At follow-up, 91% of in-person participants were interested in further training with 9% undecided. Of the online participants, 72% were interested, 14% had no interest, and 14% were undecided. These results were largely unchanged across time, and are not represented graphically. Results are shown in Figures 41 and 42.

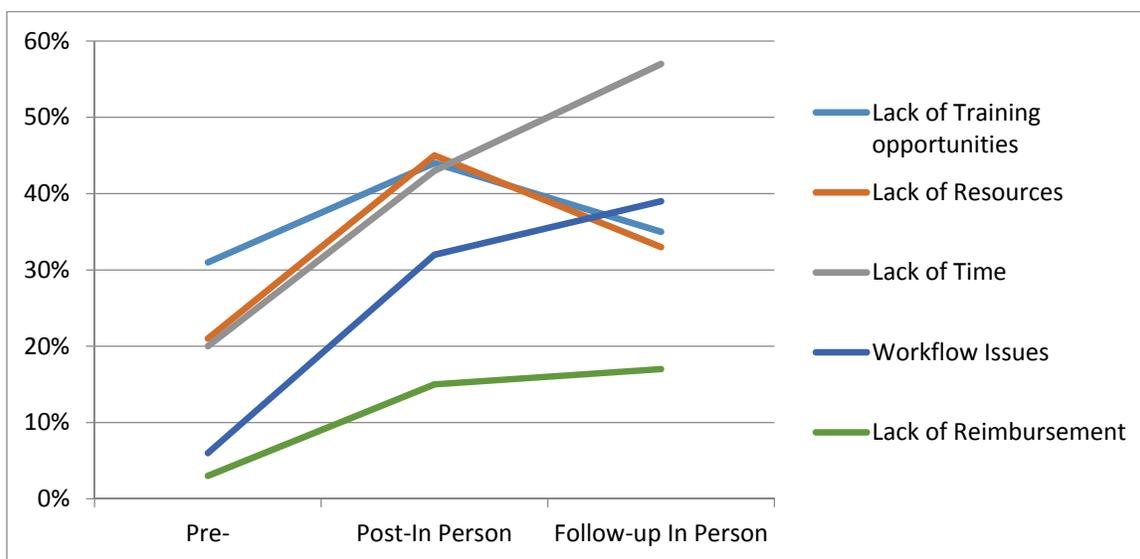*Figure 41.* Barriers over time, in-person. In-person participants report at registration, post-workshop, and follow-up the barriers of best practices in ASD.
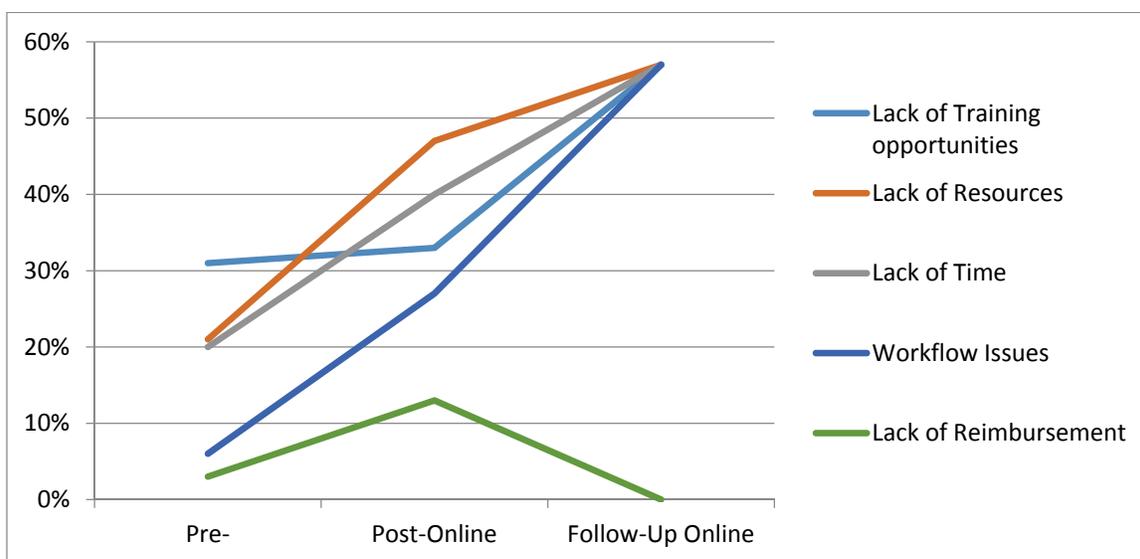

Figure 42. Barriers over time, online. Online participants report at registration, post-workshop, and follow-up the barriers of best practices in ASD.

DISCUSSION

Changes in Practice

Most importantly, this study suggests that a one-day training can encourage professionals to make changes in their practice regardless of delivery model. Two months after the workshop, 70% of in-person participants and 86% of online participants self-reported changes in their practices. Of these participants, 33% indicated they have begun using video modeling, 29% reported their practice is now more comprehensive due to participation in the workshop, 17% have implemented various ABA techniques, 10% have disseminated information from the workshop, and 2% reported using more current approaches. With 97% of in-person participants and 86% of online participants agreeing that they were presented with new information the study also shows the importance training to bring professionals "up to speed" on best practices.

Increase in Confidence in Working with Children with ASD

Because confidence can come from increased knowledge and skills, it is likely that the more confident a professional feels in his/her abilities, the more confidence the family will have in the care their child is receiving. As it has been documented that families with ASD do not always feel confident in their providers' ability to meet the needs of their children with ASD (Carbone et al., 2013; Strunk, Picker, McCain, Ameringer, & Myers, 2014), it was important for us to assess providers' level of confidence as an outcome of training. At follow-up, 65% of in-person and 83% of online participants indicated they feel more confident working with children because of their participation in the workshop.

More Comfort in Referrals

In addition to changes in practice, participants reported an increase of comfort of making referrals outside of their disciplines, which illustrates the value of using an interdisciplinary

approach. At registration, 66% of all participants indicated they were comfortable making a referral outside of their discipline. Following the workshop, this number grew to 84% of in-person participants and 87% of online participants. This demonstrates that not only are participants trained in the workshop more confident in working with children with ASD but they also are more comfortable making referrals outside of their disciplines. Such interdisciplinary referrals may increase access to appropriate care for individuals with ASD.

Need for Training Exists

At registration, 85% of participants indicated a need for continuing education in ASD. This sentiment was repeated post-workshop when 92% of in-person and 73% of online participants indicated further interest in training in best practices. At follow-up, this was confirmed again when 91% of in-person participants and 72% of online participants reported they were interested in further training. This trend clearly demonstrates that professionals are willing and interested in pursuing more training in best practices in ASD.

Strengths

This study had several strengths. The first is that we were able to attract a wide variety of professionals in moderate numbers to a new training opportunity within a relatively short turnaround time--planning for the workshop began in mid-December 2013, advertising and registration began in March 2013, and the workshop was held May 2014. The ability to attract a large number of professionals is likely to be related to the design of an affordable, accessible training opportunity for professionals from Utah and surrounding states. Additionally, the social validity seemed strong and we had a high in-person response rate post-workshop (71%).

Limitations

There were several limitations in our study. First, the number of participants in the online delivery method was much lower than expected, proportionally, making meaningful analysis of differences between the two delivery methods inappropriate. Next, as each survey was not tracked by participant, there is no way to know if the same participants participated in all three surveys, thus making analysis of changes over time less detailed. Additionally, the same questions were not asked across all three surveys making it difficult to compare the same data across surveys. For example, participant demographics data were erroneously omitted at follow-up, which could not be remedied when discovered. Also, there was a significant drop out rate of participation at follow-up.

Initially, we also wanted to consider data regarding participants' utilization of the associated website and track hits to various resources by profession and location. This was intended to be a measure of dissemination of influence following the workshop. The data we collected were not clean regarding geographic location due to differences in Internet provider services and related IP addresses. Use of the website resources was reported to be very low, also reducing potential value of the data. Also, online learning options would ideally include implementation of an online learning community, but due to the nature of the workshop (one day), there was not time to build an online community.

Directions for Future Study

Our research could be used to guide the creation of similar training efforts in other areas in which researchers could gather similar data to understand the needs of professionals in their targeted audience. Although we had participants online, the workshop did not provide opportunities to develop a true online community for either professionals or families. Future

studies could incorporate these efforts to study longer term effects of online delivery of training. Additionally, our study was focused on training for professionals, but families may also benefit from one-day training either in person or online.

Implications

Brief training can be effective way to meet training needs in an affordable manner. A one-day workshop can benefit professionals across disciplines without requiring extended absence from work or excessive cost. The training can result in a change in practice in addition to increasing comfort making referrals across disciplines. Additionally, the social validity was strong and the majority of participants found value in an interdisciplinary approach and were willing to recommend the workshop to others.

A one-day, interdisciplinary training model can produce positive outcomes whether it is delivered in-person or streamed online. By using two successful delivery models, it is possible to ensure the training is affordable (money and time), accessible, and acceptable to participants.

Since the training model used is brief, affordable, accessible, and acceptable to participants, universities, autism advocacy organizations, continuing education professional organizations, or other interested organizations may consider adopting this model for their own training needs. There is clear evidence that professionals want more training in best practices in ASD and we have found one model with two delivery methods that resulted in changes in practice, increased confidence working with children with ASD, increased comfort in referrals, and attempts to meet the need for training.

School psychologists were the largest group represented among disciplines in the collected data. School psychologists are already oriented to an interdisciplinary approach as they work with other members of the special education services teams within schools. It is expected

that interdisciplinary training for school psychologists will further benefit students with complicated and diverse needs in educational environments, including possibly unmet health care needs that are affecting educational performance and attendance at school. As school psychologists are often direct resources for parents and school faculty regarding matters of autism, increasing the knowledge of school psychologists about help that is available from the other disciplines may result in improved outcomes for students and families in educational settings and beyond.

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APPENDIX A
Workshop Outline

Workshop Schedule and Presenters:

8:30 a.m.   Terisa Gabrielsen, PhD, NCSP, Brigham Young University
                Autism Screening, Diagnosis, Social Skills

9:30 a.m.   Teresa Cardon, PhD, CCC-SLP, Utah Valley University
                Language Treatment Video Modeling

10:30 a.m.   Tom Higbee, PhD, BCBA, Utah State University
                ABA and Behavioral Treatment

11:30 a.m.   Lunch

12:15 p.m.   Jocelyn Taylor, MS, CCC-SLP, Utah State Office of Education
                Education and Social Communication Disorder

1:15 p.m.   Deborah Bilder, MD, University of Utah
                Psychopharmacology

2:15 p.m.   Paul Carbone, MD, University of Utah
                Co-morbid conditions – sleep, seizures, etc.

3:15 p.m.   Parent panels with meet the experts (Utah Parent Center)

4:45 p.m.   Wrap up and CME/CE certificates

APPENDIX B
Registration Survey

This questionnaire is part of a research project at BYU entitled Outcomes of Live and Online Continuing Education for Autism, IRB E14109. If you choose to participate in this research, your answers to the questions will be collected, but no personal information will be collected. There is no direct benefit to you, but your participation can help us to know how to best meet the training needs of professionals in autism spectrum disorders. By answering these questions and submitting them online or in person, you are consenting to participation in the research project. If you choose to complete this questionnaire, please follow the directions at the end of the questionnaire to enter your email address in a drawing for an iPad, an iPad mini, or item of similar value. If you have any questions about this research, please contact Terisa Gabrielsen, 801-422-5055, 340-A, MCKB, Brigham Young University, Provo, UT 84602; autism@byu.edu or the IRB Administrator at (801) 422-1461; A-285 ASB, Brigham Young University, Provo, UT 84602; irb@byu.edu.

Practice/Discipline:

_ Physician	_ Speech Language Pathologist	_ Special Education Teacher
_ Nurse		_ Social Worker
_ Psychologist	_ Occupational Therapist	_ Other:
_ School Psychologist	_ General Education Teacher	_____
_ University Faculty		
_ Dentist		

Years in Practice:

_ Student	_ 6-10 Years	_ 16-20 Years
_ 0-5 Years	_ 11-15 Years	_ 21+ Year

Zip Code of Practice: _____

How often do you work with children with Autism Spectrum Disorder (ASD):

_ Daily	_ Rarely	_ Other:_____
_ Weekly	_ Never	
_ Monthly		

I have a need for continuing education in ASD (please circle):
Strongly Disagree   Disagree   Neutral Agree   Strongly Agree
How much prior knowledge do you have in ASD:
None   Very Little   Some   Moderate   Expert

What do you hope to learn about ASD?

What do you hope to learn about other disciplines regarding ASD (roles, intervention strategies, referrals, etc.)?

How often do you work with an interdisciplinary team?
None   Very Little   Some   Moderate   Expert

I feel comfortable making referrals outside my discipline:
Strongly Disagree   Disagree   Neutral Agree   Strongly Agree
How did you hear about this workshop?
   _   BYU
   _   Professional Organization
       o   Which one? _____
   _   Social Media
   _   Word of Mouth
   _   Other: _____
What are the barriers to implementation of best practices in ASD for you?
   _   Lack of time
   _   Lack of reimbursement
   _   Lack of training
   _   Workflow issues
   _   Lack of resources
   _   Other: _____

APPENDIX C
Post Survey

Were you presented with new information (please circle)?

Strongly Disagree   Disagree   Neutral   Agree   Strongly Agree

An interdisciplinary approach to ASD is valuable:

Strongly Disagree   Disagree   Neutral   Agree   Strongly Agree

Was the information presented at an appropriate level?

Strongly Disagree   Disagree   Neutral   Agree   Strongly Agree

How many presentations did you attend?

    Full Day   Individual Presentations

    Half Day

                                             Specify:_____

I am interested in further training in best practices in ASD:

Strongly Disagree   Disagree   Neutral   Agree   Strongly Agree

I will recommend this workshop to others:

Strongly Disagree   Disagree   Neutral   Agree   Strongly Agree

Following the workshop, I feel comfortable making referrals outside my discipline:

Strongly Disagree   Disagree   Neutral   Agree   Strongly Agree

What do you want to know more about?

_____
_____
_____

Suggestions for improvement:

_____
_____
_____

How are you going to apply this in your practice?

_____
_____
_____
_____

Practice/Discipline:

_ Physician	_ Speech Language	_ Special Education
_ Nurse	_ Pathologist	_ Teacher
_ Psychologist	_ Occupational Therapist	_ Social Worker
_ School Psychologist	_ General Education	_ Other:
_ University Faculty	_ Teacher	_____
_ Dentist		

Years in Practice:

_ Student	_ 6-10 Years	_ 16-20 Years
_ 0-5 Years	_ 11-15 Years	_ 21+ Years

Zip Code of Practice: _____

Which method did you participate in?

_ Online   _Live

Why did you select in-person or online?

_ Scheduling reasons
_ Networking purposes
_ Distance

    _ Preference of live
    _ Preference of in-person
    _ Other

This workshop was worth my time.

Strongly Disagree   Disagree   Neutral   Agree   Strongly Agree

For future workshops, I would prefer to participate:

  _Live   _Online

What are the barriers to implementation of best practices in ASD for you?

    _ Lack of time
    _ Lack of reimbursement
    _ Lack of training
    _ Workflow issues
    _ Lack of resources
    _ Other: _____

APPENDIX D
Follow-up Survey

This questionnaire is part of a research project at BYU entitled Outcomes of Live and Online Continuing Education for Autism, IRB # E14109. If you choose to participate in this research, your answers to the questions will be collected, but no personal information will be collected. There is no direct benefit to you, but your participation can help us to know how to best meet the training needs of professionals in autism spectrum disorders. By answering these questions and submitting them online or in person, you are consenting to participation in the research project. If you choose to complete this questionnaire, please follow the directions at the end of the questionnaire to enter your email address in a drawing for an iPad, an iPad mini, or item of similar value. If you have any questions about this research, please contact Terisa Gabrielsen, 801-422-5055, 340-A, MCKB, Brigham Young University, Provo, UT 84602; autism@byu.edu or the IRB Administrator at (801) 422-1461; A-285 ASB, Brigham Young University, Provo, UT 84602; irb@byu.edu.

Have you made changes in your practice due to participation in the workshop?

_ Yes   _ Other: _____

_ No

If yes, please specify:

_____

What are the barriers to implementation of best practices in ASD for you?

_ Lack of time

_ Lack of reimbursement

_ Lack of training

_ Workflow issues

_ Lack of resources

_ Other: _____

Do you feel more confident working with children with ASD because of the workshop?

_ Yes   _ No   _ Undecided

Since the workshop, my referrals to other disciplines in ASD cases has:

_ Decreased   _ Stayed the same   _ Increased

How often do you access the websites?

_ Daily   _ Weekly   _ Monthly   _ Never

Which online resource has been most helpful?
_ Screening and
diagnosis   _ Other related conditions

_ Social skills   _ Medication

_ Behavior treatment   _ Family Resources
                                                            _ Other:
_ Speech and language   _____

_ Education

Least helpful?
_ Screening and
diagnosis   _ Other related conditions

_ Social skills   _ Medication

_ Behavior treatment   _ Family Resources
                                                            _ Other:
_ Speech and language   _____

_ Education

I would be interested in further training in ASD best practices?

_ Yes   _ No   _ Undecided

What would you like to see done differently in the workshop?

_____
_____
_____
_____
_____
_____
_____

What questions do you still want answered*?

_____
_____
_____
_____
_____
_____
_____

Which workshop did you participate in?

   _ Online   _ Live

*Be sure to check out the website for answers to your questions. We are constantly updating the information available.