Identifying critical behaviours for building engagement in telepractice early intervention: An international e-Delphi study

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Abstract

Background: Engagement of the child, parent and professional may facilitate positive outcomes for young children with communication disorders receiving early intervention (EI) via telepractice. Despite reported positive outcomes of engagement in a family-centred model of EI, there is limited research exploring the nature engagement in the telepractice environment and guiding professionals on how to best interact with young children and their families.

Aim: To identify a set of critical behaviours for building engagement in telepractice EI.

Methods & Procedures: A two-round modified e-Delphi study was conducted. Participants were international experts in the field of paediatric communication disorders and telepractice EI from diverse allied health and education backgrounds. The experts used a nine-point Likert scale to rate the importance of a predetermined set of critical behaviours for building engagement in telepractice EI across three different aspects of the telepractice interaction: (1) getting to know each other; (2) family-centred telepractice; and (3) telepractice specific considerations.

Outcomes & Results: A total of 30 experts completed round 1, with 21 participants from round 1 completing round 2 (70% response rate). Across the two rounds, a total of 64 of the 109 items presented (58.71%) achieved consensus as critical behaviours for building engagement in telepractice EI.

Conclusions & Implications: The present study identified a set of individual aspects of the telepractice interaction that participants, particularly professionals, may need to intentionally address to engage with families of young children with communication disorders receiving EI via telepractice. The results from this study will contribute to the development of an observational tool to measure engagement in the telepractice EI environment.
**INTRODUCTION**

Family-centred care (FCC), also termed family-centred practice, has long been recognized as the standard for intervention that acknowledges, honours and respects individual family characteristics, values and choices (Division of Early Childhood (DEC), 2014; Dunst & Trivette, 2009). FCC places the family at the centre of the intervention and builds on a strong family–professional relationship (Dunst, 2002). It facilitates family engagement, strengthening the family’s control over the services they receive (Dunst, 2002; Espe-Sherwindt, 2008), and supports their functioning as a unit (Dunst et al., 2007). Whilst the family is placed at the centre of practice in FCC, both the family and professional acknowledge and respect each other as valuable contributors to the intervention process (Espe-Sherwindt, 2008).

In family-centred early intervention (FCEI), professionals must make an explicit effort in establishing therapeutic relationships with the family, actively engaging parents/caregivers and other family members in order to build an effective partnership with them (Trivette et al., 2010). The seminal work of Dunst et al. (2002) identified two major components that enable the provision of FCEI: (1) relational help-giving practices and (2) participatory help-giving practices. Relational help-giving practices refer to interpersonal behaviours such as demonstrating warmth, empathy, compassion, trustworthiness, effective communication and active listening. These interpersonal behaviours foster the development of positive relationships between families and professionals (Dunst et al., 2002). Relational help-giving practices also consider the professional’s beliefs and attitudes about each family.
member’s strengths and capabilities to become more competent in supporting their child (Dunst & Trivette, 2009). Participatory help-giving practices refer to behaviours that parents/caregivers and professionals display to actively achieve the desired outcomes of intervention, with the professional involving the family through informed choice- and decision-making processes (Dunst et al., 2002). These participatory practices use the family’s existing strengths and foster the development of new skills to obtain resources and support. Participatory help-giving practices also consider the professional’s responsiveness to the family’s concerns and needs, and their flexibility while providing care (Dunst & Trivette, 2009). Through the implementation of family-centred help-giving practices, the family’s capacity for supporting their child, collaborating with professionals and engaging in intervention is enhanced, maximizing the child’s potential in EI (DEC, 2014; Dunst et al., 2002).

Family-centred practice has been suggested to influence family outcomes and child development in EI. A number of meta-analyses studies have examined the use of family-centred help-giving practices within EI. For example, Dunst et al. (2007) aimed to determine the influence of family-centred practices on child, parent, and family behaviour and functioning. They reported that family-centred practices were indirectly associated with child outcomes and mediated by parental self-efficacy beliefs. They stated that using a family-centred approach to EI was one of many determinants for how child and parent outcomes are achieved, and recommended professionals include help-giving practices (e.g., family decision-making, choice, active participation and capacity-building) during the interaction with families. Similarly, Trivette et al. (2010) investigated the relationships existing between the family-systems model (i.e., practices to identify the family needs, social supports and resources, and enhance the family strengths) with child, parent and family outcomes. They found that the provision of help-giving practices such as active listening, respect and empathy, responsiveness to the family’s needs, and shared decision-making directly influenced the use of family-system practices, parent self-efficacy beliefs and well-being. They also reported that parent self-efficacy and well-being had an indirect influence on the parent–child interactions and child development in EI, suggesting an empirical association between help-giving practices, child development and family outcomes. More recent research has further suggested that there is a benefit of family-centred practices on family engagement and child outcomes in multi-disciplinary EI (Hughes-Scholes & Gavidia-Payne, 2019).

In speech–language pathology, a recent study describing characteristics of families who were engaged in EI from the perspective of speech and language pathologists (SLPs) found that families felt responsible for their child’s intervention, built an open and honest relationship with SLPs, and worked actively and collaboratively with professionals for intervention planning and goal-setting (Melvin et al., 2020). Thereby, the use of family-centred help-giving practices that encourage family empowerment and engagement across all stages of EI (i.e., plan development, implementation and evaluation) has been reported to be foundational principles of FCC and linked to child and family outcomes (e.g., Dunst & Trivette, 2009; Dunst et al., 2007; Espe-Sherwindt, 2008).

Despite the suggested association between family engagement and improved EI outcomes, research to date has traditionally investigated parent and family engagement within in-person EI settings (e.g., Melvin et al., 2020), with limited evidence exploring engagement in other service delivery models such as telepractice. Telepractice is the use of telecommunications technology to deliver services at distance, including the provision of clinical services such as assessment, intervention and/or consultation (American Speech–Language–Hearing Association (ASHA), 2016). A growing body of evidence has suggested that telepractice may improve access to EI and facilitate the provision of family-centred services (e.g., McCarthy et al., 2018). As the professional is not physically present in the same location with the family, the parent must take the lead in interacting with the child, with the professional being responsible for supporting the parent to implement therapy activities in the home environment (Houston & Stredler-Brown, 2012).

Among the evidence supporting the provision of FCEI via telepractice is an investigation by Olsen et al. (2012) evaluating the feasibility of using videoconferencing for conducting home visits to 36 families of young children with developmental disabilities. Olsen et al. (2012) reported the successful delivery of EI through telepractice over a 2-year period. Through observation of professional–family interactions, Olsen et al. (2012) found that telepractice visits promoted more opportunities for the professional to interact with parents when compared with in-person visits. During telepractice visits, there was a statistically significant difference in the professionals’ use of parent-coaching behaviours and discussion about the EI programme, with most parents and professionals feeling generally satisfied after receiving telepractice services. Similar results were found in a later observational study, where Stredler-Brown (2017) compared the frequency with which EI professionals displayed specific family-centred behaviours (i.e., family interaction, direct instruction to parents, parent feedback and child feedback) when delivering EI services to families of children with hearing loss via telepractice and in-person. Stredler-Brown reported that all family-centred behaviours, except for
direct instruction to parents, were used more frequently in telepractice than in-person settings. This may be possible due to the parent-coaching approach described in telepractice EI (e.g., McCarthy et al., 2018; Olsen et al., 2012) that enables working with the family within their natural social and communication environment. The implementation of parent-coaching and parent-mediated telepractice EI has also been reported to improve communication skills for children with autism spectrum disorders (e.g., Wattanawongwan et al., 2020).

In contrast to the previous findings reporting telepractice as an enabler of increased family engagement during FCEI, two recent studies by McCarthy et al. comparing the delivery of telepractice and in-person services for families of children with hearing loss reported no significant differences on professionals' self-reported scores of family-centred behaviours (McCarthy et al., 2020b), and parents' self-reported scores of engagement (i.e., efficacy and involvement) (McCarthy et al., 2020a). Interestingly, McCarthy et al. described self-reported measures of family-centredness and engagement within a single organization whose approach of FCEI may have impacted on the studies’ findings. The reported variability during family-centred telepractice may be due to the population of children being investigated (i.e., children with developmental disabilities, hearing loss and autism spectrum disorder), different settings (e.g., one state university providing EI services in three rural counties in northern Utah, United States, in Olsen et al.’s study; eight EI organizations across six different US states in Stredler-Brown’s study; and one Australian EI organization in McCarthy et al.’s studies), the tools used and outcomes measured—e.g., custom-made observation system and measures of satisfaction (Olsen et al., 2012); specific family-centred behaviours used within a FCEI session (Stredler-Brown, 2017); self-reported questionnaires to measure of self-efficacy and involvement for parents, and the Measure of Processes of Care (MPOC) for Service Providers (McCarthy et al., 2020a, 2020b)—and the telepractice technology available at the time of the study. Regardless of the variability reported in these findings, it may be suggested that both in-person and telepractice EI facilitate at least equivalent parent engagement and family-centred outcomes.

Despite some reported equivalence of engagement between telepractice and in-person EI for families of young children with communication disorders, there is also variability in the conceptualization and measurement of engagement across the literature. For example, Freckmann et al. (2017) used a self-report questionnaire (i.e., Therapeutic Alliance Scales for Children (TASC-R); Creed & Kendall, 2005) to assess rapport between SLPs and children with communication disorders. McCarthy et al. (2020a) used a questionnaire (i.e., the Scale of Parental Involvement and Self-Efficacy (SPISE); Desjardin, 2003) to assess parental self-efficacy and involvement. Given the literature has used interchangeable and diverse aspects of engagement, there is certain variability reported across studies, which may be caused due to different settings and clinical populations being investigated within telepractice EI. Surprisingly, however, it is still unclear how or why professionals perceive differences in the way they engage with families through telepractice (e.g., Freckmann et al., 2017; Tucker, 2012) given children and their families seem to engage in telepractice in the same way they engage in in-person services (e.g., McCarthy et al., 2020a). In the present study, we conceptualized engagement in telepractice EI as ‘a collaborative partnership, in which children, parents, and professionals develop therapeutic relationships through communication inside and outside of therapy sessions’, based on the findings of a qualitative systematic review describing telepractice engagement (Retamal-Walter et al., 2022).

While there is a growing body of evidence suggesting telepractice is an effective model for delivering FCEI, there is limited evidence guiding professionals on how to provide high-quality family-centred services via telepractice. There are also some differences in the description and measurement of practices that encourage family engagement presented in the current literature. Furthermore, the current Coronavirus disease 2019 (COVID-19) pandemic has led to an increased uptake of telepractice worldwide to reduce the spread of the virus, comply with the public health recommendations of practising physical distancing and ensure the continuity of care for healthcare consumers (Smith et al., 2020). Given the increased uptake of telepractice is likely to continue for the foreseeable future, there is a need to further explore how to improve current telepractice services, including the provision of FCEI. By enhancing our understanding of how children, families and professionals interact within the telepractice environment, professionals could be better informed of the best practice behaviours for engaging in family-centred telepractice services. Therefore, this study aimed to identify a set of critical behaviours for building family engagement during telepractice EI interaction from the perspective of an international panel of experts in the field.

**METHODS**

This two-round modified e-Delphi technique was conducted between September and November 2019. Ethical clearance (approval #20180022004) was obtained from The University of Queensland’s Human Research Ethics Committee.
The Delphi technique is a multiple-round survey method that seeks consensus on a specific topic by asking a group of informed individuals and specialists in their field (i.e., ‘experts’) their opinion (Keeney et al., 2011). The Delphi method goes through a series of cycles or rounds in which experts are presented with a set of statements to rate and provide feedback on (Bishop et al., 2016). Based on the feedback provided by experts during each round, items can be deleted or modified before a subsequent round. This iterative process continues until either reaching or agreeing consensus is not possible (Bishop et al., 2016). When experts are given preselected statements upon which to make a judgement, it is known as a modified Delphi (Keeney et al., 2011). The use of an online version of the Delphi (i.e., e-Delphi) is a convenient, far-reaching and cost-effective approach for conducting consensus studies (Donohoe et al., 2012) and has proven to be a feasible method of informing research outcomes and achieving consensus in speech–language pathology.

Participants

The panel of experts for this e-Delphi study consisted of a group of international academic and clinical representatives in the field of paediatric communication disorders and telepractice EI. Although there is no agreement about the ideal number of participants, de Villiers et al. (2005) describe a typical Delphi panel consisting of 15–30 experts. Previous literature in the field has reported a variable number of experts participating in a Delphi panel, ranging from 10 SLPs exploring the conceptual bases of children’s social communication and pragmatics (Izaryk & Skarakis-Doyle, 2017) to 59 professionals achieving consensus on appropriate criteria for identifying children with language disorders (Bishop et al., 2016). The present study aimed to recruit a variety of experts representing differing fields relevant to the topic of interest (Hasson et al., 2000). Therefore, the inclusion criteria for the two groups of participants were:

- Academic experts: (1) health, allied health or education professionals; (2) more than five years conducting research in working with children with communication disorders; (3) more than one year’s experience using telepractice with families of young children with communication disorders; and (4) able to read and write English.
- Clinical experts: (1) health, allied health or education professionals; (2) more than five years’ post-qualification experience in working with children with communication disorders; (3) more than one year’s experience using telepractice for delivering professional services to families of young children with communication disorders; and (4) able to read and write English.

Experts were recruited using a range of different sampling techniques including: identifying experts’ published papers from a previous systematic review undertaken by the authors (Retamal-Walter et al., 2022), contacting experts from the authors’ professional networks, searching universities’ directories of experts and through recommendations from other experts in the field. A total of 77 experts were identified and invited to participate in this study via an email invitation. A call for experts was also promoted using social media (i.e., Facebook, Twitter and ASHA Telepractice Special Interest Group). The advertisement included the inclusion criteria for participants to self-identify as experts, the first author’s email to obtain further information about the study, and a hyperlink that took potential participants to the survey.

Procedures and analysis

Participants were provided with an electronic participant information sheet stating the anonymity and confidentiality of their responses and asking for their commitment to participate in all rounds of the e-Delphi study. All participants provided consent to participate in this study. Participants completed a demographics questionnaire describing their age, gender, professional background, employment, and work experience (see Table 1 for experts’ demographics). This demographic information was compared against the inclusion criteria to confirm that participants met the criteria to be considered experts in the field of paediatric communication disorders and telepractice. During each round of the survey, the consenting panel of experts received a unique email link to a survey via the Checkbox software program.

Item development

The initial set of items presented to experts included a list of behaviours identified as pertinent for building engagement when using telepractice, including behaviours of the EI professional, parent/caregiver, child and support person. In telepractice, a support person can be defined as a therapy assistant or an extra-family member that facilitates the interaction between the professional and family. The authors developed this initial set of items based upon results of a previous qualitative systematic review exploring the nature of engagement in telepractice EI (Retamal-Walter et al., 2022). First, the three authors identified all relevant results that represented behaviours from
| Variable                        | Round 1 (n = 30) | Round 2 (n = 21) |
|--------------------------------|-----------------|-----------------|
| **Country**                    |                 |                 |
| Australia                      | 15 (50.0)       | 11 (52.4)       |
| United States                  | 13 (43.3)       | 8 (38.1)        |
| UK                             | 2 (6.7)         | 2 (9.5)         |
| **Gender**                     |                 |                 |
| Female                         | 27 (90.0)       | 18 (85.7)       |
| Male                           | 2 (6.7)         | 2 (9.5)         |
| Prefer not to say              | 1 (3.3)         | 1 (4.8)         |
| **Professional background**    |                 |                 |
| Speech–language pathologist    | 21 (70.0)       | 15 (71.4)       |
| Teacher of the deaf            | 3 (10.0)        | 3 (14.3)        |
| Special education teacher      | 2 (6.7)         | 1 (4.8)         |
| Occupational therapist         | 2 (6.7)         | 1 (4.8)         |
| Audiologist                    | 1 (3.3)         | 1 (4.8)         |
| Psychologist                   | 1 (3.3)         | 0 (0.0)         |
| **Highest post-secondary qualification** |               |                 |
| Bachelor's degree              | 7 (23.3)        | 5 (23.8)        |
| Master's degree                | 14 (46.7)       | 8 (38.1)        |
| PhD/doctorate                  | 9 (30.0)        | 8 (38.1)        |
| **Employment status**          |                 |                 |
| Full-time                      | 19 (63.3)       | 14 (66.7)       |
| Part-time                      | 6 (20.0)        | 5 (23.8)        |
| Self-employed                  | 4 (13.3)        | 2 (9.5)         |
| Student                        | 1 (3.3)         | 0 (0.0)         |
| **Role in organization**       |                 |                 |
| Clinician/interventionist      | 14 (46.7)       | 9 (42.9)        |
| Academic                       | 10 (33.3)       | 8 (38.1)        |
| Manager                        | 5 (16.7)        | 3 (14.3)        |
| CEO/director                   | 1 (3.3)         | 1 (4.8)         |
| **Client population via telepractice** |               |                 |
| ASD                            | 13 (43.3)       | 8 (38.1)        |
| Language disorder              | 13 (43.3)       | 8 (38.1)        |
| Speech sound disorder          | 11 (36.7)       | 9 (42.9)        |
| Social (pragmatic) communication disorder | 9 (30.0)       | 5 (23.8)        |
| ADHD                           | 8 (26.7)        | 5 (23.8)        |
| Childhood-onset fluency disorder (stuttering) | 7 (23.3)       | 5 (23.8)        |
| Hearing loss                   | 7 (23.3)        | 5 (23.8)        |
| Specific learning disorder     | 4 (13.3)        | 3 (14.3)        |
| CAPD                           | 3 (10.0)        | 1 (4.8)         |
| Down Syndrome                  | 3 (10.0)        | 1 (4.8)         |
| **Others**                     |                 |                 |
| Adult communication disorders  | 4 (13.3)        | 2 (9.8)         |
| Complex disability             | 1 (3.3)         | 1 (4.8)         |

*Note: CEO, chief executive officer; ASD, autism spectrum disorder; ADHD, attention-deficit/hyperactivity disorder; and CAPD, central auditory processing disorder.*
the EI professional, parent/caregiver, child or support person and worded these behaviours as observable items within a telepractice session according to the authors’ research and clinical experience in eEI and telepractice. For example, the meaning unit ‘clinicians depict themselves as having the responsibility over rapport building’ was worded as the observable behaviour ‘EI professional takes the lead with rapport building with the child and parent/caregiver’. To enable a logical presentation of items in the survey, the authors then held regular working meetings to collate and group all these identified behaviours under similar aspects of the telepractice interaction. The three aspects of the telepractice interaction and its respective components in which these behaviours were organized were: (1) getting to know each other included items about rapport-building and previous experience with telepractice; (2) family-centred telepractice considered items on expectations and goals, family-tailored service, interaction, input and collaboration, feedback, and carry-over and follow-up; and (3) telepractice specific considerations consisted of items on communication inside and outside a telepractice session, resources, and technology breakdowns.

The authors also reviewed existing tools that had previously evaluated some aspect of engagement within in-person EI and telepractice EI interactions to identify key concepts or behaviours missing in the initial set of items. The tools reviewed included the: Triadic Intervention and Evaluation Rating Scale (Basu et al., 2010), which evaluates patterns of interaction between professionals and parents during EI; Home Visit Rating Scales—Adapted & Extended (Roggman et al., 2010), which determines the quality of home visit practices, and family engagement and interaction during EI; MPOC (King et al., 1995), which measures parents’ perceptions of receiving family-centred services; and TASC-R (Creed & Kendall, 2005), which examines the child–therapist relationship in therapeutic settings. From these existing tools, items regarding carry-over, interaction, expectations, and goals were added to the initial set of items derived from the authors’ systematic review.

The initial set of 102 items were presented according to role in intervention, as well as into the three different aspects of the telepractice interaction previously described. To ensure clarity of the survey throughout the e-Delphi rounds (Keeney et al., 2011), each set of items presented to experts was piloted with a small sample panel before further distribution of the survey. After this pilot stage, minor changes were made in the wording of the survey to avoid ambiguity of the items presented.

Round 1

In round 1, participants were asked to rate the significance of each item using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) nine-point Likert-type rating scale (Schünemann, 2013). The GRADE scale is a system for weighing the quality of evidence based upon its relevance for quality decision-making, outcome measurement and creating recommendations (Guyatt et al., 2011). In the present study, the GRADE scale was used to determine the importance of a set of observable items for building engagement in telepractice EI. The GRADE scale allows for the classification of statements according to a hierarchy of significance, whereby ratings of 1–3 = not important; 4–6 = important but not critical; and 7–9 = critical. The GRADE scale has been successfully used in other modified e-Delphi studies within speech–language pathology (e.g., Wallace et al., 2017). In addition to rating the initial set of items, experts were also provided the opportunity to make additional comments and/or suggest items to be added to the set of items during each round of the survey.

Experts were given 4 weeks to respond to this first round of the survey. In order to increase the number of responses, an email reminder was sent to those participants who had not completed the survey 2 weeks after the initial contact. Once the first round closed, the authors analysed the responses for level of agreement using descriptive statistics. Since there is no universal agreement on the level of consensus in e-Delphi studies (Hasson et al., 2000), the level of consensus was set a priori whereby any item rated 7–9 by at least 70% of the respondents and 1–3 by fewer than 15% of the respondents was deemed to have reached consensus. Any item rated 1–3 by at least 70% of the respondents and 7–9 by fewer than 15% of the respondents was discarded for subsequent rounds (Williamson et al., 2012). Inconclusive items (i.e., items rated 4–6 or 7–9 by fewer than 70% of respondents) were revised, reworded, split or merged for presentation in the next round. Experts’ comments and items suggested were reviewed and qualitatively analysed by the authors to determine its pertinence to engagement-building in a telepractice EI environment.

In addition to reviewing the consensus ratings, the authors also reviewed the experts’ comments and suggested items. The authors used their research and clinical experience in telepractice and EI to review each comment and suggestion to determine if it would (1) improve the clarity of an existing item (e.g., the item ‘parent/caregiver makes comments acknowledging previous
interaction with EI professionals’ was reworded as ‘parent/caregiver refers to previous interaction with EI professionals’; (2) identify distinctive behaviours during a telepractice session (e.g., the item ‘child follows instructions from parent/caregiver and/or the EI professional’ was split into individual items ‘child follows instructions from the parent/caregiver’ and ‘child follows instructions from the EI professional’); or (3) represent behaviours that were unique to telepractice interaction (e.g., the item ‘EI professional makes comments about the family’s environment’ was reworded as ‘EI professional makes comments about the family’s telepractice environment, including the auditory environment and sound quality, lighting, seating, visibility’). After discussing the relevance of each of the comment and suggestion, the authors checked that the revised set of items reflected the aim of the study. Minor edits were made to the items and this revised set of items was sent out during the following round of the survey (for a list of changes made between rounds 1 and 2, see the additional supporting information).

Round 2

In the second round, a summary of the results of the previous round and scores was provided in the introductory section of the survey. This helped the panel of experts integrate previous findings and set a common ground during the current round. In this second round, the same panel of experts were asked to provide importance ratings of inconclusive items from round 1, reworded items based on the comments provided by experts in the previous round, along with the new items suggested in the first round.

Experts were given 2 weeks to respond to this second round of the survey. An email reminder was sent to those participants who had not completed the survey a week after the initial contact to increase the number of responses. Once this second round closed, the authors analysed the responses for level of agreement using descriptive statistics before deciding whether a subsequent round of feedback was required. The same predefined level of consensus from round 1 was used in round 2.

RESULTS

Description of the participants

Altogether, the survey software recorded a total of 49 academic and clinical experts providing consent and commencing the survey, with a total of 30 experts (61.22%) completing round 1 in full. Academic (n = 10) and clinical (n = 20) participants ranged in age from 27 to 65 years (M = 44.1 years; SD = 11.77) and worked across diverse settings (i.e., university, healthcare service/hospital, EI centre, education, private practice and not for profit). On average, experts reported having 20.03 years working in their profession (range = 5–45 years; SD = 11.69), 12.83 years working in EI (range = 1–35 years; SD = 8.62) and 6.42 years using telepractice (range = 1–18 years; SD = 4.04). A subgroup of 21 experts (70%) from round 1 completed round 2 in full. A summary of the experts’ demographics information is presented in Table 1.

Round 1

In round 1, the panel of experts rated the significance of 102 critical behaviours for building engagement in telepractice EI. The full set of items presented to experts during this round and the experts’ scores are provided in the additional supporting information.

In round 1, 52 out of 102 items (50.98%) reached consensus, including 29 EI professional behaviours, 18 parent/caregiver behaviours, two child behaviours and three support person behaviours. The panel of experts had the opportunity to provide additional comments and/or suggest new items to be presented during the following round. The comments provided by the panel of experts and their suggestions of items addressed the relevance of parents’ previous experience with technology, the establishment of engagement through non-therapeutic activities, the relevance of sharing personal experiences only if the parent/caregiver has questions about the professional’s expertise with telepractice, and the professional’s role upon relationship-building with parents in EI (see the additional supporting information). In response to the inconclusive items, the authors discussed whether these items would either be presented again or modified for the following round. This discussion resulted in the removal of three items presented during round 1, the split of three items and the addition of four new items to be presented in round 2. The new items described the EI professional engaging with the child in non-therapy activities, building on the parent/caregiver’s and the support person’s capacity, asking for the parent/caregiver’s input for carry-over, using visual channels when communicating, and the child following instructions from the professional.

Round 2

In round 2, a subgroup of 21 experts from round 1 rated the significance of 54 behaviours including 27 inconclusive items presented with the same wording as in round 1, 23
rewarded items and four new items suggested by experts during round 1. The set of items presented to experts during round 2 and the experts’ scores are provided in the additional supporting information.

From the items rated by experts during the second round, 12 out of 54 items (22.22%) reached consensus including eight EI professional behaviours, three parent/caregiver behaviours and one child behaviour. The panel of experts also had the opportunity to provide additional comments and/or suggest new items during this round. The comments provided by experts in this second round included the professional discussing the possibility of connecting the family with other providers, upsilling parents as communication partners during their child’s routine, complementing telepractice with in-person meetings and the need for a support person while interacting. After discussing the comments provided by experts during the second round, considering the level of agreement defined a priori for the set of items presented (i.e., critical items rated 7–9 by at least 70% of the respondents; important but not critical items rated 4–6 or 7–9 by fewer than 70% of participants; and not important items rated 1–3 by at least 70% of the respondents), and observing the consistency of the experts’ responses between successive rounds (Von der Gracht, 2012), the authors decided to conclude the e-Delphi study at this second round.

In total, 64 of 109 items (58.71%) presented across both rounds of this modified e-Delphi study reached consensus. Those items that reached consensus pertained to the following aspects of the telepractice interaction: rapport; previous experience; expectations and goals; family-tailored service; interaction; input and collaboration; feedback; carry-over and follow-up; communication; and technology breakdowns. Table 2 shows the percentage of agreement of the 64 items that reached consensus.

**DISCUSSION**

This study aimed to identify a set of critical behaviours for building engagement in telepractice EI from the perspective of an international panel of experts in the field of paediatric communication disorders and telepractice EI. The panel of experts provided consensus on 64 critical behaviours that are important for building engagement amongst professionals, parents/caregivers, children and support staff in a telepractice setting. The final set of 64 behaviours pertained to the three aspects of the telepractice interaction (i.e., getting to know each other; family-centred telepractice; and telepractice-specific considerations) and represented the following components of the original grouping: input and collaboration (15 items); communication inside the telepractice session (nine items); family-tailored service (eight items); interaction (seven items); expectations and goals (six items); feedback (six items); rapport-building (five items); technology breakdowns (four items); carry-over and follow-up (three items); and previous experience (one item).

Input and collaboration were the aspects of telepractice interaction with the highest number of behaviours identified as relevant for building engagement. Items in this aspect of family-centred telepractice highlight how the professional and parent/caregiver facilitate collaboration during the interaction. Collaborative behaviours are consistent with the principles of FCC (Johnson et al., 2008; Kuo et al., 2011) and have been previously reported as a facilitator of family-centred telepractice EI (Hines et al., 2019). Previous research has also reported that developing collaborations between the professional and family via telepractice had a positive impact on how therapy outcomes are achieved in EI (Hines et al., 2019). Thus, identifying those behaviours that enable the provision of collaborative care may facilitate building collaborative partnerships that FCC encourages and recommends in EI.

Communication and feedback behaviours were also reported to be critical for building engagement in telepractice EI. Items included under this aspect demonstrate how the professional and parent/caregiver communicate with one another during telepractice interaction. Previous research has reported that a barrier to a greater uptake of paediatric telepractice is the distant nature of the online environment, with professionals reporting concerns about telepractice lacking the same level of pragmatics and natural interaction found within in-person settings (Tucker, 2012). Other telepractice literature has shown that open communication and responsiveness during EI are key elements for establishing engagement in the telepractice environment (Akamoglu et al., 2018), with professionals supporting the family throughout the EI programme (Johnson et al., 2008). Consequently, the use of a natural communication style during telepractice interaction seems essential to overcoming these concerns raised by professionals.

In addition to effective communication within the telepractice session, other recent research has highlighted that providing the family with opportunities for communication outside the appointment (e.g., referring to other methods of communication such as email or telephone; indicating the professional’s availability to meet with the family in-person) facilitates the establishment of therapeutic relationships in telepractice (Akemoglu et al., 2020). Interestingly though, the experts in the present study reported communicative behaviours outside the telepractice appointment as not critical nor important for engagement. It may be possible that communication...
### TABLE 2  The 64 items that reached consensus in rounds 1 and 2 ordered by percentage of agreement

| Early intervention professional items                                                                 | % Agreement |
|--------------------------------------------------------------------------------------------------------|-------------|
| **Rapport-building**                                                                                   |             |
| 1. EI professional demonstrates empathy with the child and parent/caregiver                            | 100%        |
| 2. EI professional takes the lead with rapport building with the child and parent/caregiver            | 90%         |
| 3. EI professional engages in small talk with the child and parent/caregiver                           | 80%         |
| **Previous experience**                                                                                 |             |
| 4. EI professional asks the child and/or parent/caregiver about their previous experience with technology | 71%         |
| **Expectations and goals**                                                                             |             |
| 5. EI professional establishes the child and parent/caregiver’s expectations and motivations for intervention | 97%        |
| 6. EI professional discusses the session goals with the parent/caregiver                               | 97%         |
| 7. EI professional explains each participant’s role both inside and outside the session                | 87%         |
| 8. EI professional highlights the importance of the parent/caregiver’s role in early intervention       | 87%         |
| **Family-tailored service**                                                                           |             |
| 9. EI professional demonstrates consideration of the child’s additional needs while implementing activities where appropriate | 100%        |
| 10. EI professional makes comments/asks questions that show consideration of the child’s identity and interests | 97%        |
| 11. EI professional makes comments/asks questions that show consideration of the family’s identity and interests | 93%        |
| 12. EI professional uses activities that encourage the child to attend to stimuli                       | 83%         |
| 13. EI professional adjusts activities when appropriate to maintain the child’s attention              | 83%         |
| 14. EI professional involves the entire family unit in activities where appropriate                    | 83%         |
| **Interaction**                                                                                       |             |
| 15. EI professional interacts with the child and/or parent/caregiver in a respectful and equal manner   | 100%        |
| 16. EI professional interacts with the child and/or parent/caregiver in a warm and friendly manner      | 100%        |
| 17. EI professional responds to the child’s attempts to interact                                       | 100%        |
| **Input and collaboration**                                                                           |             |
| 18. EI professional builds up parent/caregiver’s co-therapist skills for working with the child         | 95%         |
| 19. EI professional encourages the child and/or parent/caregiver to actively participate throughout the session | 93%        |
| 20. EI professional builds up support person’s abilities for working with the child and/or parent/caregiver | 90%        |
| 21. EI professional encourages the child and/or parent/caregiver to ask questions                       | 90%         |
| 22. EI professional encourages the child’s and/or parent/caregiver’s input throughout the session       | 87%         |
| 23. EI professional encourages a support person’s input and assistance where appropriate                | 80%         |
| 24. EI professional encourages the child and/or parent/caregiver to share their feelings                 | 77%         |
| **Early intervention professional items**                                                              |             |
| 25. EI professional listens and responds to the parent/caregiver’s feedback                            | 100%        |
| 26. EI professional listens and responds to parent/caregiver’s questions                                | 97%         |
| 27. EI professional gives feedback to the child and/or parent/caregiver throughout the session         | 90%         |
| **Carry-over and follow-up**                                                                           |             |
| 28. EI professional makes clear and specific plans for the next steps after the session                | 97%         |
| 29. EI professional encourages parent/caregiver’s input for carry-over and future goals                 | 95%         |
| 30. EI professional prepares parent/caregiver to carry-over activities into the home environment by providing strategies | 93%        |
| **Communication inside the telepractice session**                                                      |             |
| 31. EI professional uses a natural communication style                                                 | 90%         |
| 32. EI professional uses resources from the family’s home in intervention activities                   | 83%         |
| 33. EI professional is animated during the interaction where appropriate                               | 81%         |

(Continues)
| Item                                                                 | % Agreement |
|----------------------------------------------------------------------|-------------|
| 34. EI professional makes comments about the family’s telepractice environment (e.g., auditory environment and sound quality, lighting, seating, visibility) | 81%         |
| 35. EI professional uses visual demonstrations                         | 71%         |
| **Parent/caregiver Items**                                            |             |
| **Technology breakdowns**                                             |             |
| 36. EI professional asks for a support person’s help to troubleshoot technological issues where appropriate | 76%         |
| **Rapport-building**                                                  |             |
| 37. Parent/caregiver discloses relevant information when asked by the EI professional | 80%         |
| 38. Parent/caregiver shares family’s culture and/or values with the EI professional | 73%         |
| **Expectations and goals**                                            |             |
| 39. Parent/caregiver provides input into goal and/or session planning | 80%         |
| 40. Parent/caregiver shares family’s expectations and/or motivations for the session and/or early intervention | 77%         |
| **Family-tailored service**                                           |             |
| 41. Parent/caregiver provides input and/or asks questions regarding their child’s intervention | 93%         |
| 42. Parent/caregiver responds to the EI professional’s comments about the family’s identity and interests | 76%         |
| **Input and collaboration**                                           |             |
| 43. Parent/caregiver (and other family member if present) interacts with the child throughout the session | 90%         |
| **Parent/caregiver items**                                            |             |
| **Feedback**                                                          |             |
| 50. Parent/caregiver responds to the EI professional’s feedback       | 81%         |
| 51. Parent/caregiver provides feedback to the EI professional about the intervention program | 77%         |
| 52. Parent/caregiver welcomes and/or comments on the EI professional's guidance and coaching | 70%         |
| **Communication inside the telepractice session**                     |             |
| 53. Parent/caregiver responds to the EI professional’s comments and/or questions about the family’s telepractice environment (e.g., auditory environment and sound quality, lighting, seating, visibility) | 86%         |
| 54. Parent/caregiver interacts naturally with the EI professional throughout the session | 73%         |
| 55. Parent/caregiver responds to the EI professional’s comments about being present in the child’s environment | 70%         |
| **Technology breakdowns**                                             |             |
| 56. Parent/caregiver asks for the EI professional’s help to overcome technological issues where appropriate | 83%         |
| 57. Parent/caregiver perseveres despite technological issues           | 80%         |
| **Child items**                                                       |             |
| **Interaction**                                                       |             |
| 58. Child interacts with the EI professional where appropriate        | 71%         |
| **Input and collaboration**                                           |             |
| 59. Child displays signs of enjoyment during the interaction with parent/caregiver | 83%         |
| 60. Child displays signs of enjoyment during the interaction with a support person where appropriate | 70%         |
| **Support person items**                                             |             |
| **Interaction**                                                       |             |
| 61. Support person interacts with the child and parent/caregiver in a warm and friendly manner | 87%         |

(Continues)
opportunities within telepractice sessions are enough to establish engagement with families, emphasizing the importance of deliberately displaying behaviours that encourage the family’s input during the telepractice interaction.

Showing respect to the family’s diversity and displaying family-tailored behaviours were also identified as important components of engagement in telepractice EI. Respecting and honouring a family’s dignity, diversity and uniqueness has been reported as a foundational principle of FCC during in-person (Johnson et al., 2008; Kuo et al., 2011) and telepractice (Akamoglu et al., 2018) EI. Akemoglu et al. (2020) further proposed the provision of parent-mediated and parent-tailored services as effective facilitators of family engagement in telepractice, with Hines et al. (2019) describing telepractice as a model of person- and family-centred service that enables professionals to meet the individual needs of children with communication disorders. Therefore, it appears that exhibiting behaviours that respect the family’s identity and enable the provision of tailored care to the needs of the child and family are critical to family engagement in telepractice EI.

Behaviours that acknowledged participants during the interaction were considered enablers of engagement during telepractice interaction (e.g., showing consideration of the child/family’s characteristics and interests; encouraging the child/family’s input; encouraging the child/family to share their feelings; listening and responding to the child/family’s questions; validating and respecting each person as a contributor to the intervention process). The acknowledgment of participants has been previously reported as the cornerstone of respectful interaction with children and their families via telepractice (Akamoglu et al., 2018) and is aligned with recognizing and honouring a family’s dignity and uniqueness through FCC in EI (Johnson et al., 2008; Kuo et al., 2011).

Fewer behaviours were identified as critical to engagement in certain aspects of the telepractice interaction. These aspects with a lower number of items were previous experience, carry-over, technology breakdowns, rapport-building, and expectations and goals. It may be possible that some behaviours associated with these aspects of the telepractice interaction are critical for engagement prior to the family’s commencement with telepractice or perhaps important but not critical to telepractice engagement. For example, a participant’s experience with technology has been reported as a positive predictor of the success of telepractice (e.g., Wade et al., 2019). However, the present study found that enquiring about the professional’s experience with technology was not important for family engagement during telepractice interaction. Therefore, previous experience with technology could become a critical factor when first deciding the mode of service delivery (e.g., telepractice, in-person or hybrid services) rather than once the family has already selected telepractice. In the same way, although rapport-building behaviours are thought to be fundamental while engaging with families and children, they may be more relevant at the beginning of telepractice interaction rather than throughout the intervention (Akemoglu et al., 2020; Hines et al., 2019). Future research may need to explore and compare the engagement of families that are enrolled for the first time and those families receiving ongoing telepractice EI to further arrange the set of behaviours identified in this study (e.g., type of enrolment or stage of intervention).

In the initial set of items, experts in the present study were presented with matching behaviours for each participant of the telepractice interaction (e.g., EI professional engages in small talk with the child and parent/caregiver; parent/caregiver engages in small talk with the EI professional). However, the results of this study suggest that professionals are primarily accountable for leading the interaction with the family. Despite the family’s active role in EI, experts identified a higher number of behaviours that professionals must exhibit to guide the family while navigating through EI. This guidance from professionals should enable the family to continue being actively involved in their child’s care via telepractice as they would do in traditional in-person EI (Johnson et al., 2008). Importantly, however, when leading the interaction, EI professionals must ensure that parents/caregivers maintain their role as key agents of intervention and co-decision-maker (DEC, 2014) while providing family-centred services rather than deferring to a clinician-centred model of care.

### Table 2 (Continued)

| Behaviour                                                                 | % Agreement |
|--------------------------------------------------------------------------|-------------|
| 62. Support person interacts with the EI professional in a warm and friendly manner | 77%         |
| **Communication inside the telepractice session**                         |             |
| 63. Support person provides physical assistance to the child and parent/caregiver where appropriate | 80%         |
| **Technology breakdowns**                                                |             |
| 64. Support person helps to overcome technological issues where appropriate | 87%         |
CLINICAL IMPLICATIONS

There are some important clinical implications to this study. First, professionals delivering EI services through telepractice need to use family-centred practices that show respect for the family’s identity and are responsive to the child and family needs in order to build engagement with them. In addition to building engagement within the session, adhering to these principles support carry-over therapy activities into the family’s daily routines. Second, it is essential in engagement-building to encourage reciprocal collaboration between the participants of the telepractice interaction (e.g., listening and responding to the child’s and family’s input, discussing goals and intervention along with the family, building-up the parent/caregiver’s skills for working with their child). Although there are some similarities between telepractice and in-person engagement, the set of telepractice-specific engagement-building behaviours identified in this study provides EI professionals with an evidence-based resource to guide their practice and addresses their concerns with family engagement during telepractice EI. Strategies specific to the telepractice environment include professionals adjusting their communication style, such as by commenting on the family’s environment about audio, lighting, seating and visibility; maximizing the use of visual channels and demonstrations; using resources from the family’s home; including additional family members during sessions; being animated during telepractice sessions; and ensuring that parents and caregivers feel confident and empowered to take the driver’s seat in their child’s intervention. Ultimately, as EI professionals were found to be accountable for leading telepractice interactions, it would be useful for professionals to use the set of critical behaviours identified in the present study to guide their self-reflection of their delivery of intervention via telepractice. For example, professionals could identify which behaviours are demonstrated during telepractice interactions and determine which additional engagement-building opportunities need to be deliberately displayed to encourage family engagement. As the literature has identified that family engagement is associated with better outcomes in EI (e.g., Houston & Stredler-Brown, 2012; McConachie & Diggle, 2007), professionals’ reflection and increase in the use of engagement-building practices during telepractice EI could potentially enhance intervention outcomes of families of young children with communication disorders.

LIMITATIONS AND FUTURE DIRECTIONS

The authors acknowledge the limitations of the current study. The panel of experts consisted of EI professionals from academia and clinical practice, however, no distinction was made between professional backgrounds or clinical settings in the analysis of the ratings. Given certain differences in the scoring criteria that may exist across disciplines, levels of training, roles within EI, and clinical populations, future research may explore any existing or potential differences within and across groups. Similarly, as only professional experts participated and engagement is a two-way process developed between the professional and the family over time, future research should explore parent/caregiver’s perspectives of critical behaviours for building engagement in telepractice EI. Experts were instructed to rate the significance of a set of pre-selected behaviours to be observed in a typical telepractice EI session. However, it may be possible that other behaviours for building engagement are not identifiable in the telepractice session itself. Therefore, future research may need to explore professionals’ and families’ perspectives and experiences of engagement to better understand some underlying nuances of engagement that may be unable to be observed within and between telepractice sessions.

Experts participating in the study only represented the experience from three developed English-speaking countries (i.e., Australia, the UK and the United States). Although building engagement via telepractice may be established similarly across countries, there are some service delivery differences between the three participant countries (e.g., funding models, age group of children enrolled in EI, different therapy approaches and models of service delivery), which may have influenced the results. It is possible, that other behaviours for building engagement in the telepractice environment may be more or less important in these countries and in other contexts, cultures, and languages. Hence, future research should explore other contexts of telepractice EI to determine whether differences exist among service delivery models to complement the findings of this study and provide a more comprehensive understanding of engagement as a whole construct.

Identifying a set of behaviours that are critical to establish engagement in telepractice may help professionals to better understand how to effectively build engagement with families of children receiving EI services remotely. However, there is a growing body of research describing
the use of existing tools to measure engagement in the telepractice environment, which may not necessarily capture all the aspects of telepractice engagement. Therefore, the results of this study will be refined with the aim of developing an evidence-based observational tool to measure engagement in the context of telepractice EI.

CONCLUSIONS

The results of this study identified a set of individual aspects of the telepractice interaction that participants, particularly professionals, may need to intentionally address to engage with the child and family during telepractice EI. The identification of these behaviours may also have an impact on the child and family responsiveness to the intervention and could potentially enhance the outcomes of families of young children with communication disorders receiving EI via telepractice.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that supports the findings of this study are available in the additional supporting information.

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**SUPPORTING INFORMATION**

Additional supporting information may be found in the online version of the article at the publisher’s website.

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