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Clinical feasibility, utility, and usability of the Profile of Preschool Communication: A pilot test in community settings

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ABSTRACT

Aim. This study aimed to pilot test, assess usability and utility of, and identify barriers to implementation for the Profile of Preschool Communication (PPC) - a new data collection tool designed to support outcome monitoring in preschool speech-language programs and practice-based research. **Methods**. This pilot study was conducted with three sites in the Ontario Preschool Speech and Language (PSL) program. Twenty-three speech-language pathologists used the PPC for all outcome monitoring assessments for 2-3-months and provided feedback about their experience using it in practice. Then, 18 of the 23 speech-language pathologists completed online surveys to rate usability and utility, and report their perceived implementation barriers and facilitators. **Results**. Speech-language pathologists reported difficulties completing some sections of the PPC, most notably obtaining data related to maternal education and family history of mental health concerns. Usability and utility were generally rated favorably with some items rated as neutral. Barriers to implementation included the paper format, completion time, requirement to ask personal questions, and the perception by some that data were useful for outcome monitoring but not practice. Facilitators included ease of use, an improvement over the existing tool, and the collection of data to support service planning. **Conclusions**. The PPC shows potential as an outcome monitoring data collection tool in preschool speech-language pathology programs. Findings will be of interest to researchers engaged in practice-based research and those interested in engaging stakeholders to develop clinically meaningful tools.

Keywords: speech-language pathology, practice-based research, assessment, tool development, usability, utility

1.0. Introduction

Monitoring outcomes of speech-language pathology services is a best-practice critical for demonstrating effectiveness, supporting quality improvements, managing resource allocation, and informing prognosis and goal setting, among other purposes (American Speech-Language Hearing Association, n.d.; John, 2011; Speech-Language & Audiology Canada, 2010). For preschool speech-language programs, how to accomplish this in a way that is accurate and comprehensive yet feasible and sustainable is complicated by the wide variation in and complexity of communication needs in this population. The issue is further complicated by the challenges monitoring outcomes within real-world clinical practice. We recently developed and demonstrated interrater reliability for the Profile of Preschool Communication (PPC; Cunningham, Kwok et al., 2019; Cunningham & Oram Cardy, 2021), a outcome monitoring tool designed within the World Health Organization's International Classification of Functioning, Disability and Health framework (ICF; World Health Organization, 2001) that collects information about preschool children's communicative participation and impairments, along with clinically relevant predictors of outcome and response to intervention. We intentionally designed the PPC with the goal of it being usable and useful in real-world practice settings. The current study was conducted to evaluate whether we achieved this goal by asking speech-language pathologists (SLPs) in a large preschool speech-language service system to trial the PPC with all children on their caseload and provide feedback. Because participating SLPs operated within a model that reflects common preschool SLP service delivery practices, we share our findings to support others seeking to evaluate real-world outcomes in community preschool programs.

The Preschool Speech and Language (PSL) program is a government-funded health system in Ontario, Canada that provides early assessment and intervention services for children from birth to school entry (4-5 years of age in Canada). The program serves children with a wide range of communication difficulties and disorders via assessment, intervention, and caregiver consultation and education (Ontario Ministry of Community, Children and Social Services, 2021). Each year, over 60,000 children are served in this program by more than 400 SLPs working at 29 regional sites (Cunningham, Kwok et al., 2019). For nearly a decade, the PSL program has been using two tools to capture data related to children's communicative participation and functioning as part of its provincial outcome monitoring program. Current assessment tools include the Focus on the Outcomes of Communication under Six (FOCUS; Thomas-Stonell et al., 2010) and the Communication Function Classification System (CFCS; Hidecker et al., 2011). The FOCUS is a criterion referenced outcome measure designed to assess change in communicative participation skills during speech-language interventions, and the CFCS is a tool used to categorize children's functional communication abilities as falling in one of five distinct levels. Outcome monitoring also includes completion of a 1-page document that captures basic demographic information about the child (e.g., age, sex, whether the child is multilingual).

Like many community-based health systems, outcome monitoring in the PSL program is done with the intention of tracking the population served and informing quality improvement initiatives (Institute of Medicine of the National Academies, 2011), generating evidence to support decisions about service delivery and resource allocation (Moore et al., 2012), and ensuring the delivery of patient-centred and individualized care (Lewis et al., 2014; Meystrea et al., 2017). To date, data collected by the PSL program have been used to model growth in communicative participation skills at a population level (Cunningham et al., 2017) and to identify some predictors of growth for children in each of five functional communication (CFCS) levels (Cunningham et al., 2018). Unfortunately, limited data for other clinically relevant predictors are not yet being collected, and this has prevented the PSL program from answering important questions about children's outcomes. In other words, existing tools collect data related to children's communicative participation and function but fail to collect key data related to the factors likely to impact those outcomes.

Factors known to affect child development include maternal mental health (Kingston & Tough, 2014), involvement in an early learning environment, and socioeconomic status (Yang et al., 2019). Home environment (e.g., parent responsiveness) has also been found to contribute to children's development, particularly for those with associated biomedical conditions (Durber et al., 2017; Holzinger et al., 2020; Schorr et al., 2020). For children with speech and language impairments specifically, some known associated factors include socioeconomic status (Armstrong et al., 2017; Fisher et al., 2017; Morgan, 2020), engagement in an early learning environment (Cunningham et al., 2018) and type of communication impairment (Thomas-Stonell et al., 2013; Cunningham et al., 2018). The PSL program's current 1-page document that accompanies the FOCUS and CFCS fails to collect data for many factors known to be associated with outcomes. As such, a new tool was needed to collect meaningful data so outcomes could be stratified to better understand the impact of services.

The PPC is a clinical report measure developed within the World Health Organization's International Classification of Functioning, Disability and Health framework (ICF; World Health Organization, 2001) to capture factors associated with preschool children's communication (i.e., speech, language, fluency, voice and resonance, emergent literacy) (Cunningham et al., 2019). The ICF is endorsed by the American Speech-Language Hearing Association and many other professional associations around the world, and it has been extensively applied in the speech-language pathology literature (Blake & McLeod, 2018). There are three components and two contextual factors within the framework that all interact to affect a person's communicative health. Components include (i) Body Functions and Structures, (ii) Activities, and (iii)

Participation. Contextual factors include (i) Environmental Factors and (ii) Personal Factors (World Health Organization, 2001). A brief description of each component and contextual factor is presented in Table 1. By conceptualizing three components as well as contextual factors, the framework extends the traditional medical model by considering the whole person rather than only their impairments, focusing on function and personally relevant outcomes instead of specific behavioural targets, and understanding the impact of environmental and personal factors on an individual's communicative functioning and life participation (Threats, 2013; WHO, 2001). A central tenant of the ICF framework is that all parts are interconnected and interdependent (Threats, 2013). When it comes to communication this means, for example, that a person's body functions (e.g., articulation functions) are likely to affect their participation (e.g., ability to converse with peers). Similarly, personal (e.g., motivation) and environmental (e.g., language learning environment) factors can act as barriers or facilitators to communication (Threats, 2013). Consider two children with the same communication profile and intervention approach, one with good attention and motivation, and the other without. Communication outcomes are likely to differ for these two children. Similarly, children who participate in an early learning program may make greater gains in social communication than those who don't. These examples highlight the importance of collecting and considering data across all ICF components and contextual factors to properly understand, describe, and stratify children's communication outcomes. In practice, awareness of the various factors associated with outcomes may inform clinical decisions surrounding programming (e.g., determining which service to recommend).

The PPC is completed by speech-language pathologists at each outcome monitoring assessment using an interview-style format and takes five to ten minutes to complete. The *Body Functions and Structures* section captures data for children's communication impairment type (e.g., speech, language, fluency), and the presence or absence of suspected or confirmed comorbidities (e.g., autism spectrum disorder, genetic syndromes). The *Activities and Participation* section allows data input for scores collected using participation-focused tools (i.e., FOCUS, CFCS). These tools are completed by a parent or caregiver prior to or during the session, after which the speech-language pathologist transfers the FOCUS score and CFCS classification to the PPC. The *Environmental Factors* section captures data for family history of communication and mental health difficulties, maternal education, and the child's participation in early learning environments. The *Personal Factors* section collects data related to child and family factors that stakeholders identified as contributors to clinical change such as family attendance and engagement, and child behavior. Descriptions of data collected within each section of the PPC are presented in Table 1. The PPC fills a gap in the PSL program's existing outcome monitoring protocol by capturing data specific to known predictors of outcome not described using existing participation-focused tools. Similarly, the PPC could be used to supplement data collected with other formal speech-language measures (e.g., The Preschool Language Scales) as it can orient clinicians to factors that may influence test scores.

Speech-language pathologists in the PSL program were engaged in the development and testing for parts of the PPC. This process occurred in two stages and was guided by general recommendations of tool development extracted from practice-based research studies within the fields of medicine and rehabilitation (Ahmed et al., 2018; Crooke & Olswang 2015; Loubser et al., 2014; Moore et al., 2012). The first stage involved creating and conducting reliability testing for parts of the PPC. SLPs were engaged in a modified Delphi study to establish consensus about the categories and definitions of preschoolers' communication impairments for the *Body Structures and Functions* section (Cunningham, Kwok et al., 2019). SLPs then participated in an interrater reliability study in which they independently and reliably categorized children's communication impairments using the established consensus documents (Cunningham & Oram Cardy, 2021). Similarly, SLPs were engaged during development of the FOCUS (Thomas-Stonell et al., 2013) and CFCS (Hidecker et al., 2011). Predictors within *Environmental* and *Personal Factors* were identified via literature review and by reviewing SLPs' reported clinical observations of the factors they believed influenced children's language outcomes.

This paper describes the second stage, which involved pilot testing the PPC. Specifically, we aimed to: (a) collect feedback about SLPs' experiences using the PPC in the clinical context, (b) assess usability and utility of the PPC, and (c) identify SLPs' perceptions about the barriers and facilitators to implementing the PPC in practice. Usability assessment is critical for understanding whether a tool meets its intended purpose, is effective and efficient, and favors positive impressions from its intended users (Bastein, 2010). Utility testing is key for understanding whether tools provide useful information; are practical in the clinical context; and are acceptable to their intended users (Darzins et al., 2016). Stakeholder engagement and a clear understanding of the barriers and facilitators to implementation are critical for ensuring tools are useful, meaningful, and can be seamlessly implemented in practice (Bastein, 2010; Darzins et al., 2016). Specific research questions for this stage of the project included: (a) What are SLPs' experiences completing the PPC in practice? (b) Do SLPs perceive the PPC as having good utility and usability? and (c) What are SLPs' perceived barriers and facilitators to using the PPC in practice?

2.0. Methods

2.1. Ethics

This work was completed as part of a larger quality improvement and program evaluation project being done in collaboration with the Ontario Preschool Speech and Language Program. A Research Ethics Board (REB) review was therefore not conducted as this project aligned with quality improvement as described in the Canadian Tri-Council Policy Statement V.2, Article 2.4.

2.2. Participants and Procedures

Clinical sites were recruited during an online research presentation to the managers of the 29 PSL program regions in the Fall of 2019. As part of the presentation, the PPC was described, and managers were asked to contact the first author (BJC) if they were interested in pilot testing it in their region. Three sites agreed to participate, and twenty-three SLPs (site 1, *n* = 14; site 2, *n* = 7; site 3, *n* = 2) piloted the PPC. The number of participants from each site was based on the number of SLPs employed. All available SLPs from sites 1 and 2, and two of three potential SLPs from site 3 participated in the pilot. SLPs reviewed the PPC and supporting documentation (PPC and Reference Guide, Appendix A) as well as study procedures prior to beginning data collection. The PPC Reference Guide introduced the PPC and its components, and included the original consensus documents (Cunningham, Kwok et al., 2019), as well as specific definitions for each data field to support homogeneity of categorizations between SLPs. SLPs then used the PPC for all outcome monitoring assessments for a 2- to 3-month period (January-March 2020). Following each assessment, anonymized data were entered into REDCap (Harris et al., 2009), a secure data collection system housed at Western University. SLPs inputted data for each section of the PPC sequentially. Following data entry for each child, SLPs were prompted to answer a yes/no question within each section about whether they had difficulty completing that particular portion of the PPC. If they answered yes, SLPs were prompted to describe the difficulties they encountered. At the end of the survey SLPs could enter optional final comments related to their experience.

After completing data collection and entry, SLPs were invited via email to complete a separate online exit survey to rate usability and utility, and report perceived barriers and facilitators to implementing the PPC in practice. SLPs first rated five statements about usability and eight statements about utility using 5-point Likert scales that ranged from strongly agree to strongly disagree, and then entered optional comments (Cross et al., 2018; Rivard et al., 2015). SLPs subsequently responded to open-ended questions about their perceptions of how easy or difficult it would be to implement the PPC, and how the tool could be made more useful for practice. Survey data were collected using REDCap (Harris et al., 2009).

2.3. Analyses.

Qualitative comments entered by SLPs during the pilot testing phase were explored using content analysis (Elo & Kyngäs, 2008) with the following steps: (a) familiarization of data through reading and re-reading survey responses; (b) identifying patterns, sorting responses into categories, and ensuring homogeneity across categories; and (c) reporting category labels and example quotes. One author (JH) identified the initial categories, which were confirmed by a second author (BJC).

Ratings of usability and utility were analyzed descriptively using counts, percentages, mode, and range. To simplify the analyses and make it easier for readers to examine positive, negative, and neutral trends in the data, the 5-point Likert scale was collapsed by combining responses for the categories agree/strongly agree and disagree/strongly disagree. Neutral responses were presented as a separate category (Cunningham, Daub et al., 2019; Moodie et al., 2011).

3.0. Results

3.1. Pilot testing and SLPs' experiences

Between January and March 2020, the PPC was completed for 260 children (180 males and 80 females). The average age at assessment was 41.95 months (*SD* = 13.27, range = 18 to 79 months). SLPs' experiences completing each section of the PPC are described next. Responses to each section are sorted into categories; descriptions and example quotes for all identified categories are presented in Table 2.

For body structures and functions, SLPs first categorized children's communication impairments broadly, and if language or speech difficulties were identified, they were further sub-categorized. SLPs reported difficulties categorizing impairments for 34 children (13%), commenting that it was too early to determine the type of impairment or too difficult to determine type of impairment for children who were hard to assess. Next, SLPs identified confirmed or suspected diagnoses from a list of possible options. SLPs had difficulty completing the comorbidities section for 12 children (5%), primarily for those unconfirmed diagnoses.

For activities and participation, SLPs indicated a child's CFCS level and reported FOCUS scores for children who were assessed as part of the outcome monitoring procedure. SLPs indicated difficulty completing this section for 17 children (7%), reporting challenges with selecting a CFCS level or missing FOCUS scores.

For environmental factors, SLPs indicated if there was a significant family history of mental health and communication difficulties, maternal education, and whether the child was involved in an early learning environment. Difficulty completing this section was reported for 63 children (24%), particularly when it came to asking for information on mental health and maternal education. For personal factors, SLPs indicated difficulties completing items related to child factors for 17 children (7%), requesting the need for an *unknown* option and further clarification.

3.2. Usability and Utility

Following the 3-month pilot, 18 of the 23 SLPs (78% response rate) completed an online survey and rated usability and usability of the PPC. SLPs rated five statements about usability (see Table 3). Three of these statements were generally rated as agree or strongly agree while two received were primarily neutral ratings. More specifically, most SLPs agreed/strongly agreed the purpose of the PPC was clear, easy to use, and could be completed quickly. SLPs were more neutral about whether including the PPC in their assessment battery would be burdensome and about whether they enjoyed using it. Eight statements about utility were also rated by SLPs (see Table 3). Six utility statements were rated as agree/strongly agree, and two were rated as neutral. Most SLPs agreed/strongly agreed with statements indicating that data were clinically useful and that the PPC could be useful for practice and program evaluation moving forward. Ratings were primarily neutral for statements about the PPC influencing SLPs' assessments and discussions with families.

Six SLPs (35%) entered optional comments about usability. Comments were related to (a) SLPs' comfort asking about mental health and maternal education (*n* = 3) (e.g., "*Parents seemed defensive sometimes, especially when asking regarding their level of education*"); (b) the time burden associated with implementing the PPC (*n* = 2) (e.g., "*The form itself was easy but inputting the data was sometimes tedious…);* and (c) the need for an unavailable/not applicable option (*n* = 1) (e.g., "*Some of the questions needed a 'information not available' or 'not applicable' as a possible response*").

Optional comments about utility were entered by six SLPs (35%). SLPs commented that the PPC was a useful tool (*n* = 4) (*e.g., "I see the usefulness of the PPC mostly as a way to correlate the factors like communication impairment, outcomes (CFCS and FOCUS scores) and intervention provided*" and "*I don't feel like I wouldn't have gathered this information without the tool; however, the tool is a convenient way to collect and record the information to be used for outcome monitoring*"), while others felt it was not a clinically useful tool (*n* = 2) (e.g., "*I could see some benefit, but I don't anticipate any significant changes to intervention planning, etc.").*

3.3. Barriers and facilitators

To assess barriers and facilitators, SLPs entered comments in response to five open-ended questions asking about (a) their experiences using the PPC (*n* = 17, 94%), (b) benefits or challenges associated with implementing the PPC as a tool to compliment data collected using the FOCUS and CFCS (*n* = 12, 67%), (c) benefits or challenges associated with using the PPC for assessment and treatment planning (*n* = 10, 56%), (d) how easy or difficult it may be to implement into practice (*n* = 18, 100%)., and (e) suggestions for improving the content and/or format of the PPC (*n* = 5, 28%). Responses to each question were sorted into categories; descriptions and example quotes for all identified categories are presented in Table 4.

4.0. Discussion

This study piloted the *Profile of Preschool Communication*, a new data collection tool designed for preschool speech-language pathology programs and practice-based research to inform response to intervention and service delivery pathways. SLPs first provided feedback on their experience using each component of the tool, then rated the tool's usability and utility and identified barriers and facilitators to implementation. Clinician feedback and ratings, and our next steps towards implementation are described next.

Within the Body Functions and Structures section, many SLPs reported challenges identifying and sub-categorizing speech delay and disorder, which is consistent with findings from our interrater reliability testing in stage one of this project (Cunningham & Oram Cardy, 2021). It has been argued that phonological (i.e., rule-based) and phonetic (i.e., motor-based) skills are not mutually exclusive (Namasivayam et al., 2020); it is possible that SLPs struggled to differentiate the speech-sound disorders because children in fact had both rule and motor-based impairments (Cunningham & Oram Cardy, 2021; Namasivayam et al., 2020). Sub-categorizing speech delays and disorders may also have been difficult due to children's young age (Pukonen et al., 2017), particularly for those with limited language. Despite these difficulties, we are reluctant to remove the requirement to sub-categorize speech sound disorder before first attempting to further investigate whether the use of additional tools or methods would support SLPs' categorizations, or if adding an *unable to determine* option may assist clinicians in describing skills for cases where the nature of speech impairments are not yet clear.

Within the Activities and Participation section, SLPs reported challenges with families returning the FOCUS and calculating FOCUS change scores. These issues are known to the research team and are in the process of being addressed. One example includes the development of a digital application for the FOCUS that would facilitate data collection and change score calculation (Cunningham et al., 2020).

Within the Environmental Factors section, many SLPs were resistant to asking mothers about their mental health and educational attainment. These items were included as a proxy for socioeconomic status, a well-known predictor of children's language and literacy outcomes (Fernald et al., 2013; Hart & Risley, 1992), and an important factor for understanding and stratifying intervention outcomes. Given the value of this type of data, we are collaborating with the program to identify other avenues for collecting this information (e.g., at program intake).

Usability and utility were generally rated favorably, however, there were some items where most ratings were either neutral or negative (i.e., disagree or strongly disagree). For example, more than half of respondents were neutral or disagreed with utility statements about the PPC influencing clinical assessment and being a useful tool to guide discussion with families. While we would of course prefer the PPC was viewed as highly useful across all aspects of clinical practice, one of its main functions is to support data collection and, ultimately, more detailed program-level outcome evaluations. A second example comes from clinicians' predominantly neutral ratings of the statement '*Including the PPC in my assessment battery was* *not burdensome*’, which may have been because they were already required to complete a one-page demographic data collection form in addition to the FOCUS and CFCS. Thus, the PPC represented a shift in the type of data collected, but not the time commitment required.

Identified barriers to implementing the PPC included the requirement to ask about maternal education and family history of mental health, time to complete the PPC, the paper format of the PPC, and for some, a perception that the PPC did not provide information that was clinically valuable. Facilitators to implementation included that the PPC was easy to use, provided information that was helpful for service planning, and was an improvement on the existing data collection tool. We believe many of the identified barriers can be addressed through tool modifications (e.g., electronic format, changes to who collects data related to environmental factors) and educational interventions (e.g., describing PPC aims to clinical stakeholders).

There are limitations to this study that should be considered when interpreting the findings. First, data were collected at only three sites that volunteered to support pilot testing, so it is possible that clinician feedback may not apply to clinicians at different sites or in different programs. We do, however, have reasonable confidence in the generalizability of our results given that (a) several of our findings were consistent with previous research (e.g., difficulty identifying/differentiating speech sound disorders), (b) participating sites represented diverse geographic regions (e.g., urban/rural, northern/southern), and (c) the protocol required the SLPs to include data for all children they assessed in order to minimize selection bias (Kukull & Ganguli, 2012). Replication in new clinical contexts could provide further evidence of generalizability (Kukull & Ganguli, 2012). Second, only 78% (*n* = 18) of participating SLPs completed the final online survey to its entirety and only 33% (*n* = 8) entered optional comments about usability and utility of the PPC. Thus, it is possible the SLPs who opted not to complete the surveys/questions would have provided different responses than those that did. Future research will consider factors such as the invitation subject line and estimated amount of time required to complete the survey to attempt to increase the likelihood of more complete survey responses (Kaplowitz et al., 2012). Third, survey responses may have been influenced by social desirability bias, with clinicians responding to items in the way that they thought we wanted them to rather than how they felt (Boyko et al., 2014). We attempted to mitigate this bias and reduce pressures to respond ‘favourably’ or ‘correctly’ by anonymizing our survey.

5.0. Conclusion

Research teams that have successfully implemented new tools into practice cite the importance of institutional support, clinically feasible tools, and the use of a multifaceted approach to implementation (Grimshaw et al., 2004; Huget et al., 2018; Li et al., 2016; Moodie et al., 2011). These factors will be considered following revisions of the PPC based on clinician feedback. Once implemented, the PPC is expected to collect data that will support the development of solutions to real-world clinical problems (e.g., waiting lists and high caseloads with limited resources). While it is possible that findings may not generalize to clinical contexts outside of the Preschool Speech and Language program, our process of stakeholder engagement in tool development may be useful to other health systems wanting to implement novel data collection tools and to researchers wishing to study outcomes in real-world clinical contexts.

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Table 1.

Association between the ICF and PPC components

ICF Components and Contextual Factors	**ICF Description**	**PPC Data collected**
Body Structures and Functions	Anatomical parts and physiological (including psychological) functions of the body	• Child's communication impairment type • Associated comorbid conditions
Activities and Participation	Execution of a task or action by the child; and the child's involvement in a life situation	• Communicative participation (FOCUS scores) • Communicative function (CFCS level)
Environmental Factors	The physical, social, and attitudinal environments in which children live	• Family history of communication or mental health difficulties • Maternal education • Child's participation in early learning environments • Limited parent-child interaction • Lack of family attendance or follow-through with therapy • Psychosocial concerns
Personal Factors	The particular background of a child that is not part of a health condition or health state	• Behavioural difficulty or disorder • Child learning English as a subsequent language • At risk birth

Note. ICF descriptions were adapted from the *International Classification of Functioning, Disability, and Health* by the World Health Organization (WHO), 2001, Geneva, Switzerland.

Table 2.

Speech-language pathologists' experiences completing components of the PPC

PPC Section	**Category of SLPs' experience**	**Example comments**
Body Structures and Functions		
Communication impairments	Too early or difficult to identify speech impairments (*n* = 12)	"*Diagnostic intervention is required to confirm the presence and type of speech disorder"* *"It's very early to determine if the difficulty is speech or language"*
	The need for an ability to indicate 'emerging', 'unknown' or 'suspected' cases (*n* = 8)	*"I really don't know why he is having problems yet"* *"We are still awaiting developmental testing*
	The need for more specific instructions for cases that are suspected, but not confirmed (*n* = 5)	"*Client has resonance concerns but no diagnosed disorder*" "*I was unsure whether to choose 'language difficulty associated with [biomedical condition]' if child has suspected ASD"*
	The need for a section to add notes for children who are difficult to assess (*n* = 9)	"*Child did not communicate during the appointment"* *"Receptive language was difficult to assess due to age and delayed expressive skills."*
Confirmed or suspected comorbidities	Diagnosis not yet confirmed (*n* = 10)	*"Still awaiting assessment, had to choose something so I put developmental delay but possibly this is wrong"* *"too early to know nature of delay"*

	Misunderstandings about data to be collected (*n* = 2)	*“'Recurrent infections'* - *do you need this info? b/c research says no impact on communication development.”*
Activities and Participation		
CFCS scores	Difficulty selecting a CFCS level (*n* = 3)	“*The family's responses on the CFCS were opposite to my observations in clinic”*
FOCUS scores	Unable to calculate FOCUS changes score (*n* = 13) The family did not complete the FOCUS (*n* = 1)	*“Family reported strong language skills, but observations did not match parental report*” *“Previous FOCUS-34 score not available/accessible to this clinician”*
Environmental Factors		
Family history of communication and mental health difficulties	Family history unavailable/unknown (*n* = 10)	*“Answers are unknown; child is adopted”* *“Was unsure how to mark this b/c it was foster parent's report, the information was not confirmed”*
Maternal education	Uncomfortable asking about maternal education and/or mental health (*n* = 53)	“*It is inappropriate to ask mental health or education questions unless truly warranted: not needed, not useful*” “*Don't know the answers; mom is defensive enough without me asking this sort of thing*
	A request for clarification (*n* = 1)	“*Answers were based on SLP’s limited observations. Not sure if there needs to be more objective information provided*”).
Involvement in an early learning environment	No issues reported	No comments entered
Personal Factors		
Family and child factors impacting communication outcomes	The need for an ‘unknown’ option (*n* = 11)	“*Don't know answers at this time*” “*Too early to make these judgments, need an 'unknown' option*”

	A need to clarify instructions for this section (*n* = 4)	“*Not sure what you want...the issue is they don't show up, low level of parents, family is overwhelmed.”*

Table 3.

Speech-language pathologists' ratings of the PPC's usability and utility

Usability				
Statement	Strongly disagree or disagree *N* (%)	Neutral *N* (%)	Agree or Strongly Agree *N* (%)	Mode (range)
The purpose of the PPC was clear	1 (5%)	1 (5%)	16 (89%)	4 (2-5)
The PPC was easy to use	0 (0%)	0 (0%)	18 (100%)	4 (4-5)
The PPC could be completed quickly	0 (0%)	7 (39%)	11 (61%)	4 (3-5)
Including the PPC in my assessment battery was not burdensome	1 (5%)	10 (56%)	7 (39%)	3 (2-4)
I enjoyed using the PPC	1 (5%)	13 (72%)	4 (22%)	3 (2-4)
Utility				
Statement	Strongly disagree or disagree *N* (%)	Neutral *N* (%)	Agree or Strongly Agree *N* (%)	Mode (range)
The PPC collected data that positively influenced the way I assessed children's communication	4 (22%)	8 (44%)	6 (33%)	3 (1-4)
The PPC collected data that provided me with new information about children that is not collected using other tools	6 (33%)	4 (22%)	8 (44%)	4 (1-5)
Using the PPC helped me to consider some of the many different factors that impact children's development and communication outcomes during my assessments	4 (22%)	3 (17%)	11 (61%)	4 (1-5)
The PPC collected data I could use to support my discussions with families	1 (5%)	12 (67%)	5 (28%)	3 (2-4)
The PPC collected data I could use to inform the recommendations I made following assessment	2 (11%)	7 (39%)	9 (50%)	3 (1-5)
The PPC collected data I could use to support intervention planning	2 (11%)	6 (33%)	10 (56%)	4 (1-4)
The PPC would be useful to my practice moving forward	1 (5%)	8 (44%)	9 (50%)	4 (2-4)
The PPC would be useful as part of routine outcome monitoring in the PSL Program moving forward	1 (5%)	5 (28%)	12 (67%)	4 (2-5)

Table 4.

Categorization of SLPs' comments about their perceived barriers and facilitators to PPC implementation

Category	Example Quotes
Experiences (i.e., successes and challenges using the PPC in practice) (*n* = 17, 94%)	
Difficulty asking about maternal education and mental health (*n* = 7)	*"I found the form easy to complete. If I'm being honest, I never asked about maternal education. If the mom shared that with me, I would record it, but I don't feel comfortable asking the question. I don't think it's relevant to how I provide services*.
The PPC was easy to use (*n* = 5)	*"The new format of the PPC was much easier than previous forms. It was nice to get parents perspective on the CFCS, previously I wasn't doing this with parents"*
The PPC took extra time (*n* = 3)	"*Additional time is required to complete the PPC*"
Suggestions for improvement (*n* = 2)	*"It would be nice to complete the tool on our iPad and we could upload the information"* *"Mostly it was just another form to fill. But hopefully linking communication challenges to the FOCUS would be helpful...especially if the FOCUS were then linked to treatment, rather than to assessment"*
Benefits or challenges associated with implementing the PPC as a tool to compliment data collected using the FOCUS and CFCS (*n* = 12, 67%)	
Clear and easy to use (*n* = 6)	*"I like the PPC face sheet. It flows nicely, is well laid out boxed sections/categories and provides good information in a quick, concise, check-list format"* *"Easier to use or as easy to use as previous face sheet"*
Add another 'to do' to the list (*n* = 2)	*"Extra time having to have focus score to complete as it's often not calculated when I'm doing this paperwork"* *"Remembering to do it, adding to the list of things I already have to do*"
Uncomfortable asking personal information (*n* = 2)	*"Some challenges - asking families about education*"
PPC data will benefit programs (*n* = 2)	*"If it is being used to measure outcomes of service delivery options this would be useful"*
Benefits or challenges associated with using the PPC for assessment and treatment planning. (*n* = 10, 56%)	

Asking personal information affects rapport (*n* = 2)	*"Attempting to establish a rapport with some families/populations can be challenging as they are suspicious and I worry about collecting some of the information which may be perceived as intrusive"*
Collecting information is helpful for planning (*n* = 5)	*"It provides more detailed information that helps to clarify the child's FOCUS scores and the child's specific areas of difficulty"* and *"I like that it is collecting more specific data about the clients to allow insight into trends*"
Completing the PPC does not provide valuable information (*n* = 2)	*"Really doesn't provide any added information of value*"
Completing the PPC creates more work (*n* = 1)	*"Paperwork"*
Thoughts about the items on the PPC such as specific items or sections that did/did not work well in practice. (*n* = 18, 100%)	
Asking personal information was difficult (*n* = 12)	*"I did not feel comfortable asking about maternal education and mental health concerns with a new family on my caseload"*
The PPC should be shortened (*n* = 1)	*"Also, we have so much information to gather in a short period of time so it would be great if information on this form could be reduced further"*
Items listed collected enough information (*n* = 2)	*"I don't see the need to add any other areas. You have covered it well*"
Adding an option for 'emerging skills' and 'not applicable' to some sections (*n* = 2)	*" I wish there was an option to note emerging skills vs a disorder or area of difficulty."* and *"Some of the questions needed a 'information not available' or 'not applicable' as a possible response"*
Could not remember the items as the PPC was last administered several months ago (*n* = 1)	
Suggestions for improving the content and/or format of the PPC. (*n* = 5)	
Modify terminology (*n* = 1)	*"Terminology - 'licensed child care' not registered child care"*
Remove questions about mental health and maternal education (*n* = 3)	*"Maternal Education: leave out this section of mother's highest level of education, as I did not find it relevant enough to my work. Mental health - optional (may be helpful to note if applicable but often this information is unclear at the beginning*"

Include a general comments section (*n* = 1)	“*I like it as a single page with check box questions. Maybe add a general comment section to make notes at the end?*”