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**Young Children's Participation and Environment Measure:
Cultural adaptation and pilot testing for use in Sweden**

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Young Children’s Participation and Environment Measure: Cultural adaptation and pilot testing for use in Sweden

Abstract

Aim: To culturally adapt and evaluate the psychometric properties of the Young Children’s Participation and Environment Measure (YC-PEM) for use by caregivers of Swedish children with and without disabilities, aged 2-5 years. **Methods:** In total, thirteen cognitive interviews and two focus groups with caregivers of children with and without disabilities were conducted to evaluate the cultural relevance of YC-PEM content for use in a Swedish context. Per participant feedback, a revised version of the Swedish YC-PEM was created and pilot tested with caregivers of children with disabilities (n=11) and children with typical development (n=22). **Results:** User feedback informed content revisions to 7% of items. Internal consistency estimates of the Swedish YC-PEM pilot version were acceptable and ranged from .70 to .92 for all but two of the YC-PEM scales. Mean percentage agreement between raters ranged from 47% to 93% across YC-PEM scales for inter-rater, and 44% to 86% for test-retest. One of twelve YC-PEM scales revealed significant group differences between young children with and without disabilities. **Conclusions:** This study contributes preliminary evidence for the use of a culturally adapted YC-PEM in Sweden. Further validation with larger samples will allow for parametric testing to evaluate its psychometric properties.

Keywords: Participation, measure, children, cultural adaptation, pilot testing

Background

Children's participation in everyday activities is an important indicator of both present and future health and achievement (Aydogan, 2012). Participation has been broadly defined as "involvement in a life situation" in the International Classification of Functioning, Disability, and Health - Version for Children and Youth (ICF-CY) (World Health Organization, 2007), and has been further operationalized as a multidimensional concept with at least two key dimensions for assessment: *attendance* and *involvement* (Granlund et al., 2012; Imms et al., 2016). However, few measures exist that assess both dimensions of participation for young children.

In addition to being a multidimensional concept (Imms et al., 2016), children's participation is partly dependent on contextual characteristics, including personal factors and environmental factors (Anaby et al., 2014; King et al., 2010). Studies have shown that children with diverse disabilities and conditions experience participation restrictions (Axelsson et al., 2013; Axelsson & Wilder, 2014; Castro & Pinto, 2015; Khetani et al., 2013b; Sjöman et al., 2016). However, existing measures of young children's participation typically focus on children with specific diagnoses (e.g., mild motor disabilities). Furthermore, these measures tend to focus on limited types of activities in a limited number of contexts (e.g., out-of-school activities) (e.g., Berg & LaVesser, 2006; Law et al., 2012; Rosenberg et al., 2010; Washington et al., 2013), with broad assessment of environmental impact on the child's participation despite considerable variation in the relevant features of environments across activity settings. Consequently, measures are needed that capture multiple dimensions of participation and environmental impact on participation across a broad range of activity contexts, and for a broad population of young children with and without disabilities.

The Young Children's Participation and Environment Measure (YC-PEM) is a newly developed questionnaire for use by caregivers of children with and without disabilities, aged

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1 0-5 years (Khetani et al., 2013a). The YC-PEM assesses for young children’s attendance and
2 involvement across a broad range of contexts (home, preschool, and community) and includes
3 assessment of environmental impact on participation in each of the three contexts. The YC-
4 PEM has revealed initial evidence of the validity and reliability with a sample of young
5 children with and without various disabilities residing in the United States and Canada
6 (Khetani, 2015; Khetani et al., 2015), and is sensitive to detecting participation disparities
7 between children with and without disabilities in specific activity contexts (Benjamin et al.,
8 2016), and when using a culturally adapted version that did not require language translation
9 (Lim et al., 2015; Lim et al., 2016). Assessments of functional performance (Nordmark et
10 al.,1999) and participation (Ullenhag et al., 2012a) have been culturally adapted and validated
11 prior to their use in a Swedish context. This work has revealed significant differences in
12 children’s performance and participation across cultural contexts (Nordmark et al., 1999;
13 Ullenhag et al., 2012a; Ullenhag et al., 2012b). However, to our knowledge, the YC-PEM has
14 not yet been culturally adapted to ensure its validity and reliability for use in a Swedish
15 context that requires language translation. This work potentially affords for more
16 comprehensive investigation of cross-cultural differences of young children’s participation
17 and environmental impact on participation.

18 In order to culturally adapt a measure with language translation, it is important to
19 assess both the cultural validity and content validity of the instrument (Mokkink et al., 2010).
20 Cultural validity concerns the quality of the language translation process, the target
21 populations’ understanding of the language translation, and the perceived relevance of the
22 translated content by the end user. Content validity concerns whether the assessed construct
23 (i.e., participation) is adequately and fully reflected in the content of the translated measure.
24 Therefore, the YC-PEM needs to be evaluated for cultural and content validity in a Swedish

context, and then pilot tested to ensure that it continues to produce consistent and stable estimates prior to pursuing larger scale psychometric testing.

The purpose of this study is to **establish the initial** psychometric properties of a **culturally adapted** YC-PEM for use by caregivers of Swedish children with and without disabilities. The following research questions are posed:

1. To what extent is the YC-PEM culturally valid for assessing participation and environmental impact on participation among Swedish children with and without disabilities?
2. To what extent is YC-PEM content valid for assessing participation of Swedish children with and without disabilities?
3. Is the YC-PEM reliable for Swedish children with and without disabilities?
4. Is the YC-PEM able to differentiate between young children with and without disabilities?

Methods

This study was carried out as part of a larger study of preschooler engagement involving intended use of a Swedish YC-PEM with children 2 to 5 years. The larger project was approved by the Regional Ethical Review Board in Linköping, Reference No. 2014/479-31. **Approval was also granted by CanChild Centre for Childhood Disability Research, the designated distributor for the YC-PEM, in order to culturally adapt the instrument for use in a Swedish context.**

Participants

Convenience sampling was used to recruit participants for cognitive interviews, focus groups, and pilot testing. Inclusion criteria were: 1) caregivers of children aged 2-5 years, 2) ability to read and write in Swedish, and 3) having a child enrolled in preschool. Caregivers of children with disabilities were identified as having a child that received services from a local

habilitation center, while caregivers of children with typical development were identified as not receiving services from a habilitation center. The target age range for this study was selected because children typically begin habilitation services at that time, and because this is the target age range for the larger project. No compensation was given to the participants. Participant characteristics are further described in Table 1.

[Insert Table 1 about here]

For Swedish YC-PEM pilot testing, 274 YC-PEM paper forms, including demographic questions, were distributed to caregivers via service providers at five habilitation centers, three special preschools, and two public preschools between May 2015 and April 2016 (see Table 2). Caregivers were instructed to complete the questionnaires and mail them back through a prepaid envelope. Half of the study packets that were distributed to caregivers included a second YC-PEM questionnaire. Caregivers who received these packets were asked to recruit another caregiver to independently complete and mail back the second YC-PEM questionnaire for inter-rater evaluation. The remaining half of the study packets were distributed to caregivers with a single copy of the YC-PEM questionnaire. These caregivers were asked to complete and mail back the YC-PEM questionnaire and their contact information in order to complete the YC-PEM on a second occasion for test-retest evaluation. The re-test questionnaire was sent 10 days after receiving the first questionnaire. The time between test and re-test reply was 3-4 weeks.

[Insert Table 2 about here]

Measures

Demographic questions. Caregivers were asked about child gender, date of birth, and relation to the child. For children with diagnosed disabilities, caregivers were asked to indicate disability kind and severity.

Young Children's Participation and Environment Measure (YC-PEM). The YC-PEM (Khetani et al., 2013a) is a caregiver-report measure that assesses young children's participation in broad types of activities that take place in the home, preschool, and community (see Table 3). For each type of activity, three dimensions of participation are assessed: 1) how often the child participates in this type of activity (i.e., frequency), 2) how involved the child is in this type of activity (i.e., involvement) 3) if the caregiver wants their child's participation to change (i.e., desired change). If caregivers respond "yes" to indicate that change is desired, they can indicate type(s) of change desired, and are also asked to describe strategies that they have tried to help their child participate in activities of that type. In addition, the YC-PEM includes three environmental sections to assess the environmental support for child participation in home, preschool, and community. The environmental section concludes with respondents providing examples of strategies that have helped their child to participate in that setting. Altogether, the YC-PEM includes three participation scales (frequency, involvement, desire change) and one combined environmental scale (environmental support) for each setting (home, preschool, community), in total 12 YC-PEM scales.

[Insert Table 3 about here]

The original YC-PEM has shown fair to excellent internal consistency for the home (.82 to .96), daycare/preschool (.67 to .92), and community (.68 to .96) settings. Additionally, the YC-PEM has shown poor to excellent test-retest reliability for the home (.57 to .91), daycare/preschool (.31 to .92), and community (.52 to .94) settings (Khetani et al., 2015). The YC-PEM may detect significant group differences in one or more dimensions of young children's participation based on the child's disability status (Benjamin et al., 2016; Khetani et al., 2015).

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The culturally adapted YC-PEM for use in Singapore has been reported as retaining similar psychometric properties (Lim et al., 2015). Specifically, Lim and colleagues (2015) report the YC-PEM, Singapore, as having fair to excellent internal consistency across most scales, moderate to excellent test-retest reliability across all scales except of the home frequency scale, and moderate to large effects of disability group differences across most YC-PEM scales.

Procedure

To test cultural and content validity, the YC-PEM underwent a process of forward-translation, expert evaluations through the use of cognitive interviews and focus groups, expert-informed revisions, discussions in the research group and with the instrument developer, further revisions, additional cognitive interviews, and finally back-translation (see figure 1). This approach is congruent with best practice frameworks for cultural adaptation (Beaton et al., 2000; Guillem, Bombardier, & Beaton, 1993; Mokkink et al., 2010; Sousa & Rojjanasirat, 2011; Wild et al., 2005)

[Insert Figure 1 about here]

First, a researcher with Swedish as first language, and knowledge of the study topic, performed the forward translation of the YC-PEM. Then, caregivers of children with or without disabilities participated in cognitive interviews and/or focus groups to evaluate the cultural and content validity of YC-PEM. Cognitive interviews were conducted in person or via telephone to evaluate the cultural validity of the YC-PEM. Participants were first instructed to complete the questionnaire while a research assistant recorded observations of the participants during YC-PEM completion (e.g., time spent on each page, facial expressions, and/or verbal comments). Participants were instructed to mark any difficult item for later discussion. Completion time of the YC-PEM ranged from 32 to 65 minutes. Recorded observations and/or marked items guided the cognitive interview to further understand

participant completion of the questionnaire (e.g., understanding of instructions, interpretation of words and response alternatives). Interviews lasted between 33 and 49 minutes. Each cognitive interview was audiotaped and transcribed verbatim.

Two 90-minute focus groups were used to evaluate the measure's content validity, one for caregivers of children with disabilities, and one for caregivers of children without disabilities. Caregivers of children with disabilities were invited to participate in both cognitive interviews and face-to-face focus groups. One researcher led each focus group, and another took notes for later review. Participants completed an item-by-item review in order to identify activity categories and examples that were irrelevant or missing.

Upon interview and focus group completion, participant feedback were then aggregated item- or section-wise and applied to identify content revisions needed to create an initial Swedish YC-PEM version. This initial version was subject to discussion in the research group and together with the instrument developer and resulted in a second version of the YC-PEM. Four additional cognitive interviews were then pursued based on this second version, results of which informed revisions to create a third Swedish YC-PEM.

The third Swedish version of YC-PEM was then back-translated by a bilingual person from outside the research group with English as first language. The back-translated version was then compared to the research group's own translated English version by another member of the research group with English as first language. No differences appeared in the two English versions. Therefore, the third and final Swedish version was ready for pilot testing. Revisions are further described in the results section.

Data Analysis

In the pilot testing of the Swedish YC-PEM, examination of missing data revealed one case with more than 20% missing data, resulting in case deletion. For cases where

respondents provided two questionnaires (test-retest or inter-rater), the first questionnaire received was included in internal consistency reliability and construct validity analyses.

Internal consistency reliability was examined for each of the twelve YC-PEM scales. Specifically, Cronbach's alpha was used to test correlations across all items on a scale in each setting (e.g., across all frequency items in the home setting). Alpha values of .70 were interpreted as acceptable (Cicchetti, 1994).

Inter-rater and test-retest reliabilities were examined for each of the twelve YC-PEM scales using mean percentage agreement across rater-pairs. For the 'desire change' scale, items were first dichotomized (yes, no). Percentage agreements of 70% were interpreted as acceptable.

One aspect of construct validity is an instrument's ability to distinguish between groups that are expected to differ on some target variables (Davidson, 2014; Mokkink et al., 2010). For this study, group differences in participation were examined among children with and without disabilities. For frequency of participation, involvement, and environmental support, the responses on all items were first summarized for each setting, and divided by the maximum possible score, and multiplied by 100 (range 0-100). For desire change, a sum of 'yes' responses in a setting were divided by the total number of items in that setting, and multiplied by 100 (range 0-100). Independent samples *t*-tests were used to examine differences in percent scores for each of the twelve YC-PEM scales. Levene's adjusted significance level was reported when equal variances were not assumed. Due to the number of *t*-tests performed, Bonferroni correction of significance value was made, resulting in a critical significance value of .004.

Results

Cultural and content validation of YC-PEM for use in Sweden

Cultural revisions in the form of layout revisions were made to create the Swedish YC-PEM. For example, in the environmental section, the response alternative “No impact/not an issue” was placed last, instead of first, when reading left to right on the page, because caregivers were confused when “no impact” and “usually helps” was placed next to each other. Based on the suggestion of the majority of the caregivers, “No impact” was also changed to “No barrier” since the original wording made caregivers unsure of the meaning. Furthermore, on the instruction page, an instruction was added in parentheses to better guide Swedish caregivers in using a relative perspective when evaluating their desire for change: “If you want your child’s participation to change in this type of activity (based on the child’s situation and capabilities)”, because some caregivers of children with disabilities interpreted the original question in a manner similar to: “would you like your child to be normal?”. This adjustment is in line with a solution-based approach, reasoned by Coster and colleagues (2012). Furthermore, in the environmental sections, the questions on strategies were removed to reduce completion time, because caregivers tended to provide similar responses when asked about strategy use specific to an activity context, versus setting.

In order to ensure content validity of the Swedish YC-PEM, revisions of items and item examples were made based on the focus groups, as well as discussions in the research group. For example, the item ‘Indoor play’ was changed to ‘Play and games’ to include outdoor play and games that are commonly pursued at home by Swedish families. Also, the item “Your child’s relationships with peers” was changed to “Other children’s relationship with your child in preschool”, to stress the contextual nature of this item. In total, new examples were added for about 42% of the items, and revisions of item definitions were made for about 7% of the items.

Swedish YC-PEM pilot test

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Internal consistency reliability. As shown in Table 4, all participation and environment scales revealed acceptable internal consistency estimates, except for frequency of participation in the preschool and community settings.

[Insert Table 4 about here]

Inter-rater reliability. As shown in Table 5, inter-rater agreements were poor for the frequency scales in all three settings. For involvement scales, there was poor inter-rater agreement for the home and community settings, but excellent agreement for the preschool setting. For desire change scales, analyses revealed acceptable inter-rater agreement for the home and community settings, and excellent agreement for the preschool setting. For environmental support scales, analyses revealed poor inter-rater agreement for the home, but acceptable agreement for the preschool and community settings.

[Insert Table 5 about here]

Test-retest reliability. As shown in Table 6, test-retest agreements were poor for the frequency scales in the home and community settings, but acceptable for the preschool setting. In contrast, acceptable to good test-retest agreements were found for the involvement and desire change scales across settings. For environmental support scales, analyses revealed acceptable test-retest agreements in the home and community settings, and excellent agreement for the preschool setting.

[Insert Table 6 about here]

Construct validity. Significant group difference in caregiver perceptions of environmental support for community participation was found (see Table 7). Seven estimates of group differences trended towards statistical significance. As compared to caregivers of children without disabilities, caregivers of children with disabilities consistently reported lower mean levels of frequency, involvement, and environmental support, and were more likely to report desiring their child's participation to change.

[Insert Table 7 about here]

Discussion

Culturally valid measures are critical to advancing knowledge about variability and change in children's participation across cultures (Stevenson & van Brakel, 2013). The aim of this study was to develop and pilot test a version of the YC-PEM for assessing participation and environmental support to participation among Swedish children with and without disabilities, aged 2-5 years. This study revealed preliminary evidence supporting the cultural and content validity of the Swedish YC-PEM.

In order to assure the relevance of the YC-PEM in a Swedish context, the measure underwent a cultural adaptation process inclusive of language translation. Results of cognitive interviews and focus groups informed a number of content and layout revisions so that the questionnaire could be understood by caregivers in Sweden. Some content revisions, such as relabeling 'indoor play' at home to 'play and games', are consistent with revisions made by Ullenhag and colleagues (2012a) when culturally adapting the Children's Assessment of Participation and Enjoyment (CAPE) for use in Sweden. These adaptations were possible without compromising the comparability of the questionnaire.

Pilot testing of the Swedish YC-PEM revealed promising evidence in support of the reliability of some, but not all, scales in the instrument. Similar to Khetani and colleagues (2015), it was found that 1) YC-PEM involvement and environmental support scales had acceptable internal consistency and test-retest reliabilities across all three settings, and 2) low internal consistency and/or test-retest reliabilities for the YC-PEM frequency scale. The lower reliability estimates for frequency of participation might be due having a greater number of scale points as compared to the other scales. Alternatively, frequency of young children's participation might be more likely to vary across activities in the same setting (e.g., field trips

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1 in preschool are typically less common as compared to group learning activities), and over a
2 3-4 week period. Whereas Khetani and colleagues (2015) collected data during summer
3 months, data for this study were collected across multiple seasons, therefore minimizing the
4 likelihood of a seasonal effect and increasing the likelihood that ‘attendance’ may be a less
5 reliable dimension for evaluating young children’s participation.

6 Inter-rater agreement was pursued in this study to examine the effect of caregiver type
7 on the stability of the instrument. It was found that only half of the participation scales
8 revealed acceptable to excellent agreement among raters, and there was no setting-specific
9 trends in these results. These results might be due to differences in caregiver knowledge about
10 their child’s participation, independent of setting, and/or the amount of time spent caring for
11 the child to promote participation. Alternatively, the small sample size might have
12 underestimated reliability estimates based on mean agreement scores.

13 Similar to prior studies (Benjamin et al., 2016; Lim et al., 2016), evidence of disability
14 group differences in participation and perceived environmental support for participation was
15 found. While one scale reached statistical significance, most of the YC-PEM scales trended
16 towards significance. These results are likely due to the conservative significance level
17 employed to reduce the Type 1 error rate, together with the small sample size.

18 **Study limitations**

19 There are some limitations in this study that impact the conclusions that can be made.
20 First, our sample consisted of caregivers of children 2-5 years, while the original YC-PEM is
21 developed for caregivers of children 0-5 years. The target age range was set because Swedish
22 children typically enroll in habilitation services around 2 years of age. As a consequence, our
23 results cannot be generalized to children 0-2 years. In addition, caregivers of children with
24 disabilities were invited to participate in cognitive interviews and focus groups, resulting in
25 overrepresentation of their perspectives.

Furthermore, the use of the YC-PEM paper forms may have increased respondent burden, and contributed to low response rates (see Table 2). Many caregivers in the cognitive interviews commented on the YC-PEM paper forms being difficult to navigate, and increasing their completion time. In contrast, these concerns were rarely raised in the initial validation of YC-PEM (Khetani et al., 2015), using a web-based version that included programmed prompts to guide the user through the questionnaire. For example, if caregivers select 'never' to their child's frequency of participation, the web-based version of YC-PEM would skip the next item about their child's involvement in that same activity type to decrease respondent burden. In addition, the web-based version included automated reminders for retest completion to improve response rates. While the psychometric properties reported in this study closely resemble those obtained during validation of the original YC-PEM, the use of different forms limits international comparability (Herdman et al., 1998). Hence, future studies should consider use of a web-based version, or altering the layout of items in the paper form to resemble the web-based version. Either alternative may increase response rates and ensure international comparability of the questionnaire (Herdman et al., 1998).

Another study limitation concerns the partial evaluation of the YC-PEM content in the focus groups. The aim of the focus groups was to evaluate the YC-PEM participation section, and therefore, no evaluation was made of the items in the environmental section (e.g., physical layout, services in the home etc.). The environmental items were, however, included in the cognitive interviews and in research group discussions.

Finally, the small sample in the pilot testing did not allow for parametric tests of inter-rater and test-retest reliability. Instead, percent agreement was used to calculate inter-rater and test-retest agreement. Percent agreement does not, however, take into consideration the chance of random agreements. Therefore, there is a risk of over-estimating the agreement

among raters. However, many of the scales in the YC-PEM have rather large scale points (e.g., frequency 0-7, involvement 1-5) which should help minimize this risk.

Conclusions

To our knowledge, this is the first attempt to examine the psychometric properties of a culturally adapted version of YC-PEM involving language translation. Results show that the Swedish YC-PEM might be a valid and reliable measure for children with and without disabilities, aged 2-5 years. However, it should be tested with a larger and more diverse sample of participants by age to allow for parametric testing of inter- and test-retest reliabilities, and construct validity according to disability group differences.

Declaration of Interest

The authors report no conflicts of interest.

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Figure 1. Flow chart of cultural and content validation of the YC-PEM for use in Sweden.

Table 1.
Participant Characteristics

<i>Characteristics</i>		Children with disabilities	Children with typical development
Cognitive interviews			
Interviewed caregiver (mothers/fathers)		7/0	5/1
Child age range (years)		2-5	2-4
Child gender (boys/girls)		4/3	4/2
Disability severity		mild to severe	N/A
Country of origin		Sweden	Sweden
Community type		suburban	rural/suburban
Focus groups			
Interviewed caregiver (mothers/fathers)		4/0	4/0
Child age range (years)		3-5	2-5
Child gender (boys/girls)		1/3	4/0
Disability severity		mild to severe	N/A
Country of origin		Sweden	Sweden/Europe/Middle East
Community type		suburban	urban/suburban/rural
Pilot testing			
Respondent ¹	Mother only	7	15
	Father only	1	5
	Both parents	3	2
Child age (years)	2	2	2
	3	1	9
	4	4	7
	5	4	4
Disability severity ²	mild	1	N/A
	moderate	7	N/A
	severe	3	N/A
Child gender (boys/girls)		5/6	11/11

¹for inter-rater responses, the first respondent is presented.

²e.g., diagnosis of artrogryphos, Down's syndrome, autism, cerebral palsy.

Table 2.
Response rate in the pilot testing of the Swedish YC-PEM

	Distributed			Responded		
	<i>Children with disabilities</i>	<i>Children with typical development</i>	<i>Total</i>	<i>Children with disabilities</i>	<i>Children with typical development</i>	<i>Total</i>
Inter-rater	77	60	137	1	6	7
Test-retest	77	60	137	4	3	7
Single ¹	-	-	-	6	13	19
Total (%)	154	120	274	11 (7)	22 (18)	33 (12)

¹Caregivers only provided one questionnaire.

Table 3.
YC-PEM Description

Participation	Home	Preschool	Community
Number of items	13	3	12
Item examples	Art, crafts, stories, music	Group learning	Routine appointments
Scale			
-Frequency	0-7 ¹	0-7 ¹	0-7 ¹
-Involvement	1-5 ²	1-5 ²	1-5 ²
-Desired change	Yes/No. If yes, specify type(s) ³	Yes/No. If yes, specify type(s) ³	Yes/No. If yes, specify type(s) ³
Environment	Home	Preschool	Community
Factors			
Number of items	8	8	10
Item examples	Physical layout	Outdoor weather conditions	Safety
Scale	1-3 ⁴	1-3 ⁴	1-3 ⁴
Resources			
Number of items	5	8	7
Item example	Services in the home	Access to public transportation	Money to support participation
Scale	1-3 ⁵	1-3 ⁵	1-3 ⁵

¹Never to Once or more each day, ²Not very involved to Very involved, ³Yes, do more often/Yes, do less often/Yes, be more interactive/Yes, be more helpful and/or Yes, participate in a broader variety of activities, ⁴Usually helps/Sometimes helps; sometimes make harder/Usually makes harder, ⁵Usually yes/Sometimes yes; sometimes no/Usually, no.

Table 4.
YC-PEM internal consistency reliability

YC-PEM section	Scale	Items	N	Cronbach's alpha coefficient
Home	Frequency	13	31	.74
	Involvement	13	28	.88
	Desire change	13	26	.88
	Environmental support	13	22	.88
Preschool	Frequency	3	33	.35
	Involvement	3	32	.80
	Desire change	3	32	.70
	Environmental support	16	32	.91
Community	Frequency	11	31	.68
	Involvement	11	28	.85
	Desire change	11	25	.90
	Environmental support	17	29	.92

Note. N = number of participants.

Table 5.
Mean (%) inter-rater agreements

YC-PEM section	Scale	Items	N	Mean percent agreement (range)	Level of agreement
Home	Frequency	13	7	62.6 (46.2-84.6)	Poor
	Involvement	13	7	53.9 (23.1-92.3)	Poor
	Desire change	13	7	78.0 (30.8-92.3)	Acceptable
	Environmental support	13	7	69.2 (30.8-92.3)	Poor
Preschool	Frequency	3	5	59.4 (33.3-100)	Poor
	Involvement	3	5	93.3 (66.7-100)	Excellent
	Desire change	3	7	90.5 (33.3-100)	Excellent
	Environmental support	16	7	76.8 (31.3-100)	Acceptable
Community	Frequency	11	7	46.8 (18.2-81.8)	Poor
	Involvement	11	7	57.1 (18.2-90.9)	Poor
	Desire change	11	7	72.7 (9.2-100)	Acceptable
	Environmental support	17	7	71.4 (29.4-100)	Acceptable

Note. N = number of rater-pairs.

Table 6.
Mean (%) test-retest agreements

YC-PEM section	Scale	Items	N	Mean percent agreement (range)	Level of agreement
Home	Frequency	13	7	44.2 (18.2-72.7)	Poor
	Involvement	13	7	84.4 (72.7-100)	Good
	Desire change	13	7	75.3 (45.5-100)	Acceptable
	Environmental support	13	7	74.8 (52.9-94.1)	Acceptable
Preschool	Frequency	3	7	76.2 (66.7-100)	Acceptable
	Involvement	3	7	76.2 (33.3-100)	Acceptable
	Desire change	3	7	85.7 (66.7-100)	Good
	Environmental support	16	7	76.8 (68.8-100)	Acceptable
Community	Frequency	11	7	44.2 (18.2-72.7)	Poor
	Involvement	11	7	84.4 (72.7-100)	Good
	Desire change	11	7	75.3 (45.5-100)	Acceptable
	Environmental support	17	7	74.8 (52.9-94.1)	Acceptable

Note. N = number of participants.

Table 7.
Disability group differences in young children's participation and environmental support for participation

YC-PEM section	Scale	Children with disabilities (n=11)		Children without disabilities (n=22)		<i>t-test</i>
		M	SD	M	SD	<i>t (p)</i>
Home	Frequency	74.39	10.11	85.24	6.12	3.26 (.006)
	Involvement	62.15	15.41	78.80	13.01	3.04 (.005)
	Desire change	51.05	27.36	24.13	23.42	-2.95 (.006)
	Environmental support	78.92	16.51	94.08	6.05	2.64 (.026)
Preschool	Frequency	82.20	12.37	85.61	8.31	0.94 (.354)
	Involvement	70.00	23.36	90.30	16.29	2.85 (.008)
	Desire change	51.52	37.61	15.15	28.60	-3.10 (.004)
	Environmental support	78.96	16.24	96.50	4.65	3.35 (.008)
Community	Frequency	41.36	9.31	45.89	9.71	1.23 (.229)
	Involvement	52.73	17.08	73.82	15.16	3.21 (.004)
	Desire change	28.93	33.48	19.42	22.84	-0.96 (.343)
	Environmental support	71.37	16.69	92.16	8.06	3.72 (.003)*

Note. M = mean; SD = standard deviation
**p*<.004.