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Participation in Early Childhood Educational Environments for Young Children With and Without Developmental Disabilities and Delays: A Mixed Methods Study

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According to the United Nations Enable Convention on the Rights of the Child (2008), children should have equal opportunity for full human rights and fundamental freedoms regardless of differences in their ages, backgrounds, or abilities. Universal education is a key part of this international mandate as reinforced by national and international policies (Government of India, 1995, section 5; Individuals with Disability Education Act [IDEA], 1997). The enactment of universal educational policies has resulted in a vast increase in the number of children with disabilities who are enrolling in school worldwide (Cakiroglu & Melekoglu, 2013; U.S. Department of Education, 2001). Despite positive trends in school enrollment, children with disabilities continue to account for one third of all school-aged children not attending school (UNICEF, 2013). Disparities in school enrollment may be related to inadequate oversight and resources (trained staff, equipment and supplies for quality assessment) that hinder the provision of inclusive educational opportunities for children with disabilities.

To improve the quality of education for students with disabilities, interventionists (e.g., occupational therapists, teachers, administrators) need to be able to: 1) identify children with inclusion needs, and 2) identify intervening factors and adaptive strategies impacting inclusion. Participation is a key indicator of full inclusion for children with disabilities (IDEA, 1997). Greater participation is linked to positive health and developmental outcomes (Dunst, 2001) such as increased physical, cognitive, and social skills (Larson & Verma, 1999; Mahoney et al., 2005), positive self-identity and belonging (Coatsworth et al., 2006; Odom et al., 2011; Simeonsson et al., 2001), and better physical and mental health (Masse et al., 2012; Sandler et al., 2004).

Two caregiver report questionnaires were developed in North America to improve assessment of participation-level outcomes in children: a) the Participation and Environment Measure for Children and Youth (PEM-CY: Coster et al., 2010) and, b) the Young Children's Participation and Environment Measure (YC-PEM: Khetani et al., 2013b). These questionnaires combine an assessment of children's participation with an assessment of the

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child's environment. This assessment approach enables closer examination of the environmental impact on participation, particularly since physical, social, attitudinal, and institutional aspects of children's environment are often underemphasized when intervening to promote children's participation (Anaby et al., 2013; Anaby et al., 2014). Information about environmental impact may be valuable to interventionists who have the authority to modify, or guide decision-making about when and how to modify environments to promote school participation outcomes. In addition, both questionnaires give parents the opportunity to describe strategies that they have used to promote their child's participation in a specific activity and/or setting. Information about parents' adaptive strategies can help providers employ a strengths-based approach to intervention planning.

The PEM-CY can differentiate between the school participation patterns and the environmental impact on school participation of school-aged children with and without disabilities in North America (Coster et al., 2013). These findings are congruent with and extend prior studies in which school-aged children with disabilities were found to participate less in a school setting when compared to children without disabilities (Ericksson et al., 2007; Hemmingson & Borell, 2002; Simeonsson, et al., 2001), and their parents perceived the environment to be more of a barrier and less of a support when compared to parents of children without disabilities (Hemmingson & Borell, 2002; Law et al., 1999).

Relative to knowledge about disparities in participation among school-aged children, there is less knowledge about disparities in participation during the early childhood period to guide intervention planning at an earlier point in the child's trajectory. Young children have described their health according to engagement in preschool-based activities (Almqvist et al., 2006), and were more or less engaged in classroom activities based on their disability status (McWilliam & Bailey, 1995). Caregiver report questionnaires may afford for improved opportunities to understand family perspectives about 1) specific disparities in participation between young children with and without developmental disabilities and delays, 2) how environments are perceived to impact participation, and 3) what strategies parents of young children have used to improve their child's participation in specific activities and/or settings. This level of detailed knowledge can help interventionists involve parents when assessing need and planning interventions to promote young children's participation in daycare or preschool activities according to best practice standards (NAEYC and NAECS/SDE, 2003; Snow & Van Hemel, 2008). The YC-PEM (Khetani et al., 2013b) was adapted for use with younger children between 0–5 years (Khetani et al., 2013c; Khetani et al., 2013a; Khetani et al., 2012) and recently underwent psychometric validation in North America (Khetani, 2015; Khetani et al., 2015). However, the YC-PEM has not yet been used to investigate the extent to which children with and without developmental disabilities and delays display differences in their participation before entering school.

The purpose of this study is to build clinically relevant knowledge about young children's participation in early childhood educational environments by addressing three aims:

1. Examine similarities and differences between parents of young children with and without developmental disabilities and delay(s) according to perceptions of the child's participation in daycare or preschool activities;

2. Examine similarities and differences between parents of young children with and without developmental disabilities and delay(s) in perceived environmental supports for participation in daycare or preschool activities;
3. For parents who want their child's participation to change, identify the types of adaptive strategies commonly employed by parents to promote their child's participation and its relationship with the type(s) of change desired.

Methods

This is a cross-sectional study that was carried out using a concurrent transformative mixed methods study design. A mixed methods study design is typically employed when one research approach is insufficient for addressing the main research problem under investigation (Creswell, 2009). The main purpose of this study is to fill clinically important knowledge gaps about young children's participation in a daycare or preschool setting. Towards this end, detailed knowledge about disparities in young children's participation, discrepancies in environmental impact on their participation, and the types of adaptive strategies commonly used by parents to improve participation are needed to promote full inclusion in the daycare or preschool setting. This knowledge can help interventionists understand how problems in participation present in the daycare or preschool setting, how the child's environment may be impacting participation, and how strategies are commonly focused by parents to affect participation change in that setting.

A common feature of mixed methods research is an explicit integration of qualitative and quantitative methods in one or more phases of the research process (Tashakkori & Teddlie, 1998). For this study, qualitative and quantitative methods were integrated during data collection (i.e., concurrent) and data analytic (i.e., transformative) phases of study. During data collection, parents first reported on their child's participation, including whether they wanted their child's participation to change. If parents selected 'yes, desire change', then they were prompted to select up to five type(s) of change desired and describe up to three strategies that they had used to affect participation change. By linking closed-ended items about change desired and open-ended items about strategy use, the research team obtained in-depth knowledge about parents' goals for their child (i.e., whether change is desired and, if so, of what type) and their prior attempts to reach those goals (Creswell & Clark, 2011). During data analysis, open-ended responses on parent strategies were sorted into the ten family accommodations as defined by Bernheimer and Keogh (1995), transformed into numerical counts, and then linked back to responses about type(s) of change desired (see Figure 1). Qualitative data were quantified to identify commonly used caregiver strategies specific to the daycare/preschool setting and to determine if these strategies were clearly focused towards specific type(s) of change.

Participants

This study involves secondary analysis of data from a subsample of 129 parents who enrolled in an online validation of the YC-PEM in North America (N = 395; June – October 2013). For the larger YC-PEM validation study, convenience and snowball sampling methods were used to recruit diverse study participants in terms of their geographical

location, economic status, child's age, and service enrollment. Research staff first approached program directors of early intervention agencies and early childhood centers in the Colorado Front Range and Wyoming communities and provided them with study flyers and talking points to use when distributing flyers to families. Notices about the study and enrollment updates were posted via agency-sponsored electronic newsletters and social media sites. Staff also attended community-sponsored events (e.g., universal playground design workshop) to solicit for additional recruitment help and to directly enroll families. Each participant who agreed to help with participant recruitment was issued two study flyers along with their \$10 mailed payment.

Eligible participants for the YC-PEM validation study met the following inclusion criteria: 1) were 18 years or older; 2) self-identified as a parent or legal guardian of a child between 0 and 5 years old; 3) were able to read and write in English; 4) had Internet access; 5) resided in North America. An additional criterion that determined the subsample for this study from the larger sample in the validation study was that all participants self-identified as having a child enrolled in an early childhood educational program (e.g., center-based daycare, preschool, kindergarten).

Data Collection

Institutional Review Board approval was obtained prior to data collection. Eligible and interested participants were directed to enroll in the study via a web link located on the project flyer. Each participant reviewed the inclusion criteria to confirm eligibility, created a user account to gain access to the study site, provided online consent, and then completed the demographic questionnaire and the YC-PEM online.

Measures

Demographic Questionnaire—Parents reported on 1) family factors (e.g., education, marital status), 2) household factors (e.g., annual income), 3) child factors (e.g., age, gender, service use) and, 4) their child's functional abilities in 12 areas (no problem vs. little/big problem).

Young Children's Participation and Environment Measure (YC-PEM)—Data from the YC-PEM Daycare/Preschool section were analyzed to achieve the aims of this study. Parents first reported on their child's participation in 3 broad types of activities: a) group learning (e.g., circle time, story time), b) socializing with friends (e.g., mealtime, snack time), and c) field trips and events (e.g., parent night out, going to the library). For each type of activity, the parent was asked to report on their child's participation in three ways: 1) *Frequency* (8-point scale, from never [0] to once or more each day [7]), 2) level of *Involvement* (5-point scale, from not very involved [1] to very involved [5]; participants skipped this step if they selected "never" for frequency), and 3) parental *Desire for Change* in the child's participation (yes [1] vs. no [0]). When participant desired change in their child's participation, he/she was asked to clarify the type of change desired, in terms of frequency (i.e., more or less often), level of involvement (i.e., more interactive and/or more helpful) and/or participation in a broader variety of activities of that type. The parent was

then prompted to describe up to three strategies that had been employed to promote the child's participation in activities of that type, using an open-ended response format.

After completing the participation items, all parents completed this section on perceived *Environmental Support* in which they evaluated features (8 items) and resources (8 items) within the daycare or preschool environment in terms of their perceived impact on the child's participation. Perceived impact of environmental features (e.g., physical layout, sensory qualities) was assessed on a 3-point scale (no impact/usually helps [3] to usually makes harder [1]). Perceived impact of environmental resources (e.g., access to personal transportation) on participation was also assessed on a 3-point scale (not needed/usually yes [3] to usually no [1]).

For this study, the following four YC-PEM setting summary scores were used: 1) *Frequency* of participation was calculated as the average of all ratings (range = 0 – 7); 2) level of *Involvement* when children participated, was calculated as the average of all ratings (range = 1 – 5); 3) parental *Desire for Change* was calculated by summing the number of items scored as 'yes, desire change', divided by the total number of items, and multiplied by 100 (range = 0 – 100); 4) perceived *Environmental Support* was calculated by summing responses across all environmental items (i.e., features and resources), and dividing the total by the maximum possible score, and multiplying the score by 100 (range = 0 – 100).

The YC-PEM Daycare/Preschool section has acceptable internal consistency ($\alpha > 0.70$) for three out of the four scales: *Frequency* ($\alpha = 0.72$); *Involvement* ($\alpha = 0.80$); *Environmental Support* ($\alpha = 0.92$) (Khetani et al., 2015). Three out of four YC-PEM scales have adequate test-retest reliability (ICC or $\kappa > 0.40$) over a 2–4 week period: *Involvement* (ICC = 0.78); *Desire for Change* ($\kappa = 0.59$); and *Environmental Support* (ICC = 0.92) (Khetani et al., 2015). Further validation of YC-PEM environmental content has been pursued using pairwise comparisons with select items from the Craig Hospital Inventory of Environmental Factors for Children – Parent Version (CHIEF-CP) ($r = -0.13$ to -0.39 , $p < 0.01$) (Khetani, 2015).

Data Analysis

Quantitative Analysis (QUAN)—Participant responses to closed-ended items in the YC-PEM Daycare/Preschool section were imported into SPSS 21.0 (SPSS, Inc., Chicago, IL, USA) for analyses. Data were first screened via visual inspection (histogram) and normality statistics (absolute values of > 2 for skewness and > 7 for kurtosis) to ensure that data met assumptions of normality (Field, 2009). Five YC-PEM items (4 environment items and 1 participation item) did not meet the criteria for normality, resulting in nonparametric tests for analyses involving those items (Osborne, 2013). One participant had missing data on all 16 environmental items, resulting in case deletion. All other instances of missing data ($< 11\%$) were treated using mean substitution for summary-level group comparisons and pairwise deletion for item-level group comparisons (Field, 2009).

Group comparisons by disability status (child is receiving services; yes or no) were conducted at the summary-level and at the item-level for the YC-PEM Daycare/Preschool participation and environment summary scores. For summary-level group differences,

Independent samples *t*-tests were used to examine group differences in level of *Involvement* because these data were normally distributed along a continuous scale. Mann-Whitney *U* tests were used to examine group differences in perceived *Environmental Support* because four of the sixteen items did not meet normality, and there were missing data (1 missing value [0.77%] for 11 items, 2 missing values [1.5%] for 4 items, and 14 missing values [10.8%] for 1 item). Summary-level group differences were not examined for YC-PEM *Frequency* and *Desire Change* summary scores due to lower reliability estimates for these scales (Khetani et al., 2015). Specifically, the reliability coefficient for the *Frequency* scale was below the acceptable threshold ($ICC < .40$; Shrout & Fleiss, 1979), and similarly the internal consistency for the *Desire Change* scale was also slightly below the acceptable threshold ($\alpha < .70$; Cicchetti, 1994).

For item-level group differences, Independent samples *t*-tests were used for examining group differences in the *Frequency*, *Involvement* and *Environmental* items, and chi-square tests were used for examining group differences in the *Desire Change* items. Given our sample size, the decision to pursue *t*-tests for examining item-level group differences was based on the central limit theorem, whereby sampling distributions of means are assumed to be normally distributed regardless of the distributions of variables (Tabachnick & Fidell, 2013).

For summary-level analysis, the absolute value of Cohen's *d* was computed as a measure of effect size for the result obtained from the group comparison pertaining to the level of *Involvement* scale, where $d = 0.2$ denotes a small effect, $d = 0.5$ is medium and $d = 0.8$ is large (Cohen, 1988). The absolute value of the correlation coefficient (*r*) was computed as a measure of effect size for the result obtained from the group comparison pertaining to the perceived *Environmental Support* for participation, where $r = .10$ denotes a small effect, $r = .30$ denotes a medium effect, $r = .50$ denotes a large effect and $r = .70$ denotes a very large effect (Cohen, 1988). Similarly, for item-level analyses, absolute values of Cohen's *d* were computed for results of group comparisons pertaining to the child's *Frequency* and level of *Involvement* in daycare or preschool activities, as well as for group comparisons in the perceived *Environmental Support* for participation. The odd's ratio was used to report on effect sizes for group comparisons involving responses to items on the *Desire Change* scale.

A series of one-way analysis of variance (ANOVA) and analysis of covariance (ANCOVA) were used to confirm group differences based on disability status (2 levels) while controlling for potential confounders (child age, child gender, and family income). Specifically, we used a general linear model to control for confounders in comparisons involving continuous variables (i.e., *Frequency*, *Involvement*, and perceived *Environmental Support* scales) and the generalized linear model to control for confounders in comparisons involving categorical variables (i.e., *Desire Change* scale). Child age and family income were entered as covariates based on prior research involving participation of children and youth (Bedell et al., 2013; Law et al., 2006), and child gender was entered as a covariate due to significant gender differences in our study sample (see Table 1). Bonferroni corrections were made to reduce Type I error, resulting in a significance level of .025 for participation item-level group comparisons, and a significance level of .003 for environment item-level group comparisons. Results of a post-hoc power analysis (Faul et al., 2007) revealed the statistical power for this study to be .72.

Mixed Methods Analysis (qual → QUAN)—To examine the types of strategies commonly used by parents to affect participation change, responses to open-ended items about parent strategy use (N = 126) were first content coded to the ten family accommodations that have been previously reported in the literature (Bernheimer & Keogh, 1995; Gallimore et al., 1996). The coding process was first piloted using 30 home-based strategies that were reported by study participants, followed by two rounds of content analysis by two independent coders using NVivo 10.0 (NVivo, QSR International Pty Ltd. Version 10, 2012) as described in Figure 2.

Coded text was then transformed into numerical counts to examine common types of strategies employed to improve the child's participation in daycare or preschool activities. A matrix was then used to cross-compare coded text on strategy use with type(s) of change desired, in order to identify whether caregiver strategies are clearly focused towards specific type(s) of change. Magnitude coding (form of coding that adds a numerical code to the coded qualitative data) was used to derive frequency estimates that could be displayed via data matrices when reporting on the mixed method findings (Saldana, 2013; Tashakkori & Teddlie, 1998).

We ensured credibility of the qualitative findings by selecting coders and key informants with different disciplinary backgrounds and perspectives on the study topic (occupational therapy, psychology: Creswell, 2007). Dependability was ensured by having 2 separate coders for each round of content analysis, a third member to address discrepancies, and having 1–2 key informants review the coding report at the end of the coding process. Key informants were asked to confirm the accuracy of the coded strategies in each category.

Self-reflexivity was used to ensure authenticity and trustworthiness of qualitative findings and includes acknowledgement of the researchers' prior experiences that could impact the hypotheses and approach to data collection and/or analysis (Creswell, 2007; Lincoln & Guba, 1985). The first author led the qualitative data analyses. Her prior employment as an occupational therapist at a community health department in India sensitized her to clinical problems being framed according to participation frequency rather than involvement, since most of the young children with disabilities whom she worked with had been denied school admission. She also grew aware of parents' reliance on strategies that involved fixing their child in order to improve his or her chances for educational success. These prior clinical experiences led her to expect that parents would most likely want their child to participate in activities more often and the strategies most commonly used by parents would primarily focus on the child rather than the child's environment. When undertaking this study, she used convenience sampling to recruit coders, resulting in analyses being carried out by members of the same research team.

Results

Participant Characteristics

Participants were 129 parents of young children between 3 and 71 months, $M = 49.3$, $SD = 16.5$. Most respondents were mothers (94.6%), married (89.9%), and resided in the United States (92.1%). At least two-thirds of the study participants held a college degree (69.7%),

were employed outside of the home (66.6%), and had their child enrolled in a center-based program (76.0%). Approximately 28% of all children received services ($n = 37$), which was the criterion for identifying children with developmental disabilities and delays. Both groups were similar in demographic characteristics except that there were more boys in the subsample of children with developmental delays. More than 50% of children with developmental disabilities and delays reported functional problems for 9 out of 12 areas as reported in the demographic questionnaire (e.g., mobility, behavior problems). Children were reported to be receiving a variety of services to address these areas of functional difficulty, with most children carrying a diagnosis (77.4%), followed by developmental delay (no diagnosis) (16.1%), and at risk for delay (6.4%). Additional sample characteristics are summarized in Table 1 below.

Group Differences in Daycare or Preschool Participation and Environment (QUAN)

Results suggest a moderate to large effect of disability on young children's participation in daycare or preschool activities. Parents of young children with developmental disabilities and delays, on average, reported their child as being less involved in daycare or preschool activities, as compared to young children without developmental disabilities and delays ($t = -6.470$, $p < .001$, $d = 1.41$). These differences remained, even after controlling for child age, child gender, and annual income ($F = 39.62$, $p < .001$). Similarly, parents of young children with developmental disabilities and delays perceived their child's daycare or preschool environment as less supportive when compared to parents of young children without developmental disabilities and delays ($U = -6.876$, $p < .001$, $r = .68$).

Item-level group comparisons show that parents of young children with developmental disabilities and delays, on average, reported their child as participating less often and being less involved in all three daycare or preschool activities (i.e., group learning, socializing with friends, and field trips and events) as compared to peers without developmental disabilities and delays. A higher percentage of parents raising young children with developmental disabilities and delays expressed a desire for their child's participation to change in two of these three activities, group learning and socializing with friends. Table 2 shows that all item-level differences in participation remained, even after controlling for child age, child gender, and family income.

Parents of young children with developmental disabilities and delays perceived features and resources within the daycare or preschool environment to be less supportive of their child's participation (see Table 3). Moderate to large item-level group differences were found for fifteen out of the sixteen environmental items in the YC-PEM Daycare/Preschool section.

Parent Adaptive Strategies to Affect Participation Change (qual → QUAN)

Among parents who expressed a desire for their child's participation to change, the most commonly reported strategies pertained to 'child care tasks' (42.9 %) and 'child peer groups' (19.8 %: see Table 4). Specifically, strategies for managing the complexity of child care tasks often focused on improving the child's behavior (e.g., provide clear expectations; reinforce positive behavior; constant monitoring and providing cues and feedback to the child to correct as missteps occur) or towards modifying the demands of daycare or

preschool-based activities (e.g., schedule activities when child is rested and alert; provide child with choices of materials to use and ways to perform tasks; give child space to explore). Strategies to optimize child peer groups primarily focused on helping the child (e.g., redirecting child to interact with peers; asking child to copy peers and practice social skills), though parents occasionally described ways of creating social opportunities for the child (e.g., letting children with similar interests sit together during group activities; maintaining a smaller group size).

Irrespective of the types of change parents desired, strategies used by parents primarily pertained to ‘child-care tasks’ and ‘child peer groups’ (see Table 5). For example, strategies pertaining to ‘child-care tasks’ and ‘child peer groups’ were described in response to goals pertaining to how often the child participates, his or her level of involvement, and/or increasing the child’s participation in a broader variety of activities.

Discussion

This study applies the newly developed YC-PEM to build clinically relevant knowledge about participation disparities and environmental supports in the daycare or preschool environment, and commonly used strategies to affect participation change in this setting. Study results are consistent with and expand upon prior research on disparities in school participation among school-aged children with and without disabilities (Coster et al., 2013; Eriksson et al., 2007; Eriksson & Granlund, 2004; Simeonsson et al., 2001) and the increased likelihood of children with disabilities to encounter environmental barriers to participation (Coster et al., 2013; Hemmingson & Borell, 2002; Law et al., 1999).

Group Differences in Daycare or Preschool Participation

Frequency—Young children with developmental disabilities and delays were reported to participate once each week in group learning, and socializing with friends, as compared to a few times each week among young children without developmental disabilities and delays. Similarly, young children with developmental disabilities and delays were reported to participate less than once each month in field trips and events as compared to young children without developmental disabilities and delays who were, on average, reported to participate in this type of activity on a monthly basis. These group differences could be attributed to service use among children with developmental disabilities and delays. Although children with developmental disabilities and delays often received speech (83.8%) and occupational therapy services (62.2%), it is not clear whether these services were provided in the daycare or preschool setting as compared to the home or clinic. Therefore, young children with developmental disabilities and delays may be participating less often in daycare or preschool activities because of less access to services within this setting. In fact, both parents of young children with and without developmental disabilities and delays evaluated programs and services as ‘sometimes yes/sometimes no’ with respect to supporting their child’s participation in daycare or preschool activities (see Table 3). Alternatively, home or clinic-based therapy services may limit how often young children attend a daycare or preschool to participate in activities.

Involvement—As a key indicator of inclusion, children’s participation is often described as more than arriving at an activity (Eriksson et al., 2007; Simeonsson et al., 2001). In this study, groups were compared along multiple dimensions, including the child’s level of engagement in the activity. Study results show that young children with developmental disabilities and delays were significantly less involved in all three daycare or preschool activities as compared to young children without developmental disabilities and delays. These results are consistent with and extend prior research about the effect of disability on children’s engagement in school-based activities (Coster et al., 2013; McWilliam & Bailey, 1995) and the extent to which young children with developmental disabilities and delays experience difficulty when participating in activities outside the home environment (Khetani et al., 2013c). Characteristics of the children sampled in this study may help to explain these findings. Approximately 78% of the young children with developmental disabilities and delays were reported to have behavioral problems. Prior studies have shown a significant positive association between young children’s behavior and their adaptation in out-of-home contexts (Khetani et al., 2012; Law et al., 2007; McIntyre et al., 2006). Consistent with these prior studies, parents often reported on adaptive strategies focused towards managing the child’s behavior to affect participation change further highlighting this association (see Table 4).

Desire Change—Subjective assessment of participation is important because it reflects the client’s perspective of whether the child’s current level of participation warrants intervention. In this study, parents of young children with developmental disabilities and delays were more likely to want their child’s participation to change, specifically, in activities that involve group learning and socializing with friends. In contrast, parents of children without developmental disabilities and delays more frequently desired a change in field trips and events. Parents of young children with developmental disabilities and delays might not prioritize change with respect to their child’s participation in field trips and events, given that they participated less often as compared to the other activities (see Table 2). Alternatively, data collection primarily during summer months could have biased parental responses if their child participated in family vacations and other types of extended visits and trips in lieu of field trips and events organized by their child’s daycare or preschool.

Group Differences in Environmental Support for Daycare or Preschool Participation

Study results suggest that parents of young children with developmental disabilities and delays perceive the daycare or preschool environment to be less supportive of their child’s participation when compared to parents of young children without developmental disabilities and delays. These results are consistent with prior research on environmental barriers to participation for children with disabilities (Bedell et al., 2011; Eriksson, 2005; Law et al., 2007; Pivik et al., 2002; Rosenberg et al., 2012). Hemmingson and Borell (2002) found that the majority of environmental barriers faced by children with disabilities were related to how school activities were organized. In this study, a similar pattern in the perceived impact of physical, social and cognitive demands of activities on participation was observed (see Table 3), and parents often described setting up activities to promote participation in this setting (see Table 4).

Adaptive Strategies to Improve Participation in Daycare or Preschool Environments

Bernheimer and Keogh (1995) identified ten types of adaptive strategies commonly employed by parents of young children with disabilities to promote participation in activities. To our knowledge, this is the first study to closely examine the extent to which these ten types of parental strategies are used to affect participation change in a specific setting (i.e., the daycare/preschool setting). Ecocultural theorists argue that understanding specific parenting practices to promote family functioning provides a window into parental beliefs and expectations about their child and therefore can help providers plan for interventions that are culturally relevant and sustainable in a specific context (Weisner, 2002).

Study results suggest that some, but not all, family accommodations are relevant to improving participation-level outcomes in the daycare or preschool setting. Study results differ from previous studies that suggested 1) all ten family accommodations to be equally relevant to promoting young children's participation (Gallimore et al., 1996); and that 2) strategies commonly used by parents are focused less on the child and more on family subsistence (e.g., the family adapts time) (Maul & Singer, 2009). Results of this study are based on parent report and may underestimate the full range of strategies used by teachers and other staff to promote participation in a daycare or preschool setting, as parents are typically not present to support their child's participation in the daycare or preschool program.

It is interesting that parents reported on both child-focused and environmentally focused strategies within the two commonly reported accommodations (i.e., child-care tasks, child peer groups). Although interventions for young children with developmental disabilities and delays are typically geared towards improving the child's capacities to function (Guralnick, 1997), there is emerging evidence of the efficacy of compensatory approaches to intervention to improve functional outcomes (Adair et al., 2015; Anaby et al., 2015). For example, Law and colleagues (2011) conducted an explanatory trial in which they established equal efficacy of context-focused and child-focused approaches to intervening with young children with cerebral palsy to improve their functional performance and out-of-home participation. Parents may not commonly focus on context-focused interventions because of their views on normalcy that may influence their priorities for intervention.

Limitations

Results of this study should be considered in light of some sampling and data limitations. First, the use of convenience and snowball sampling strategies result in findings that are not generalizable to parents whose children receive child care but are not enrolled in an early childhood educational program. Secondly, online data collection may have contributed to sampling biases based on socio-economic status and Internet access and uneven sample sizes resulting in an increased Type II error rate. Thirdly, results are based on a small subsample of 37 parents of young children with developmental disabilities and delays attending daycare or preschools programs of variable quality in North America. This subsample is not representative of the population of young children with developmental disabilities and delays in this geographic region, nor do we have access to data with which to examine the

effect of early childhood program characteristics on participation. Furthermore, the YC-PEM was developed and initially validated for use within a North American context. Establishing the cultural equivalence of the YC-PEM (Lim et al., in press) may provide future opportunities for cross-cultural studies on disparities in young children's participation, similar prior studies involving children and youth with disabilities (Ullenhag et al., 2012). Data for this study were obtained from parents who are typically not present in the daycare or preschool setting. There is psychometric evidence to support the validity of caregiver report instruments for understanding young children's participation (Khetani et al., 2015; Rosenberg et al., 2010). However, caregivers typically obtain information about their child's participation in this setting indirectly from teachers (i.e., via daily oral or written reports, parent-teacher meetings, newsletters) and at variable rates depending on how often and how much early childhood staff communicate with families in accordance with best practice standards (NAEYC and NAECS/SDE, 2003; Snow & Van Hemel, 2008). Hence, future studies comparing teacher and parent perspectives are critical to building knowledge about disparities in young children's participation specific to the daycare/preschool setting. Finally, most coding discrepancies (73–84%) were reviewed by two coders, but use of one coder for final queries may have potentially contributed to coding biases.

Conclusion

Study findings support the utility of the YC-PEM for use by interventionists to identify young children with inclusion needs and to consider ways to focus their interventions in partnership with parents. Future research is needed to see whether discrepancies in participation according to disability status are present in home and community settings, provided that not all young children with developmental delays and disabilities are enrolled in a daycare or preschool program but may benefit from participation-focused interventions in the child's natural environment (home, daycare/preschool, and community).

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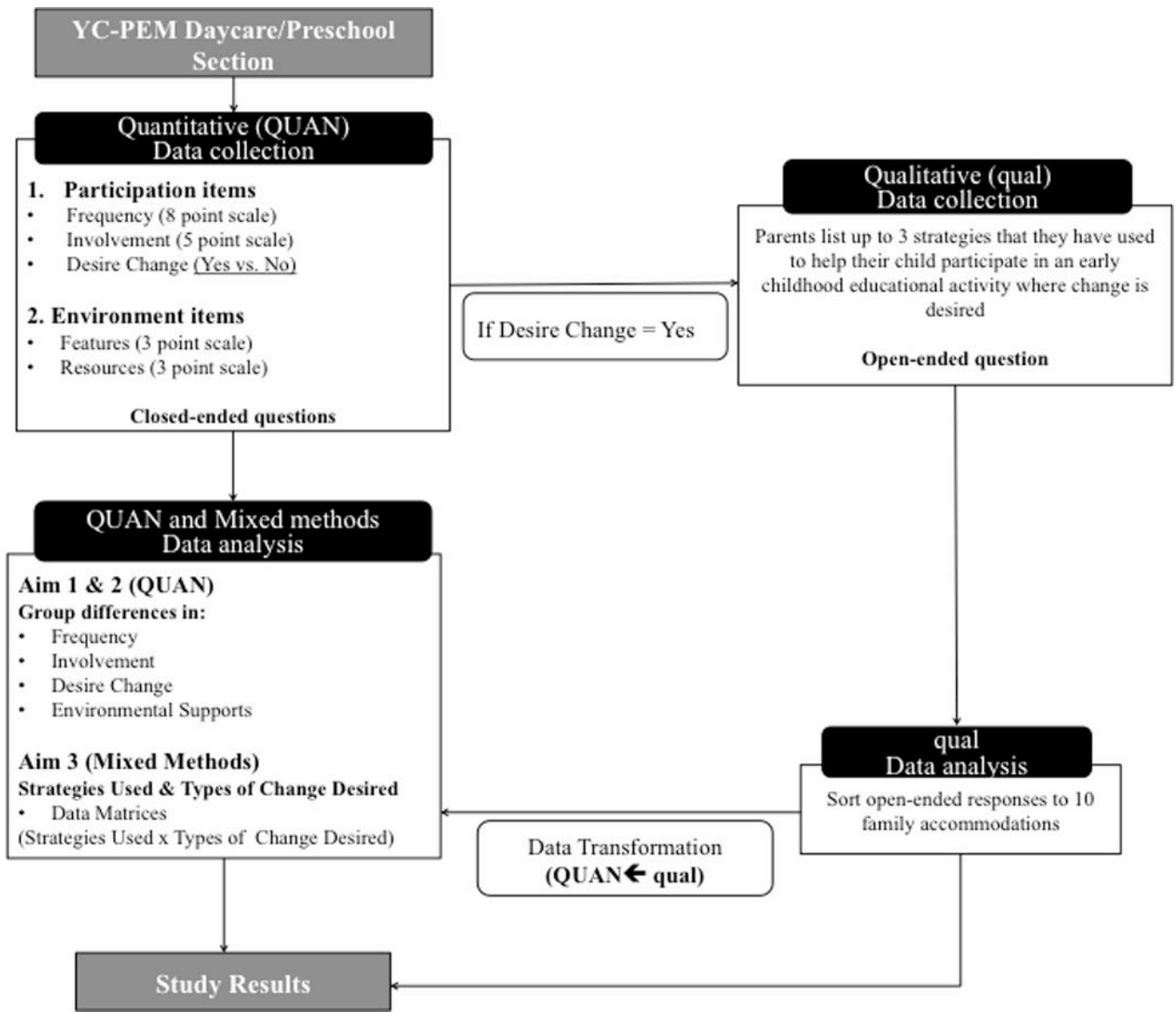


FIGURE 1.
Concurrent transformative mixed methods study design.

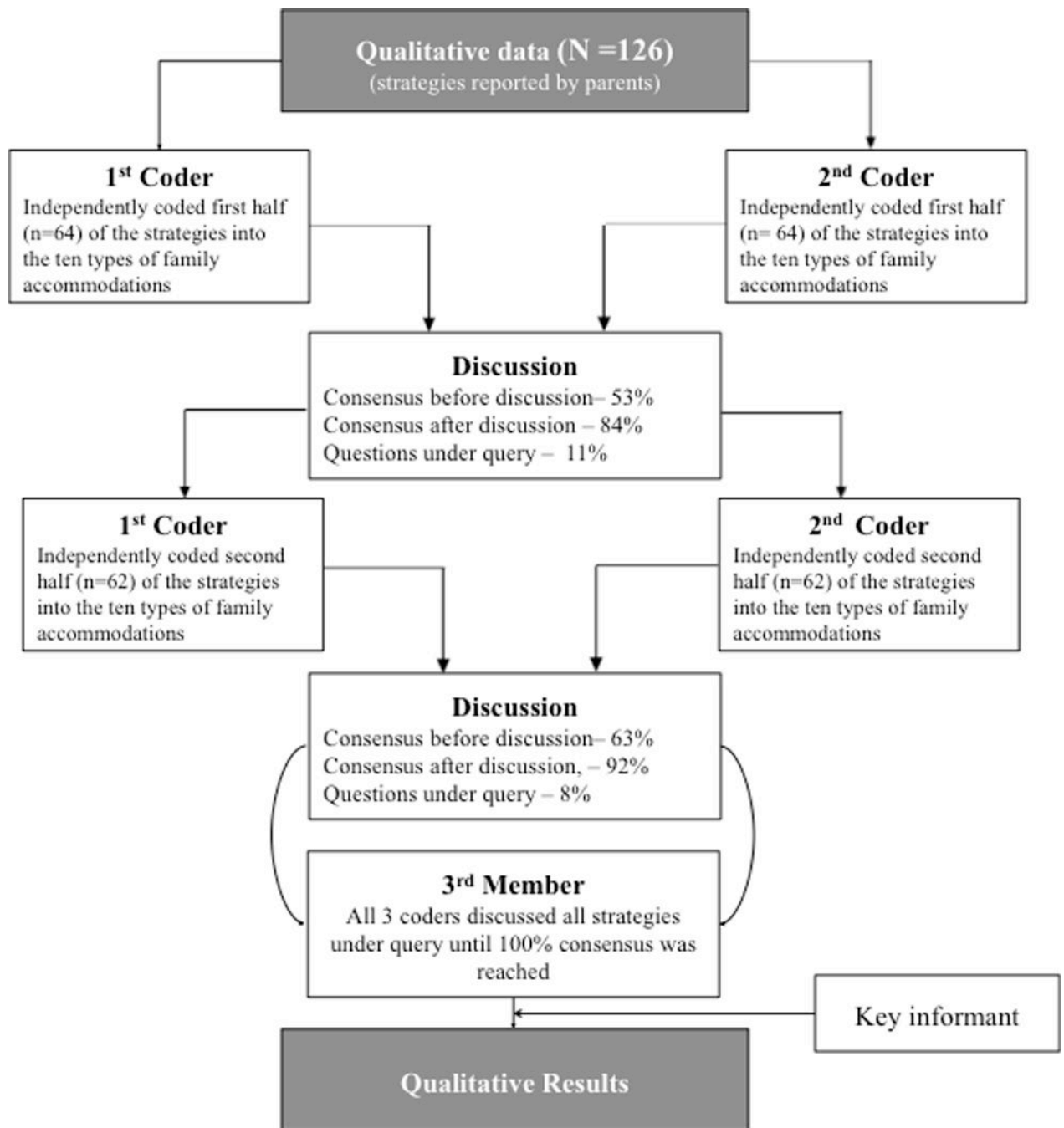


FIGURE 2.
Coding process.

Table 1

Participant Characteristics

		Total N=129 (%)	Delays/Disability n=37 (%)	No Delays/Disability n=92 (%)	χ^2
Respondent Type					.73
	Father/Male Legal Guardian	7 (5.42)	3 (8.10)	4 (4.34)	
	Mother/Female Legal Guardian	122 (94.6)	34 (91.9)	88 (95.7)	
Marital Status					.53
	Married	116 (89.9)	33 (89.2)	83 (90.2)	
	Single, Never Married	5 (3.87)	2 (5.40)	3 (3.26)	
	Domestic Partner	5 (3.87)	1 (2.70)	4 (4.34)	
	Separated	3 (2.32)	1 (2.70)	2 (2.17)	
Respondent Education					5.45
	High school	5 (3.87)	3 (8.10)	2 (2.17)	
	Some College/University	18 (14.0)	7 (18.91)	11 (11.9)	
	Associate Degree	7 (5.42)	3 (8.10)	4 (4.34)	
	College/University Graduate	47 (36.4)	10 (27.0)	37 (40.2)	
	Some Graduate Coursework	9 (6.97)	2 (5.40)	7 (7.60)	
	Graduate Degree	43 (33.3)	12 (32.4)	31 (33.7)	
Employment					2.59
	Yes	86 (66.6)	22 (59.4)	64 (69.5)	
	No	43 (33.3)	15 (40.5)	28 (30.4)	
Educational Enrollment*					
	Parent/Legal Guardian/Extended Family	76 (58.9)	21 (56.8)	55 (59.8)	.10
	Center-Based Program	98 (76.0)	27 (73.0)	71 (77.2)	.25
	Family Daycare	7 (5.42)	1 (2.70)	6 (6.52)	.75
	Parent Cooperative Nursery School	0 (0.00)	0 (0.00)	0 (0.00)	
	In home Provider	8 (6.20)	4 (10.81)	4 (4.34)	1.89

		Total N=129 (%)	Delays/Disability n=37 (%)	No Delays/Disability n=92 (%)	χ^2
	Kindergarten	33(25.6)	10 (27.0)	23 (25.0)	.57
	Other	3 (2.32)	1 (2.70)	2 (2.17)	.32
Family Income^ω					18.64
	< 30,000	11 (8.5)	6 (16.21)	5 (5.43)	
	30,001–50,000	14 (10.8)	3 (8.10)	11 (11.9)	
	50,001–70,000	26(20.1)	8 (21.62)	18 (19.5)	
	70,001–100,000	33 (25.5)	10 (27.0)	23 (25.0)	
	> 100,000	45(34.8)	10 (27.0)	35 (38.0)	
Child Gender					5.87*
	Male	69 (53.5)	26 (70.3)	43 (46.7)	
	Female	60 (46.5)	11 (29.7)	49 (53.3)	
Child Age (Months)^ω					52.33
	< 24	12 (9.30)	3 (8.10)	9 (9.78)	
	24 – 48	36 (27.9)	12 (32.4)	24 (26.0)	
	49 – 71	81 (62.7)	22 (59.4)	59 (64.1)	
Child Race/Ethnicity					5.26
	American Indian/Alaskan Native	1 (0.77)	0 (0.00)	1 (1.08)	
	Asian	3 (2.32)	2 (5.40)	1 (1.08)	
	Native Hawaiian/Pacific Islander	0 (0.0)	0 (0.00)	0 (0.0)	
	Black/African American	2 (1.55)	1 (2.70)	1 (1.08)	
	Multiracial	21(16.3)	4 (10.81)	17 (18.5)	
	Other	6 (4.65)	3 (8.10)	3 (3.26)	
	White	96(74.4)	27 (73.0)	69 (75.0)	

* $p < .05$.

^ω Analyses were performed on cases with complete data only.

[‡] Participants could select more than one response

Table 2

Item-level Group Differences in Daycare or Preschool Participation

Frequency				
YC-PEM Items	Delays/Disability Mean (SD)	No Delays/Disability Mean (SD)	<i>t</i>	<i>F</i>
Group learning	5.21 (1.35)	5.95 (.82)	-3.10 **	12.05 **
Socializing with friends	5.21 (1.39)	6.06 (.75)	-3.50 **	17.48 ***
Field trips and events	1.94 (1.61)	3.02 (1.56)	-3.49 **	8.82 **
Involvement				
YC-PEM Items	Delays/Disability Mean (SD)	No Delays/Disability Mean (SD)	<i>t</i>	<i>F</i>
Group learning	3.00 (0.74)	4.20 (0.84)	-7.792 ***	54.16 ***
Socializing with friends	2.89 (1.04)	4.14 (0.87)	-6.936 ***	40.89 ***
Field trips and events	2.96 (0.93)	4.10 (1.01)	-5.178 ***	25.64 ***
Desire Change				
YC-PEM Items	Delays/Disability Mean (SD)	No Delays/Disability Mean (SD)	χ^2	Wald χ^2
Group learning	29 (78.37)	17 (18.47)	41.26 ***	29.79 ***
Socializing with friends	28 (75.67)	16 (17.39)	39.88 ***	30.12 ***
Field trips and events	18 (48.64)	36 (39.13)	.55	.18

Note. Response options for Frequency (0 – never participates; 1 – once in the last 4 months; 2 – few times in the last 4 months; 3 – once in the last month; 4 – few times in the last month; 5 – once each week; 6-few times each week; 7 – once or more each day) and Involvement (1- Not very involved; 3- somewhat involved; 5-very involved; *F* value and the Wald χ^2 controlled for child gender, child age and family income;

**
p < .01.

p < .001.

Table 3

Item-level Group Differences in Perceived Environmental Support

Environmental Features					
YC-PEM Items	Delays/Disability Mean (SD)	No Delays/Disability Mean (SD)	t	F	
Physical layout	2.24 (.54)	2.9 (.14)	-8.03***	125.10***	
Sensory qualities	2.18 (.51)	2.91 (.32)	-7.88***	80.55***	
Outside weather conditions	2.34 (.59)	2.70 (.48)	-3.12**	11.99**	
Physical activity demands	2.13 (.71)	2.79 (.50)	-5.09***	38.15***	
Cognitive activity demands	1.83 (.72)	2.75 (.47)	-7.09***	67.33***	
Social activity demands	1.75 (.76)	2.70 (.58)	-6.79***	52.97***	
Peer relationships	1.97 (.72)	2.81 (.46)	-6.50***	54.95***	
Attitudes and actions of directors, teachers, therapists and other staff	2.21 (.62)	2.89 (.31)	-6.20***	61.01***	
Environmental Resources					
YC-PEM Items	Delays/Disability Mean (SD)	No Delays/Disability Mean (SD)	t	F	
Policies and procedures	2.00 (.84)	2.90 (.33)	-6.25***	66.05***	
Personal transportation	2.54 (.55)	2.97 (.14)	-4.70***	46.98***	
Public transportation	2.51 (.65)	2.95 (.25)	-4.01***	27.20***	
Programs and services	2.75 (.43)	2.92 (.30)	-2.12	4.98	
Supplies	2.51 (.65)	2.90 (.30)	-3.47***	19.43***	
Information	2.61 (.54)	2.91 (.28)	-3.12**	12.24**	
Time	2.61 (.49)	2.85 (.35)	-2.72**	8.87**	
Money	2.22 (.68)	2.67 (.51)	-4.00***	13.71***	

Note. Response options for environmental features (1 –no impact/usually helps; 2 – sometimes helps/sometimes makes it harder; 3 –usually makes harder) and environmental resources (1 –not needed/usually yes; 1- sometimes yes/sometimes no; 3 – usually no); F value controlled for child gender, child age and family income;

** $p < .01$.

*** $p < .001$

Table 4

Parental Strategy Use to Promote Participation in Daycare or Preschool Activities

Strategies	Examples	N (%)
Child Care Tasks	<ul style="list-style-type: none"> Needs to change activities often to keep his attention Encourage her to talk more Correct as missteps occur 	52 (42.9)
Child Peer Groups	<ul style="list-style-type: none"> Letting children with similar interests sit together during group activities Maintaining a smaller group size Plan park play dates 	24 (19.8)
Family Subsistence	<ul style="list-style-type: none"> Ensuring we have plenty of time so no one is rushed as that makes her behavior issues worse Schedule work off to participate in activities Have enough time/energy to do activities outside the home 	7 (5.78)
Services	<ul style="list-style-type: none"> Increase daycare time - planned for next term Finding appropriate sensitive caregivers Find out what's available in the community to do 	4 (3.30)
Home/Neighborhood Safety	<ul style="list-style-type: none"> When we go on trips outside of the home we make sure there is a place for our son to run and have sensory input. Managing the stimuli of the event is extremely important, such as moving away from loud, over stimulating activities and seeking out quiet respite spaces 	2 (1.65)
Domestic Workload	<ul style="list-style-type: none"> Save money to hire a baby sitter Nanny needs to take him to classes 	2 (1.65)
Parent Information	<ul style="list-style-type: none"> The school I feel knows more about my child's understanding than I do, I am so grateful for the program and ask many questions To be in contact with the preschool teachers about how we can support these activities in the home 	2 (1.65)
Instrumental/Emotional Support	<ul style="list-style-type: none"> Get grandparents to get her out 	1 (.82)
Father or Spouse Role	<ul style="list-style-type: none"> Get daddy to get her out 	1 (.82)
Other Accommodations	<ul style="list-style-type: none"> Training staff on her needs/limitations Introducing her to new people and places Relationship with care providers 	5 (4.13)

Table 5

Relationship Between Types of Change Desired and Common Strategies Used

Strategies (qual → QUAN)	Types of Change Desired (QUAN)			
	Frequency	Involvement		Participate in broader variety of activities
		Be more interactive	Be more helpful	
Family Subsistence	3	3	6	5
Services	2	1	3	4
Home/neighborhood Safety	1	1	2	2
Domestic Workload	1	0	1	1
Child Care Tasks *	9	18	33	26
Child Peer Groups *	11	10	17	16
Instrumental or Emotional Support	0	0	1	0
Other Strategies	3	2	5	3

Note – Parents could choose multiple options;

* Strategies Most Commonly Used