HHS Public Access

Author manuscript

Adv Neurodev Disord. Author manuscript; available in PMC 2020 July 20.

Published in final edited form as:

Adv Neurodev Disord. 2019 June ; 3(2): 188–196. doi:10.1007/s41252-019-00106-0.

Foundations for Self-Determination in Early Childhood: Preliminary Preschool Study

Susan B. Palmer, **Kandace K. Fleming**, **Jean Ann Summers**
University of Kansas

Elizabeth J. Erwin,
Montclair State University

Susan P. Maude,
Maude Consulting, LLC

Mary Jane Brotherson,
Iowa State University

Vera Stroup-Rentier,
Westat

Shana J. Haines,
University of Vermont

Yuzhu Z. Zheng,
Boise State University

Nancy F. Peck,
Keene State University

Hsiang-Yi Wu
University of Kansas

Abstract

Foundations for self-determination begin in early childhood for children with disabilities with the onset of self-regulation and engagement in activities at home, school, and in the community. This article describes the development and preliminary results of an intervention model that encourages collaborative practices for parents and teachers around short-term goal setting to adjust environments for young children with special needs or at risk for delay. The Foundations Intervention was used with 48 children in authentic early childhood settings and involved parents, teachers, and a facilitator to enhance children's self-regulation and engagement at home and school. Results showed feasibility of the intervention; positive child outcomes in goal attainment, self-regulation, and engagement measures were also evident. When parents and teachers communicated about a child's strengths and needs within routines at home and school, this appeared to strengthen parent and teacher connections and helped children become more engaged or regulated in daily activities.

Correspondence concerning this article should be addressed to Susan B. Palmer, Ph.D., KUCDD, Beach Center, University of Kansas 1200 Sunnyside Ave., Lawrence, KS 66045, spalmer@ku.edu.

Keywords

self-determination; goal setting; preschool special education; families

Self-determination is a construct that provides a way to support individuals of all abilities to learn, grow, and become causal agents as adults (Palmer, 2010). Families and teachers of preschool age children can begin to encourage foundations self-determination early in life (Abery & Zajac, 1996). Experts agree the preschool years are a critical time for adults to set the stage for children's life-long learning (Shonkoff & Phillips, 2000).

The *Foundations for Self-Determination in Early Childhood Intervention* uses some component elements of self-determination: age-appropriate social problem solving, engagement, self-regulation, rudimentary goal setting, and other aspects of becoming a causal agent in one's life at adolescence and beyond (Wehmeyer, 2007). Early childhood teachers and parents can help children build a strong foundation for later self-determination (Wehmeyer & Palmer, 2000). Parents and teachers arrange environments for age-appropriate independence (Brotherson, et al., 2008), offer options (Landy, 2002), and share ideas via collaboration (Summers, et al., 2015).

Although theoretical papers place the roots of self-determination in early childhood (Palmer et al., 2013; Palmer, 2010; Wehmeyer & Palmer, 2000), few empirical studies exist, especially ones considering both home and school environments and interactions between parents and teachers. Focusing on school environments, Palmer and Wehmeyer (2003) used the Self-Determined Learning Model of Instruction (SDLMI; Wehmeyer, Palmer, Agran, Mithaug, & Martin, 2000), a problem solving/goal setting model of teaching, with children ages five- to ten-years with exceptionalities in schools. The SDLMI uses a means-end problem solving process, with teacher objectives and educational supports to Set a Goal, Take Action, and Adjust Goal or Plan. In this study, goals were achieved at the expected level of attainment and above, without parent involvement. In a descriptive study focused on home environment, Brotherson et al. (2008) interviewed 30 families and observed home contexts to identify adequate supports, opportunities for expressing preferences and choice, and accommodations families use related to self-determination. Using grounded theory analysis, the authors identified family and home supports.

The Foundations Intervention was designed to promote adult sharing of information between home and school to benefit young children experiencing delays or differences. Using a conceptual model (Palmer et al., 2013) the research team refined the Foundations Intervention over a series of trials in preschool settings (Erwin et al., 2016) to provide a framework for parents and teachers to engage in collaborative partnerships while sharing knowledge and skills for child needs. Within our conceptual model, it was hypothesized that 1) an accessible environment and 2) intentional adult cues help facilitate measurable elements of foundations of self-determination including a) child engagement, b) child self-regulation, and c) child choice and problem solving. According to our model, it is also important to engage in culturally aware family-professional partnerships (Palmer et al., 2013). Engagement is the time children spend interacting with the environment, in a developmentally appropriate manner depending on their level of competence (McWilliam &

Bailey, 1992). Self-regulation refers to the capacity of control of arousal, emotions, and attention (Shonkoff & Phillips, 2000). Bronson (2000) views behavioral, emotional, and cognitive self-control as essential within the construct of self-regulation. Williford, Whittaker, Vitello and Downer (2013) determined that children more positively engaged with teachers and activities showed gains in self-regulation.

Our research team iteratively developed the Foundations Intervention over many months prior to this pilot study to address the need for family-professional partnership in setting mutual goals for young children who needed more structured support to engage, self-regulate, and makes choices/solving initial problems within home and school environments. Figure 1 illustrates intervention steps: 1) *Assess* child strengths and needs using an adapted routines-based format that involved discussion by the parent and teacher as to immediate needs of a child within home and/or school; 2) *Select* a strategy to intervene at home and school; 3) *Try It,* using the identified strategy, technique, or visual/auditory prompts decided upon by the intervention partners, with support from the facilitator; and 4) *Reflect,* or evaluate what worked at home and school as viewed in brief video clips and use of goal attainment observational checklists. The Foundations Intervention encouraged collaborative goal setting at home and school to improve engagement and/or self-regulation of children.

The purpose of this study was to evaluate the usability and initial impact of the intervention on child outcomes, parent-professional partnerships, and participant ratings of feasibility and self-reported strategies. This Development project was an initial trial of method, materials, and procedures to find if this process was usable and feasible for all levels of participants to find initial evidence of promise of this unique intervention. Research Questions included: 1) Do pre-post ratings of engagement and self-regulation by parents and teachers change significantly over time?, 2) How do ratings of goals set for home and school differ and what effects do consistency of goal focus at home and school have on ratings of self-regulation and engagement?, and 3) Did parents, teachers, and facilitators differ in their ratings of usability and feasibility, and partnership for Foundations?

Method

Participants

Educational teams (a parent, teacher, and facilitator) worked with 48 children between two-and one-half and five-years-old either enrolled in special education services in inclusive settings (n=28; 58.3%) or having difficulty managing demands of preschool, as per teacher or parent report (n=20; 41.7 %). Family members (n= 46, 95%) also completed a brief checklist, *The Abilities Index* (Simeonsson & Bailey, 1991), to rate hearing and vision, social skills, intellectual functioning, physical, and communication as normal, suspected, mild, moderate, severe, or extreme. Table 1 lists primary disabilities as identified by families on the *Abilities Index*. In addition, families rated the following capacities in the moderate to severe range for children in the sample: social skills (n = 21), behavior (n = 17), thinking and reasoning (n = 8), ability to understand communication (n = 8), communicating with others (n = 13).

Parents were primarily female (89.6%), married (54.2%), and represented a range of family incomes (see Table 1 for further information on all participants). Less than half of parents were working full or part-time outside the home (n=23). Twenty-two (22) had bachelor's or graduate degrees; fifteen (15) parents had some college or an associate degree.

Thirty-four (34) teachers representing 34 separate classrooms participated in the 48 child-focused teams. Twenty-six teachers (76.5%) worked with just one child and their team; five teachers (14.7%) worked with two teams; two teachers (5.9%) worked with three separate teams over time; and one teacher (2.9%) worked with five participant teams over the course of a two-year study period. Teacher classroom experience ranged from one to 30 years, (M= 12.3 years, SD = 9.23). The 34 classes (Head Start, n=14; Early Childhood Special Education classes with included peers, n=11; pre-K or Community Preschool classrooms, n=7; and privately-funded preschool classrooms; n=2) were in 16 different settings. Training disciplines of teachers included: Child development (14), early childhood special education (12), and education K-12 or speech (8). Teacher education levels varied: three teachers had some college; four had associate degrees; thirteen teachers earned bachelor's degrees; and fourteen teachers had graduate degrees. A *facilitator* helped each parent and teacher learn and use the Foundations Intervention. The eighteen facilitators were primarily white, female, and had graduate degrees; 13 were researchers while five were either EC coordinators (2), social workers (1), or school psychologists (2) trained by the research team.

All 48 education teams of children, families, and teachers completed all measures and the Foundations Intervention. One additional family whose child was ill completed only pretest measures before dropping out prior to intervention; pre-test data for this child, family, and teacher were excluded from analysis.

Procedure

Three university research teams, two in Midwestern states and one in the northeast, obtained Institution Review Board (IRB) approval before recruiting inclusive preschool programs in diverse settings (schools, centers, and agencies). We used a purposive sampling plan (Patton, 2008) in order to include diverse groups among preschool programs (rural, urban, suburban, home-based, inclusive where possible), practitioners (ECSE teachers, therapists, and home visiting special educators), and families (different ethnic and socioeconomic groups). Researchers provided program representatives with a comprehensive description of our project and each site that was approached agreed that they had students who may need more support to engage, self-regulate, or be choice-makers or problem solvers within classrooms. Program directors then asked teachers to volunteer if they had children with such needs after routines were set in classrooms. Researchers waited until at least two months of school elapsed so teachers could identify children with ongoing difficulties in following classroom rules/routines, whether or not children had IEPs. We included students with and at-risk for delays since IEP status is just one indicator of need, especially at the preschool level (Hebbler & Spiker, 2016). Teachers provided families with information on the study, giving a chance for parents to engage in mutual goal setting beyond any formalized process such as an IEP meeting, or teacher conference. Thus, the sample of children in the study was

dependent on the program agreement to participate, teachers volunteering to be a part of the study, and family members willing to participate, as described subsequently.

After giving consent, each parent and teacher within the child-focused team completed demographic and pre-test measures, returned packets to facilitators, and attended a 30-minute face-to-face meeting together to complete the first two steps of the intervention (Assess and Select). Facilitators guided the 48 parent-professional teams to set goals and implement agreed upon strategies in both home and preschool settings. Within each team, a facilitator helped the parent and teacher discuss the focus child and set goals at home and school. In Step one, *Assess*, the facilitator prompted conversation between the parent and teacher using the *Foundations Home-School Conversation Guide,* talking about child strengths and needs in the context of home and classroom routines (see Figure 1 for intervention steps). The guide was adapted from routines-based practice in early intervention (McWilliam, 2010) listing comparable home and school routines side-by-side to facilitate conversation by the parent and teacher. Together, these adults selected and prioritized issues related to challenging routines for each child (e.g., dressing or bedtime at home, transitions or free play at school). Then in *Select* (step 2) the parent and teacher chose strategies to address child needs over a six- to eight-week period and worked with the facilitator to set up rubrics for goal attainment using Goal Attainment Scaling (GAS; Carr, 1979). Facilitators helped parents and teachers brainstorm strategies such as creating environmental adaptations or providing adult cues to help children follow a desired behavior. Because it took a variable amount of time to recruit teachers and families after programs accepted our invitation, new programs were continuously accepted into the study, and ongoing recruitment of families (children) continued until reaching the total sample outlined in our funded proposal. In one case, a tribal council needed to approve participation and this process took at least 8 months to achieve, so recruiting there began in the following October to enroll teachers and families in the intervention. If a teacher concluded working with a child and family on their goal and wanted to nominate additional participants, new children were accepted into the study. Typically, our team started working with family and teacher units in the months of October through March (for 6–8 weeks total) and many programs and teachers were willing to participate in more than one year of intervention (with different families/children) each time.

In Foundations step 3, *Try It!*, both parent and teacher used the strategies, recorded data on results, and shared progress regularly through video and data charts. Facilitators monitored progress by contacting parents and teachers via phone, email, or direct visits to home or classroom. Last, *Reflect* involved a final face-to-face meeting six- to eight-weeks after the initial meeting to review goal attainment. The parent and teacher each decided whether to continue, modify goal strategies, or select a new goal for their focus child. To conclude the intervention, post-test information was collected, and facilitators supported the process as needed.

Measures

Children's Engagement Questionnaire (CEQ).—Parents (responding to home behaviors) and Teachers (school behaviors) rated child engagement pre- and post-intervention using the *CEQ (*McWilliam, 1991), yielding scores of Competent and

Unsophisticated Engagement. Children's everyday activities such as *plays with toys* or *watches and listens to adults* were scored from 1= Not at all, 2= Somewhat Typical, 3= Typical, to 4= Very Typical. Snyder & McWilliam (2006) found the scores to be stable. Ratings of competent engagement were calculated as the mean of 23 items that called for rating some actions by the child. Unsophisticated engagement is the mean score of 9 items describing more passive or non-directed actions (i.e. continues repetitive movements or tries to get adults to do things). Younger children or children outside of purposeful play fall more within Unsophisticated Engagement as rated by adults who know them best in each of the settings – home and school.

Devereux Early Childhood Assessment (DECA).—The *DECA* (LeBuffe & Naglieri, 1998) is a 37-item standardized strength-based assessment for two to five-year-olds of protective factors in social emotional functioning that parents and teachers completed. *DECA* self-control items are a proxy for self-regulation, which Landy (2002) defines as a type of self-control related to containing and managing behavior without relying on caregiver guidance. Parents and teachers rated items pre-post on a five-point Likert scale (never to very frequently) rating recent child behavior. Three Protective Factors of the *DECA* are Initiative (independent thought and action to meet needs), Self- Control (experiencing feelings and expressing in words and actions), and Attachment (mutual relationship with adults). Behavioral Concerns describes social and emotional problems. Indicators of change in self-regulation included the Self-Control and Behavioral Concerns factors from the DECA. Chronbach's alpha indicates adequate internal consistency of .90, .90, and .95 for the three protective factors, and .80 for the Behavioral Concerns, which is a more heterogeneous scale (LeBuffe & Naglieri, 1998).

Goal Attainment Scale.—Goal Attainment Scaling (GAS; Carr. 1979), a five-part rubric, determined child progress on each home and school goal. Each parent and teacher identified the child's present level and facilitators consulted with these adults to create five incremental indicators of progress, arranged in ascending order: "much less than expected" (−2 or T= 30), "less than expected" (−1 or T=40), "expected level" (0; T=50), "more than expected" (+1; T=60), and "much more than expected" (+2; T=70) (Cardillo, 1994). After the child (with adult support) used the identified strategy, teachers marked school goal attainment and parents rated home goals. Following ratings, one researcher identified the goal focus as either engagement or self-regulation and a second researcher rated 25% of the goal foci independently for reliability. Agreement was 95% with one difference agreed upon by consensus.

Self-Determination Foundations Study Feedback.—Parents and teachers rated social validity with this 5-point Likert-scale (ranging from "not at all" to "completely"). Four items concerned perceived increases in knowledge and skills related to the child (e.g., "As a result of this study, I have increased my knowledge on ways to support my child/ student"). Five items rated useful components of the study were (e.g., "Rate how useful you found using the Routines Based process to find a goal for home or school"); four items were about feasibility (e.g., "Finding time to meet across our schedules was difficult"). Four open-ended questions addressed knowledge, utility, and intervention benefits.

Partnership Perceptions Questionnaire.—The research team developed this measure for parents, teachers, and facilitators to rate partnership interactions within teams. Post-intervention only, parents responded to 11 questions on a 5-point Likert scale (Strongly Disagree to Strongly Agree) to address whether the teacher listened to them and treated them with respect, if they were comfortable sharing information, and whether parents were confident working on strategies with their child. Teachers used the same 5-point responses and questions formulated from a teacher's point of view and one item about intervention influence on family collaboration.

Foundations Intervention Steps Completion.—Data were collected weekly at home and school with a checklist of key elements for each goal related to strategy use and occurrence of child outcome behaviors over time. This checklist was used to drive the intervention, in that it gave families and teachers evidence on which to base their GAS rating of goal completion. At intervention end, parents, teachers, and facilitators rated the degree to which they used the four steps of the Foundations Intervention and partnership using 13 items on a Likert scale (1 = not at all to five = completely) with additional space for comments. Each facilitator completed a one-page survey to describe the level of exposure and engagement in the intervention for each team. The facilitator recorded the number of parent-teacher meetings from running records of notes and developed a targeted data collection for each goal strategy.

Data Analyses

Teacher and family rating scales in this pre-test/post-test design without control group were analyzed using ANCOVA including the covariate, class. The class or classroom variable partially accounted for the confound of 8 teachers (of 34 total) who worked with multiple child-focused teams over the course of the intervention. Descriptive statistics were employed to analyze GAS results of goal attainment.

For some children, both the parent and teacher focused on the same goal content (i.e., engagement or self-regulation) for home and school goals, referred to as "linked" goals. In contrast, "unlinked" goals occurred if a parent selected a goal for engagement and a teacher identified a goal focused on self-regulation, or vice versa. Then, to determine the benefit of both teachers and parents setting parallel goals with the same content of either engagement or self-regulation, further analyses used t-tests to determine if there was a benefit to setting these linked goals; effect sizes were calculated.

Results

Engagement and Self-Regulation Ratings of Parents and Teachers

Engagement.—Parent and teacher pre-post ratings of child engagement levels on the *Children's Engagement Questionnaire (CEQ)* were significantly higher after 6 to 8 weeks. Parent ratings on engagement showed significant increases after intervention in mean Competent Engagement after accounting for classroom grouping from a mean score of 2.90 (SE=.070) to 3.10 (SE=.058), $F(1,14) = 9.44$, $p=.008$, partial eta squared = .40. Teacher ratings significantly increased after accounting for class in Competent Engagement from

pre-test (*M* = 2.50, *SE* = .058) to post-test (*M* = 2.65, *SE* = .064), F(1,14) = 9.30, p=.009, partial eta squared = .40.

Self-Regulation and Other Social Indicators.—Self-Control, a DECA subscale, yielded mean parent-reported scores at pre-test (*M* = 25.64, *SE* = .48) and post-test (*M* = 26.81, *SD* = .43) after accounting for class which were significantly different F(1,14) = 9.67, p=.008, partial eta = .41. Parent ratings for *DECA*'s Behavioral Concerns subscale score (social-emotional) changed from a pre-test mean of 25.59, *SE* = .68 to a post-intervention score, indicating a reduction in concerns, of 23.27, *SE* = .47, F(1,14) = 16.49, p=.001, partial eta squared = .54. There were significant increases in mean teacher ratings of Self-Control from time 1 (*M* = 24.20, *SE* = .85) to time 2 (*M* = 26.89, *SE* = .81), F(1,14) = 21.01, p< .001, partial eta squared = .60. However teacher ratings of changes in Behavioral Concerns were not significant F(1,14) = .04, p=.85.

Differences in Home and School Goal Focus and Attainment

Goal Attainment.—Overall GAS results in Table 2 indicate the Foundations Intervention was effective with mean scores over 50 indicating goals were met at the expected level or greater. Although parents scored home goals at a high rate, the 48 teacher/school goals had a slightly higher mean score than goals set for home. Parental goals were most commonly self-regulation goals (71%) while teacher goals were most frequently engagement goals (56%).

Goal Focus and Linked Goals.—Linked goals with a joint home and school focus of either engagement or self-regulation were contrasted with unlinked goals that occurred if a parent selected a goal for engagement and a teacher identified a goal focused on self-regulation, or vice versa. For the 14 teams who set both home and school goals for engagement outcomes there were significant increases for parent ratings of engagement ($t(13) = 3.04$, $p = .009$, $d = .83$). However, teacher engagement ratings were not significantly different pre- and post-measurement (see Table 2.).

The 21 parents and teachers who set coordinated self-regulation goals yielded increased ratings of self-control by teachers, ($t(20) = 1.88$, $p = .07$, $d = .43$); parent ratings of self-control showed less robust increases ($t(20) = .96$, $p = .35$, $d = .24$). Overall, when 35 parents and teachers set the same type of goal (either engagement or self-regulation), there were significant increases in both parent, $t(34) = 4.78$, $p < .001$, $d = .78$, and teacher , $t(34) = 2.55$, $p = .015$, $d = .42$ ratings of engagement, and teacher ratings of self-regulation, $t(34) = 3.71$, $p = .001$, $d = .63$. However, parent ratings of self-regulation were not significantly different over time ($t(34) = 1.68$, $p = .10$, $d = .29$). The 13 teams with different goal topics did not show significant changes in outcomes for either engagement or self-regulation.

Variation in Respondent Reports of Feasibility

Partnership.—Analysis of Variance of post-test parent, teacher and facilitator ratings of partnership after accounting for class indicated mean differences across all three respondent classes, *F(2, 28) = 4.98, p=.014, partial eta squared = .262* (large effect). Follow-up pairwise within-subjects contrasts indicated parents rated partnership items higher *(M = 4.64, SE*

= .06) than teachers *(M = 4.45, SE = .05)* or facilitators *(M = 4.33, SE = .11), p = .036 and p=.023* respectively. Teacher and facilitator scores were not significantly different (*p* = .182).

Item level results showing differences in parent and teacher ratings might guide future investigations. For example, the item "I felt comfortable talking about Foundations goals for my child with the teacher" was rated differently (and higher) by parents *(M = 4.87, SE = .03)* than by teachers rating their comfort level talking with the parent *(M = 4.43, SD = .06),* (*F(1,14) = 48.69, p< .001, partial eta squared = .777*). Parents noted they felt significantly more comfortable "sharing information about the strengths and needs of the child" (*M* = 4.85, SE = .10) than teachers (*M* = 4.51, SE = .05), F(1,14) = 10.89, p=.005, partial eta squared .437. Lastly, parents had more confidence in teachers carrying out goals at school (*M* = 4.87, *SE* = .03) than teachers had confidence that parents would carry out goals at home (*M* = 3.98, *SE* = .15) F(1,14) = 15.79, p<.001, partial eta squared .736.

Social Validity/Feasibility.—Intervention knowledge ratings of parents (*M* = 4.67, *SE* = .05) and teachers (*M* = 4.46, *SE* = .04) after accounting for class were significantly different (*F(1,14) = 10.05, p=.007,* partial eta squared = .42). Usefulness or feasibility of intervention procedures and elements ratings for parents, *M* = 4.73, *SE* = .03, and for teachers, *M* = 4.51, *SD* = .02, also were not significantly different (*F(1,14) = 62.47, p<.001, partial eta squared = .82*). Both parent, *M* = 4.16, *SE* = .09, and teacher ratings, *M* = 3.99, *SE* = .06, showed it was possible to find time to effectively use this intervention, although these ratings were statistically significantly different (*F(1,14) = 6.42, p=.024, partial eta squared = .31*) on feasibility, and aggregated scores were all relatively high, above 4.20 on a five-point scale. Written comments from facilitators, parents, and teachers supported feasibility of the process. A teacher wrote, "This process helped me and Joel's mother to communicate better and figure out the best way to help Joel gain independence". One facilitator commented, "I wanted the parent and teacher's established relationship to *lead the way* and this was a successful strategy". "We worked very well together to help my child", noted a parent.

The *Exposure to the Intervention Survey* showed between 2 and 10 meetings (M=5) for facilitator, parents, and teachers. E-mail was used outside of meetings, between facilitators and teachers,(M=6 contacts, *SD = 4.30)*, and facilitators and parents (*M = 5.10, SD = 5.01* contacts). Phone calls were less popular (facilitators to teachers *M = 1.93, SD = 1.76*; facilitators to parents, *M = 3.15, SD = 3.08)*; but facilitators contacted parents significantly more times by phone than they contacted teachers (*t(12)* = −1.79 , *p* = .01). Facilitators also texted parents (*M = 5.17. SD = 3.12*) more often than they texted teachers (*M = 1.67, SD = 2.58*) but this level of contact was not significantly different (*t(5)* = −1.508, *p* = .19).

In terms of *quality*, facilitators rated 40 first meetings (*Assess* and *Select;* 83.3 %) as being effective and being good examples of Foundations. Facilitators rated 38 final meetings (*Reflect;*79.2%) as excellent examples of parent/teacher sharing of results of home and school goals. During the *Try It!* Phase 32 (67%) parents and 34 (71%) teachers shared video footage; others shared photos and/or recorded their results on a chart (31 parents, 64.6 %; 41 teachers, 85.4%). All educational teams used at least one strategy for tracking to document usage.

Discussion

The Foundations Intervention focused on communication and interaction between parents and teachers with help from facilitators to adjust the environmental context for young children needing learning or social emotional supports. Preliminary study outcomes show the promise of the Foundations Intervention. The short-term goal-setting process for home and school goals in Foundations proved even more effective to focus communication between parent and teacher to facilitate decision making on child expectations and accommodations when families and teachers linked the goal focus for child outcomes. Ratings of engagement and self-regulation increased more than when goal focus was inconsistent across settings.

The short-term nature of the intervention was cited by participants in open-ended responses as a positive element of intervention. Setting multiple goals over time to impact child outcomes must be balanced with feasibility of a short-term intervention. Using more targeted high-quality measures, adding a control group, and having at least three goal sequences could provide further evidence for the Foundations Intervention.

Even though the lower mean scores for paired home goals with a self-regulation focus reflected a score that was within the “less than expected” rating of the GAS rubric, the effect size for linked parent goal groups in Self-Regulation was more robust than the self-regulation goals that were disassociated at both home and school (d = .24, 14). The effect sizes reported in Table 2 also show it is easier to promote engagement through environmental changes with short-term intervention than to make strides on self-regulation goals, which involve habitual behaviors. While more research is needed to explore this finding, the somewhat greater gains in child outcomes when home and school efforts shared a similar focus lends credence to the idea that active collaboration between home and school may yield greater benefits for the child.

Our qualitative study (Summers et al., 2014) identified the theme of *mutual trust* about parameters and expectations of parents regarding the development of self-determination. Using routines at home and school, adults in the intervention used a common language to set short-term goals at home and school as well as show respect for the culture of each setting. Parents shared experiences of their child at home, often giving information that a teacher could use in the classroom and vice-versa. For example, a teacher of a child with more severe disabilities gained parent input on positioning and engagement cues from home to increase school engagement.

In general, teachers were positive and supportive of family partnership, but ratings on the Family-Practitioner Partnership scale show there is always room for improvement. Differences in post-intervention partnership ratings between families and teachers might be attributed to the tendency for families to rate items more positively (Summers, et al., 2007). More investigation of individual team results within our study may yield information about ratings, about specific goals. The adage “walk a mile in my shoes” highlights need for a parent and teacher to reflect and collaborate. School-based language might keep families

from becoming fully engaged in discussions; teachers are often less aware of a child's routines at home.

A key concept within partnership is to build on expertise and resources of both families and professionals (Turnbull, Turnbull, Erwin, Soodak, & Shogren, 2011). Family engagement is associated with Individuals with Disabilities Education Improvement Act (IDEA) of 2004 (PL 108–446) (Haines, McCart, & Turnbull, 2013). Our intervention used a "flexible self-determination perspective" to support cultural differences (Shogren, 2011) to take into account preferences and strategies of participants, making sure parents had a voice in the process. Since we were doing research in applied real-world settings with a racially, economically, and geographically diverse population in more than one type of program and classroom. Our process needed to accommodate self-selection of children's goals through family engagement in the goal setting process while maintaining the structure and function of intervention steps.

Our facilitators helped fulfill expectations within the intervention but this role may need more exploration. Although many parents and teachers have good relationships, ongoing communication and support through mutual goal setting was valued. One facilitator mentioned that shared communication "closer to the event, rather than at planned review times such as IEP meetings" was a valued aspect of this intervention. Although in this initial research facilitators were essential, future research should focus on whether teachers can use the intervention directly with families, or if a facilitator continues to be a necessary part of the implementation process.

Limitations

This study of initial usability and feasibility has limitations in design, participant selection, measurement, facilitators, internal validity, and fidelity of implementation. Since this work was an initial testing of method and materials, our study design lacks rigor. Having no comparison group limits findings; we have no information about others who did not experience the intervention. In addition, our purposively selected but voluntary sample may have influenced outcomes due to selection bias; we wanted to work in a variety of settings and many programs insist on teacher agreement to participate, so there was no random assignment. The small sample size also provided results with limited statistical power to impact outcomes and lack of reliability and specificity for some of our measures may also have limited results. Furthermore, the expertise of intervention facilitators may be difficult to replicate in future studies since 13 of our 18 facilitators were research team members. Since we were unable to observe every part of the intervention, especially the *Try it!* Step, there is also a lack of internal validity – perhaps other factors than those studied impacted the intervention results. In some cases, the teacher or parent was able to consistently capture child activities on video but videos were often less effective in viewing contextual variables in situations. Although the Foundations Intervention was used as envisioned, we were unable to capture implementation fidelity within homes of families due to the unique aspects of each of the family goals being conducted within private times within family life – waking up, bathroom activities, and the spontaneous nature of goals. This limitation of conducting research with families is one which is difficult to overcome, regardless of how much effort

researchers may apply. Using more targeted high-quality measures, adding a control group, and having at least three goal sequences could provide further evidence for the Foundations Intervention.

Acknowledgments

Author Note: The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education, through Grant R324A090267 to the University of Kansas. The opinions expressed are those of the authors and do not represent views of the Institute of Education Sciences or the U.S. Department of Education. The authors acknowledge that there is no conflict of interest represented within this manuscript.

References

Abery B, & Zajac R (1996). Self-determination as a goal of early childhood and elementary education In Sands D & Wehmeyer ML (Eds.) Self-determination across the life span: Independence and choice for people with disabilities (pp.169–196). Baltimore: Brookes.

Bronson MB (2000). Self-regulation in early childhood. New York City: Guilford.

Brotherson MJ, Cook CC, Erwin EJ, & Weigel CJ (2008). Understanding self-determination and families of young children with disabilities in home environments. Journal of Early Intervention, 31, 22–43. doi: 10.1177/1053815108324445

Carr RW (1979). Goal attainment scaling as a useful tool for evaluating progress in special education. Exceptional Children, 46, 88–95. [PubMed: 510329]

Erwin EJ, Maude SP, Palmer SB, Summers JA, Brotherson MJ, Haines SJ, … Peck NF (2016). Fostering the foundations of self-determination in early childhood: A process for enhancing child outcomes across home and school. Early Childhood Education Journal, 44, 325–333. doi 10.1007/s10643-015-0710-9

Haines SJ, McCart A, & Turnbull A (2013). Family engagement within early childhood response to intervention In Buysse V & Peisner-Feinberg EX (Eds.) Handbook of response to intervention in early childhood, pp. 313–324. Barltimore, MD: Brookes.

Hebbeler K & Spiker D (20146). Supporting young children with disabilities. The future of children, 26, 185–205.

Landy S (2002). Pathways to competence: Encouraging healthy social and emotional development in young children. Baltimore, MD: Paul H. Brookes Publishing.

LeBuffe PA & Naglieri JA (1998) The Devereux Early Childhood Assessment. Lewisville, NC: Kaplan.

McWilliam RA (1991). Children's Engagement Questionnaire (CEQ). Chapel Hill, NC: The University of North Carolina, FPG Child Development Institute.

McWilliam RA (2010). Routines-based early intervention: Supporting young children and their families. Baltimore: Brookes.

McWilliam RA & Bailey DB (1992). Promoting engagement and mastery In Bailey DB & Wolery M (Eds.). Teaching infants and preschoolers with disabilities (2nd ed, pp. 230–255). New York: McMillan.

Palmer SB (2010). Self-Determination – A life-span perspective. Focus on Exceptional Children, 42, 1–16.

Palmer S, Summers JA, Brotherson MJ Erwin E, Maude S, Stroup-Rentier V….Haines S (2013). Building a foundation for self-determination in early childhood: An inclusive model for children with disabilities. Topics in Early Childhood Special Education, 33, 38–47. doi: 10.1177/0271121412445288

Palmer S, & Wehmeyer ML (2003). Promoting self-determination in early elementary school: Teaching self-regulated problem-solving and goal setting skills. Remedial and Special Education, 24, 115–126.

Patton MQ (2008). Utilization-focused evaluation (4th Ed.). Thousand Oaks, CA: Sage.

Shogren KA (2011). Culture and self-determination: A synthesis of the literature and directions for future research and practice. Career Development for Exceptional Individuals, 34, 115–127. Doi: 10.1177/0885728811398271

Simeonsson RJ, & Bailey DB (1991). The abilities index. Chapel Hill: Frank Porter Graham Child Development Center.

Shonkoff JA & Phillips DA (2000). From neurons to neighborhoods: The science of early childhood development. Washington, D. C.: National Academy Press.

Snyder P & McWilliam RA (2006). Using parallel analysis to inform extraction decisions in factor analysis: Application with the Children's Engagement Questionnaire. Poster presented at Conference on Research Innovations in Early Intervention, San Diego.

Summers JA, Brotherson MJ, Erwin EJ, Maude SP, Palmer SB, Haines SJ, … Zheng YZ (2014). Family reflections on the foundations of self-determination in early childhood. Inclusion,2, 175–194. DOI: 10.1352/2326-6988-2.03.175

Summers JA, Marquis J, Mannan H, Turnbull AP, Fleming K, Poston DJ, … Kupzck K (2007). Relationship of perceived adequacy of services, family-professional partnerships, and family quality of life in early childhood service programs. *International Journal of Disability*, Development, and Education, 54, 319–338.

Turnbull AP, Turnbull HR, Erwin E, Soodak L, & Shogren K (2011). Families, professionals, and exceptionality: Positive outcomes through partnerships and trust (6th ed.). Upper Saddle River, NJ: Merrill/Prentice Hall.

Wehmeyer ML (2007). Promoting self-determination in students with developmental disabilities. New York: Guildford.

Wehmeyer ML, & Palmer SB (2000). Promoting the acquisition and development of self-determination in young children with disabilities. Early Education & Development, 11, 465–481.

Wehmeyer ML, Palmer SB, Agran M, Mithaug DE, & Martin J (2000). Promoting causal agency: The self-determined learning model of instruction. Exceptional Children, 66, 439–453.

Williford AP, Whittaker JE, Vitello VE, & Downer JT (2013). Children's engagement within the preschool classroom and their development of self-regulation. Early Education & Development, 24, 165–187. DOI:10.1080/10409289.2011.628270

Figure 1.
Foundations Steps with Key Features of *Foundations Intervention*

Table 1.

Descriptive Information of Children, Family Members, Teachers, and Facilitators

Participants	Age	Female	Male	Other Information
Children	*M* =51.43 (9.19) months, Range 31–69 months	11 (22.9%)	37 (77.1%)	Ethnicity: White, non-Hispanic/Latino, *n*=26; White, Hispanic/Latino, *n*=7; American Indian, *n*=5; Black, *n*=3; Biracial, *n*=4; Asian, *n*=3. Primary Disability, *n* = 33: Developmental Delay, *n* =13 Speech/Language, *n* =10 Autism, *n* = 5 Emotional Disturbance, *n* = 4 Visual (Blindness), *n* = 1
Parents	*M*=33.7 (5.97) years, Range 24–48 years	43 (89.6%)	5 (10.4%)	Income: Less than $19,000, *n*=20 (42.6%); $20,000 to $39,000, *n*= 4 (8.5%); $40,000 to $59,000, *n*= 2 (4.3%); $60,000 to $70,000, *n*= 3 (6.4%); $80,000 and over, *n*= 18 (38.3%).
Teachers	*M*=37.45 (10.6) years, Range 23–61 years	34 (100%)	0	Ethnicity: White, non-Hispanic/Latino, *n*=31; White, Hispanic/Latino, *n*=1; American Indian, *n* = 1; Biracial, *n* =1
Facilitators	M=39.1 (12.54) years, Range 27–64 years	18 (100%)	0	Ethnicity: White, non-Hispanic/Latino, *n*=16; Biracial, *n*=2

Table 2.

Summary of Goal Attainment Scale Scores and Effect Size (d) for Linked and Non-Linked Goals

	N	*Mean*	*SD*	Min. Score	Max. Score
Parents/Home Goals					
Overall Score	48	58.46*	11.21	37.59	74.81
Engagement Focus	14	59.40*	10.47	43.79	74.81
Self-Regulation Focus	34	58.07*	11.62	37.59	74.81
Teachers/School Goals					
Overall Score	48	60.78*	9.18	43.79	74.81
Engagement Focus	27	62.60*	9.39	50	74.81
Self-Regulation Focus	21	58.43*	8.55	43.79	74.81

	Un-linked Goals *n*=13	**Linked Goals Overall *n*=35**	**Linked Goals on Self-Regulation *n*=21**	**Linked Goals on Engagement *n*=14**
Teacher Engagement	*d*=.13	*d*=.42	*d*=.43	*d*=.50
Family Engagement	*d*=.13	*d*=.78	*d*=.81	*d*=.83
Teacher Self-Regulation	*d*=.33	*d*=.63	*d*=.59	*d*=.39
Family Self-Regulation	*d*=.14	*d*=.29	*d*=.24	*d*=.74

*A mean score of 50 or above indicates that goals were met at the expected level of attainment.