



## Understanding the implementation of the *Grow!* parenting program: Findings from a mixed methods pilot study



M.T. Czymoniewicz-Klippel<sup>a,\*</sup>, R.P. Chesnut<sup>a</sup>, J.M. DiNallo<sup>a</sup>, D.F. Perkins<sup>a,b</sup>

<sup>a</sup> Clearinghouse for Military Family Readiness at Penn State, The Pennsylvania State University, United States

<sup>b</sup> Department of Agricultural Economics, Sociology, and Education, and Courtesy Appointment in Human Development and Family Studies, The Pennsylvania State University, United States

### A B S T R A C T

Evaluating the implementation of parenting interventions is critical to program diffusion and quality across populations and settings, and to enhancing treatment outcomes. This article presents implementation findings from a pilot study of *Grow!*, a universal parenting program targeting parents of five to eight years olds that aims to improve child outcomes through strengthened parenting. *Grow!* was implemented at two community sites in central Pennsylvania by trained facilitators. Implementation data was gathered from facilitators and participants using mixed methods, including surveys, observation checklists, semi-structured interviews, and focus group discussions. These data were analyzed and integrated to explore, within the context of Proctor et al.'s (2011) implementation outcome framework, four implementation outcomes (i.e., acceptability, appropriateness, fidelity, and feasibility). Overall, these findings demonstrate that *Grow!* can be, and was, implemented effectively in a community setting. Moreover, they demonstrate how the Proctor et al. (2011) framework can be operationalized and applied specifically to hybrid effectiveness-implementation design studies.

### 1. Introduction

While implementation research has progressed significantly over the past 15 years, there remain few systematic, robust parenting intervention studies that empirically examine specific implementation outcomes. The omission of implementation outcome data from the parenting literature is noteworthy for several reasons. First, understanding implementation is important for promoting the widespread quality delivery of evidence-based practice in parenting, as in other fields. We need to understand if and why programs are not being implemented as recommended, in order to detect issues early on and, in turn, overcome challenges to strengthen program outcomes (Grol & Grimshaw, 2003; McHugo et al., 2007). For instance, as Whittaker and Cowley (2010) highlight, even when evidence-based parenting programs are available, positive outcomes are not guaranteed. Attendance and engagement in interventions are often poor for multiple reasons relating to program design and implementation (e.g., practitioner skills in delivering content and group facilitation), as well as personal life factors of parents (e.g., busy family schedules, inconvenient program timing).

Second, assessing implementation quality is necessary for understanding the internal and external validity of, as well as the theory of

change behind, an intervention. That is, ensuring that different intervention components are effectively implemented in order to understand their potential applicability to specific populations and settings is essential (Durlak & DuPre, 2008). To illustrate, a large-scale randomized control trial and complementary process evaluation of an adolescent sexual health intervention implemented in Tanzania revealed that the theories of change, and therein the intervention itself, failed to adequately account for socio-structural factors, including social status, gender, economics and, in particular, culture. The result was improvements in knowledge and reported attitudes and behaviors at the individual level, but none in a range of biological outcomes (e.g., HIV seroincidence; Wight, Plummer, & Ross, 2012).

Finally, strengthening program implementation can lead to enhanced treatment outcomes (i.e., the quality of implementation affects the quality of outcomes; Durlak & DuPre, 2008; Torrey et al., 2001). In the parenting literature, most previous studies have ignored the relationship between implementation factors and treatment outcomes. However, there is some evidence to suggest that variations in implementation may result in differential effectiveness. For example, several parenting intervention evaluation studies (e.g., Heinicke et al., 2000; Stolk et al., 2008) report a relationship between aspects of the quality of mothers' involvement in an intervention (e.g., degree of

\* Corresponding author at: Clearinghouse for Military Family Readiness at Penn State, 402 Marion Place, University Park, PA 16802, United States.

E-mail addresses: [mtc16@psu.edu](mailto:mtc16@psu.edu) (M.T. Czymoniewicz-Klippel), [rpc5108@psu.edu](mailto:rpc5108@psu.edu) (R.P. Chesnut), [jmd422@psu.edu](mailto:jmd422@psu.edu) (J.M. DiNallo), [dfp10@psu.edu](mailto:dfp10@psu.edu) (D.F. Perkins).

alliance with intervener) and parenting outcomes (e.g., use of positive discipline, parent-child attachment).

Recent efforts within implementation science have been devoted to developing implementation models and frameworks that support the conceptualization and measurement of implementation outcomes. Several researchers, including Aarons, Hurlburt, and McCue Horwitz (2011), have developed broad implementation models that attempt to capture the entire implementation process from exploration through implementation and sustainment. Other researchers have been more specific in seeking to identify particular factors influencing implementation. For instance, Proctor et al. (2011) has developed a conceptual framework, on the basis of extant literature and expert opinion, which presents a taxonomy of eight implementation outcomes (i.e., acceptability, adoption, appropriateness, costs, feasibility, fidelity, penetration, and sustainability) that complement service outcomes (i.e., efficiency, safety, effectiveness, equity, patient-centeredness, and timeliness) and client outcomes (i.e., satisfaction, functioning, and symptomatology). Together, these three sets of outcomes represent the full implementation process. Arguably, Proctor et al.'s (2011) framework provides the most recent and refined conceptual, linguistic, and methodological clarity of outcomes from implementation to client.

Now is the time for testing, through empirical research, these theoretical models and frameworks. While often researched in isolation, the factors influencing implementation are ultimately interrelated in dynamic and complex ways. Accordingly, a range of future studies are needed to examine the nuances of implementation processes (e.g., theory-building research that explores the interrelationships among implementation outcomes), and advance an evidence base around successful implementation. This includes empirical studies that draw on reliable, valid, and efficient measures to empirically test the effectiveness of specific, new treatments or programs and that, in addition to measuring treatment outcomes, simultaneously advance the conceptualization of implementation outcomes (i.e., effectiveness-implementation hybrid design studies; Curran, Bauer, Mittman, Pyne, & Stetler, 2012).

This article contributes to the implementation science and parenting intervention literatures by exploring the applicability of Proctor et al.'s (2011) framework to a real-world intervention. Specifically, it connects theory with practice through presentation of mixed method findings from a pilot evaluation of *Grow!*, a universal parenting program targeting parents of five to eight years olds. For the reasons previously discussed, prior to upscaling *Grow!*, implementation factors that have been identified (Proctor et al., 2011) as salient to real-world program delivery, such as acceptability, appropriateness, fidelity, and feasibility, needed to be examined. Understanding program implementation was also necessary to begin exploring the potential impact of program implementation on treatment outcomes that are theoretically relevant to *Grow!*'s foundational learning domains.

To accomplish these goals, a pilot test of the program was conducted using a convenience sample from two communities in central Pennsylvania. The study utilized what Curran et al. (2012) labeled a Hybrid Type 3 design. That is, the primary focus of the study was examining the implementation mechanisms of the program with a secondary emphasis on exploring treatment effects. Here we present the implementation findings that address the following research questions: (1) Are participants and facilitators satisfied with the program? Do they find it useful?; (2) Can *Grow!* be implemented with fidelity in a community setting?; and (3) Is it feasible to implement *Grow!* in a community setting?

## 2. Method

### 2.1. Procedures

The study involved implementing *Grow!* at two community sites that were selected based on prior established connections to the

communities and the close proximity of the locations to the Clearinghouse for Military Family Readiness at Penn State (Clearinghouse). Two facilitators per site were identified via stakeholder recommendations, and trained using an online training program comprising 10 self-paced modules, eight coordinating facilitator and five delivery facilitator coaching calls, a certification quiz, and a two-part certification webinar that requires trainees to demonstrate skill competence. The coordinating facilitator was responsible for the logistical tasks of the program (e.g., recruitment of participants and scheduling the room); the delivery facilitator was responsible for program delivery. During program implementation, both facilitators received continued delivery instruction and support through site visits and scheduled phone calls conducted by one of the program developers. Facilitators were compensated for their participation in the study on an hourly wage basis.

A participant recruitment toolkit (e.g., posters, flyers, and social media posts) was used to increase reach among eligible parents. Eligibility criteria included: (a) being at least 18 years of age at the start of the program; (b) occupying a caregiver role for at least one child between the ages of five and eight years; and (c) speaking English. A total of 36 participants were recruited across both sites over a one-month period in the spring of 2015.

### 2.2. Intervention program

*Grow!* is part of the THRIVE Initiative ([www.thrive.psu.edu](http://www.thrive.psu.edu)) and was developed in 2014 by scientists from the Clearinghouse using a Common Components Analysis (CCA) approach (e.g., Chorpita, Daleiden, & Weisz, 2005). CCA assumes that effective, like-minded interventions (e.g., parenting programs based on similar theoretical models) share a core set of components that comprise their individual curriculums. These core components are theorized to be the main mechanisms accounting for attitudinal and behavioral change. By engaging in a process similar to content analysis, these shared components can be identified and subsequently incorporated into a newly developed program. For further detail about the use of the CCA approach in the development of THRIVE programs, see Czymoniewicz-Klippel, Chesnut, DiNallo, and Perkins (2015).

The program is comprised of five weekly 90-minute group sessions that are delivered by a facilitator using a video-based curriculum. Weekly text messages, supporting videos, and homework activities are also integrated into the curriculum to encourage parents to consider and practice the skills that they develop during the weekly sessions. The program focuses on bolstering parenting attitudes and behaviors that support positive child development. To accomplish this goal, the program takes a strength-based approach to parenting (Green, McAllister, & Tarte, 2004). That is, *Grow!* encourages parents to focus on what they and their child are already doing well while simultaneously helping them identify ways to cultivate greater competency.

Program content is situated within the theoretical frameworks of social cognitive theory (Bandura, 1986), positive youth development (Damon, 2004), and anticipatory guidance (American Public Health Association, 1955). Each session primarily emphasizes positive parenting practices, parent and child stress management, and/or child physical health promotion. Thus, as parents learn general parenting skills (e.g., praise and encouragement, assertive discipline) that they can use in everyday situations, they also learn about how these skills can be used in situations that are highly stressful or involve making healthy choices. It is expected that by supporting parents in this way, the program's long-term goal of improving child outcomes, including psychological and emotional wellbeing, pro-social behaviors, academic performance, and healthy lifestyle behaviors, will be achieved.

Currently, *Grow!* has been evaluated in two small, uncontrolled trials, one involving civilian parents ( $N = 20$ ; Chesnut, DiNallo, Czymoniewicz-Klippel, & Perkins, 2016, 2017) and the other involving military parents ( $N = 27$ ; Matera, Chesnut, Czymoniewicz-Klippel,

DiNallo, & Perkins, 2017). Results of the civilian study indicated improvements from pre- to post-test in parents' use of discipline, stress levels, encouragement of adaptive coping strategies in their child, sense of control over their child's behavior, and feeding practices. Improvements were also reported in child internalizing behavior and time spent playing outdoors. Though data is still being analyzed, current results from the military study are similar.

### 2.3. Measures

#### 2.3.1. Demographics

Facilitators and participants completed demographic questionnaires. For both groups, information regarding age, race, education, and gender were collected. The facilitator demographic questionnaire also inquired about teaching experience, experience working with families, and previous experience facilitating a group-based program. The participant demographic questionnaire included additional questions regarding employment status, marital status, family arrangement, and number of children living in the home.

#### 2.3.2. Implementation outcomes

Proctor et al.'s (2011) framework for implementation outcomes informed this study. Specifically, the study focused on examining acceptability, appropriateness, fidelity, and feasibility. Data was simultaneously collected from both facilitators and participants before, during and after the program using a QUANT/qual concurrent embedded mixed methods design. Concurrent embedded strategies involved the parallel collection of quantitative and qualitative data, with one method being given priority over the other (Creswell, 2009). This study focused on quantitative data to measure implementation outcomes; qualitative data played a secondary supportive role in exploring facilitator and participant experiences with program implementation. Quantitative data was collected using surveys and observation checklists and qualitative data from open-ended questions included in the surveys and from focus groups and semi-structured interviews conducted after the end of the program. A summary of the measures used to collect data on each implementation outcome is presented in Table 1.

**2.3.2.1. Acceptability.** Acceptability data was collected from participants through one item (5-point scale) on a weekly exit survey that was administered at the end of every *Grow!* session, as well as during a focus group discussion. The weekly exit survey item asked participants if they were satisfied with the way the facilitator delivered that session. The purpose of the focus group, which was conducted at the end of the program by two program researchers, was to obtain a richer and deeper description of participants' experience with the program, including their satisfaction with or enjoyment of the program. Similarly, semi-structured interviews were conducted with the facilitators by two program researchers to elicit a fuller understanding of their experiences with the program including acceptability.

**2.3.2.2. Appropriateness.** Appropriateness data was collected through three methods. First, three items (5-point scales) on the participants' weekly exit survey focused on appropriateness. These items asked how much new information participants learned during the session, how important the session's primary skill (e.g., coping) was to them, and how likely they were to use the primary skill over the following week. There were also two open-ended questions that asked what the participants found most helpful about the session and what could be improved. Second, two days after each session, participants were sent a link to an online video that expanded upon the ideas in the prior session. Each online video was followed by a two-item survey measuring the video's appropriateness on a 5-point scale. Finally, the focus groups were also used to gather information from the participants on the appropriateness of the program, and the semi-structured

interviews were used to glean this information from the coordinating and delivery facilitators.

**2.3.2.3. Fidelity.** Fidelity data consisted of curriculum adherence, delivery quality, participant engagement, intervention dosage, and treatment enactment. *Curriculum adherence* data was collected by the coordinating facilitators at each site and one of the program developers, through the use of a fidelity observation form that contained a yes or no checklist of all the scripted elements of each session's curriculum. In this way, the form mirrored the delivery facilitators' script for each session. Coordinating facilitators were trained on how to use the form during a coaching call, but resource and time constraints did not allow for inter-rater reliability training to occur prior to program implementation. While this was unfortunate, we expected the simplicity of the form and its mirroring of the session scripts to help offset this limitation. Coordinating facilitators provided adherence data for each session while the program developer provided adherence data for three sessions at each site. The delivery facilitator completed a weekly exit survey that contained one item (4-point scale) on adherence. *Delivery quality* data was collected in a similar fashion. Coordinating facilitators and the program developer responded to three items (4-point scale) on the fidelity observation form, and the delivery facilitator responded to the same three items on the weekly exit survey. *Participant engagement* data was collected from facilitators, the program developer, and the participants. The coordinating facilitator and the program developer responded to four items (5-point scale) on the fidelity observation form, the delivery facilitator responded to four items (5-point scale) on the weekly exit survey, and the participants responded to one item (5-point scale) on their weekly exit survey. *Intervention dosage* was assessed through participant attendance at each session and viewership of the weekly online videos. Finally, *treatment enactment* was assessed for each primary taught skill by having participants respond to one item (4-point scale), three separate times for each week of the program. The three measurement time points for each skill were at the end of the current session (on the weekly exit survey), 48 h after the session (via a text message), and at the end of the next session (on the weekly exit survey).

**2.3.2.4. Feasibility.** Feasibility data was collected directly from the facilitators through a post-program coordinating facilitator survey and the semi-structured interviews. The survey contained a section on feasibility that was comprised of items (4-point scales) asking coordinating facilitators to consider how easy it was to implement *Grow!* at their site, how successful they felt the implementation was, and how supportive of the program the administration and community were.

### 2.4. Analytical plan

Quantitative data were analyzed using SPSS version 23. Analyses focused primarily on calculating descriptive statistics (e.g., means, frequencies, and ranges), though paired sample *t*-tests were conducted to examine changes in participants' reports of skill usage between sessions throughout the program. Qualitative data (i.e., data gathered from interviews, focus groups, and open-ended items) were examined using a structured, deductive "framework approach," similar to that described by Pope, Ziebland, and Mays (2000). That is, the various data sources were read and re-read, with a specific eye for responses that spoke to acceptability, appropriateness, fidelity, and feasibility. Data were descriptively coded, and then categorized and collapsed into themes around these implementation outcomes of interest. As part of this coding process, frequency counts were tabulated. Data integration was facilitated through the development of a side-by-side comparison style joint display that brought the quantitative and qualitative data together to visually draw out new insights (see Table 3).

**Table 1**  
Description of implementation outcome measures.

Domain	Assessment	Sample item	Method	Respondent(s)
Acceptability: The degree to which a program is seen as satisfactory among relevant stakeholders	Weekly exit cards	<ul style="list-style-type: none"> <li>■ "In general, how satisfied are you with how the facilitator delivered today's session?"</li> </ul>	Quant	Participants
	Focus group discussions	<ul style="list-style-type: none"> <li>■ "Thinking back over the last 5 weeks of <i>Grow!</i>, what aspects of participating in the program did you enjoy the most and why?"</li> </ul>	Qual	Participants
	Semi-structured interview	<ul style="list-style-type: none"> <li>■ "How receptive and satisfied with <i>Grow!</i> do you think the participants were?"</li> </ul>	Qual	Coordinating facilitators
	Semi-structured interview	<ul style="list-style-type: none"> <li>■ "What type of feedback did you hear regarding the curriculum or weekly online videos?"</li> </ul>	Qual	Delivery facilitators
Appropriateness: The degree to which stakeholders view a program as relevant or useful	Weekly exit cards	<ul style="list-style-type: none"> <li>■ "What was most valuable or helpful about today's lesson?"</li> </ul>	Quant & Qual	Participants
	Weekly online video follow-up surveys	<ul style="list-style-type: none"> <li>■ "As a parent, how useful did you find this video?"</li> </ul>	Quant	Participants
Fidelity: The degree to which a program is delivered as it is intended to be by the developers including curriculum adherence, delivery quality, intervention dosage, participant engagement, and treatment enactment	Focus group discussions	<ul style="list-style-type: none"> <li>■ "Thinking back over the last 5 weeks of <i>Grow!</i>, what aspects of participating in the program did you enjoy the most and why?"</li> </ul>	Qual	Participants
	Semi-structured interview	<ul style="list-style-type: none"> <li>■ "What changes do you think need to be made to improve the quality of <i>Grow!</i> for future implementations?"</li> </ul>	Qual	Coordinating facilitators
	Fidelity observation forms	<ul style="list-style-type: none"> <li>■ "Did the facilitator state the purpose of today's session?" (adherence)</li> <li>■ "How clear were the facilitator's explanations of activities?" (delivery quality)</li> </ul>	Quant	Coordinating facilitators, Program developer
	Weekly exit surveys	<ul style="list-style-type: none"> <li>■ "Considering all of the participants in the group, how many demonstrated a positive attitude toward the session content?" (participant engagement)</li> <li>■ "How closely did I follow the script for this session in my manual?" (adherence)</li> </ul>	Quant	Delivery facilitators
Feasibility: The degree to which a program can be successfully implemented in a particular setting	Weekly exit cards	<ul style="list-style-type: none"> <li>■ "How clear were my explanations of activities?" (delivery quality)</li> <li>■ "Considering all of the participants in your group, how many demonstrated a positive attitude toward the session content?" (participant engagement)</li> </ul>	Quant	Participants
	Participant attendance log	<ul style="list-style-type: none"> <li>■ "In general, how engaged were you in today's session (e.g., actively listening to the facilitator, responding to questions)?" (participant engagement)</li> </ul>	Quant	Participants
	Mid-week behavioral assessment (i.e., text message)	<ul style="list-style-type: none"> <li>■ "Since session 1 (over the past week), how often have you praised and encouraged your child?" (treatment enactment)</li> </ul>	Quant	Participants
	Post-program survey	<ul style="list-style-type: none"> <li>■ "Did participant attend today's session?" (intervention dosage)</li> <li>■ "Since session 1, how often have you praised and encouraged your child?" (treatment enactment)</li> <li>■ "Overall, how successful do you feel the <i>Grow!</i> program was at your site?"</li> </ul>	Quant	Coordinating facilitators
	Semi-structured interviews	<ul style="list-style-type: none"> <li>■ "With respect to delivering the program at your site, did you feel everything was efficient, or did you think changes were needed to make delivery easier for you?"</li> </ul>	Qual	Delivery facilitators

**Table 2**  
Demographic information.

	Facilitators (n)	Participants (n)
Gender		
Female	4	21
Age		
< 30	–	7
30–39	2	12
40–49	–	6
50–59	2	1
Race/ethnicity		
White	4	19
Non-white	0	7
Education		
Some college or less	1	15
Associate's degree or higher	3	11
Military affiliation		
No	4	26
Teaching experience		
Yes	4	–
Current work field		
Education	2	–
Health education/public health	2	–
Group-based program facilitation experience		
Yes	3	–
Experience working with families		
Yes	4	–
Experience working with military families		
Yes	2	–
Occupation status		
Full-time (paid)	–	11
Part-time (paid)	–	4
Stay-at-home parent	–	7
Other	–	4
Marital status		
Married	–	18
Living together, not married	–	1
Divorced	–	3
Single, never married	–	2
In relationship, not living together	–	2
Family arrangement		
Two-parent family	–	20
Single-parent family	–	5
Step family	–	1
Children in the household		
Total number of children under 18	–	58
Average number per household (range)	–	2.01 (1–4)
Gender of children		
Girls	–	26
Boys	–	32

### 3. Results

#### 3.1. Facilitator and participant demographics

Demographic information is summarized in Table 2. The facilitators' education levels ranged from some college to master's degree in the areas of education, social science, or human services; teaching experiences ranged from preschool and early intervention classrooms to middle and high school church and summer camp programs; and they reported an average of 11.5 years of experience working with families, with experiences ranging from > 5 years to > 20 years. Three of the four facilitators are parents; one did not provide a response.

Of the 26 participants who started the program, the majority were female, White, and married. Fifty-eight percent were in paid employment (either full or part-time), and 42% had a college degree. There was a slightly higher number of male than female children living in the participants' households.

#### 3.2. Implementation outcomes

Table 3 presents a joint display of the quantitative and qualitative

implementation outcome data on acceptability, appropriateness, fidelity, and feasibility. Qualitative data is not presented for fidelity because the topic did not emerge during the facilitators' focus groups or in any of their open-ended responses. Data on outcomes for which mean calculations were not considered an appropriate statistic is presented below.

##### 3.2.1. Curriculum adherence

The total curriculum adherence score was 93.73%, with a range of 89.19% to 99.12%. Individual observers' scores ranged from 89.33% to 100% for the coordinating facilitator at site one, 86.75% to 100% for the coordinating facilitator at site two, and 83.33% to 98.48% for the program developer. Regarding delivery facilitators' ratings of curriculum adherence, the most frequently selected response to the weekly item that tapped adherence, which was assessed on a 4-point scale, was four (70%).

##### 3.2.2. Intervention dosage

**3.2.2.1. Program sessions.** A total of 36 participants registered for the *Grow!* program ( $n = 16$  at site 1; and  $n = 20$  at site 2). Across sites, 10 dropped out of the program before the first session leaving a total of 26 participants who started the program. In addition, six participants attended less than three sessions and did not complete a posttest. Participants who did not complete the program reported changes in employment or childcare issues as the major reasons for leaving the program. Of the 20 participants who completed the program, 75% ( $n = 15$ ) attended all five sessions, 20% ( $n = 4$ ) attended four sessions, and 5% ( $n = 1$ ) attended three sessions. Differential attrition analyses found education to be the only difference between those who completed the program and those who did not. Compared to completers, non-completers were more likely to not have a high school diploma or GED ( $\chi^2 = 14.45$ ,  $df = 6$ ,  $p = 0.03$ ).

**3.2.2.2. Online videos.** Less than half (43%) of the participants watched the weekly parenting videos across all weeks (range: 35–50% across weeks; total number of responses over 5 weeks: 56). The session four video on discipline was watched by the most participants (50%), followed by session two on coping (46%), session one on praise and encouragement and session three on routines and rules (each 43%), and session five on health promotion (35%).

##### 3.2.3. Treatment enactment

With respect to the assessment sent via text messaging, 64 responses were received over the five-week period of administration (total number of texts sent: 130; response rate: 49%). A small number of participants (10%) reported they were seldom (9%) or never (1%) engaging in the weekly parenting skill practice two days after the session.

### 4. Discussion

In this article, we evaluated implementation outcomes of the *Grow!* parenting program within the context of Proctor et al.'s (2011) implementation outcome framework. Accordingly, this study advances the implementation literature by demonstrating how this framework can be operationalized and applied specifically to hybrid effectiveness-implementation design studies. This is advantageous, as studies using these type of blended designs, when compared to those that pursue lines of research independently, have the capacity to bring more rapid translational gains, more effective implementation strategies, and more useful information for decision makers (Curran et al., 2012). In human-focused fields, such as parenting, timely access to research evidence is critical.

Overall, these findings demonstrate that the *Grow!* program can be, and was, implemented effectively in a community setting. The results indicate that *Grow!* is seen as acceptable and appropriate by both participants and facilitators. That is, both participants and facilitators liked

**Table 3**  
Implementation findings.

Domain	Quantitative results	Qualitative results	
	Mean (frequency)	Participant experiences	Facilitator experiences
<b>Acceptability</b>			
Delivery satisfaction	4.71 (99% selected “quite a bit” or “a great deal” satisfied)	<p>Sixteen out of 20 FGD participants described how they found the program enjoyable. Their comments ranged from specific parts of the program, like the text message prompts or the facilitators, to very broad comments about the program overall:</p> <p><i>“I really enjoyed... [all of] the aspects of the program. I really like the sessions on stress management and healthy eating.”</i></p> <p><i>“I am satisfied with the overall content of the program.”</i></p>	<p>All facilitators described, to some extent, how the participants appeared satisfied with <i>Grow!</i>. Similar to the participants’ own descriptions, the facilitators’ comments ranged from particular aspects of the program to the program overall:</p> <p><i>“Everything was positive. They [participants] remarked that they were all glad that we kept on the timeframe, that we kept it moving. They remarked that the curriculum was interesting.”</i></p> <p>The two delivery facilitators indicated that participants really seemed to enjoy the weekly online videos:</p> <p><i>“The ones [participants] who watched the video part thought they were really good, which I agree, they were a great recap. Really.”</i></p> <p>All the facilitators provided statements that spoke to their own satisfaction with the program:</p> <p><i>“Personally, I really loved the program. I thought it was stellar. As a mother of children within this age group, and as a facilitator, I really thought the program is really saturated with really rich knowledge, so I thought it was great. I was like, ‘It’s such a great program. I love the parents!’ And it was an honor. So thanks!</i></p>
<b>Appropriateness</b>			
New information	3.95 (71% selected “quite a bit” or “a great deal” of new information learned)	When asked what they found to be most helpful or valuable about the session, the majority of responses each week focused on the session’s topic e.g., for session four, which focuses on discipline, 79% (15 out of 19) of the participants who responded found the content to be helpful.	The coordinating facilitators articulated their views on the appropriateness of the content during their interviews while discussing their overall thoughts about the program:
Skill importance	4.72 (94% selected “quite a bit” or “a great deal” important)	Sixteen out of 20 FGD participants raised the topic of appropriateness. Some participants focused on particular activities or materials while others spoke in a more global manner:	<i>“I think it was good material. Like I told you before, I even started to take it to heart: “Oh, that’s a great idea, I could use that!” So, it was more, for all who were there to listen, not just for the participants. I thought the program was great for our group.”</i>
Skill intention	4.60 (91% selected “likely” or “very likely” to use session skill)	<i>“I really liked the book we got last week that had like the indoor activities you could do. They had a lot of like really cheap and good ideas that you could have fun for a long time.”</i>	<i>“The curriculum appealed to each and every person at that table. And, as you were saying, there were things that were brought up in this curriculum, and I said, ‘I never thought of that! That is a great idea.”</i>
Online video usefulness	3.87 (66% selected “quite a bit” or “a great deal” useful)	<i>“The workbook is very helpful. The video too. I find that very helpful ... It just reinforces some of the things I’m sure many of us already know, but it really explains why those things are important ... so, just overall, the content of it was very helpful.”</i>	–
Online video helpfulness	3.75 (61% selected “quite a bit” or “a great deal” helpful)	–	–
<b>Fidelity</b>			
Delivery quality	3.61 (100% selected “clear” or “very clear”)	–	–
■ Clarity <sup>a</sup>	3.93 (100% selected “friendly” or “very friendly”)	–	–
■ Friendliness <sup>a</sup>	3.88 (100% selected “comfortable” or “very comfortable”)	–	–
■ Comfort <sup>a</sup>	–	–	–
Participant engagement	–	–	–
■ Observation <sup>a</sup>	–	–	–
■ Self-report	–	–	–
Treatment enactment	–	–	–
■ Baseline	4.61 (98% selected “most” or “all” participants engaged)	–	–
■ Mid-week	4.46 (93% selected “quite a bit” or “a great deal” engaged)	–	–
■ One-week follow-up	–	–	–
–	3.29 (83% selected “sometimes” or “often” using skill)	–	–
–	3.40 (90% selected “sometimes” or “often” using	–	–

(continued on next page)

Table 3 (continued)

Domain	Quantitative results	Qualitative results	
	Mean (frequency)	Participant experiences	Facilitator experiences
Feasibility Ease of implementation <sup>b</sup> Program success <sup>b</sup> Administrative support <sup>b</sup> Community support <sup>b</sup>	skill) 3.63 (93% selected “sometimes” or “often” using skill) 4 (100% selected “very easy”)		The one coordinating facilitator who completed the post-program feedback survey stated:
	4 (100% selected “very successful”)		<ul style="list-style-type: none"> <li>• No additional trainings, resources, or supports would have increased implementation effectiveness</li> <li>• More time to recruit participants is needed</li> <li>• Session timing was very rigid</li> </ul>
	4 (100% selected “very supportive”)		When asked to consider whether any changes would help to make program delivery easier for them, both delivery facilitators suggested they found program implementation to be generally efficient and felt supported by their coordinating facilitators:
	4 (100% selected “very supportive”)		<p>“I think it [program delivery] was efficient as a whole.”</p> <p>“[the coordinating facilitator said] ‘Whatever you need, just tell me.’ So that was good.”</p> <p>One delivery facilitator noted that some participants did not receive the text messages and emails.</p>

<sup>a</sup> Score based on the combined ratings of the coordinating facilitators, delivery facilitators, and program developer.

<sup>b</sup> Only one coordinating facilitator completed this assessment.

the program, and found program content and materials to be useful to their family life. For instance, the overall weekly exit survey, focus group, and interview data suggests that during all sessions, participants learned new information, found the session's topic to be important to them, and were motivated to try the skill practice at home. The fact that only 71% of participants indicated that the program contained “quite a bit” or “a great deal” of new information is logical, given that *Grow!* is an universal prevention program targeting a broad group of parents and caregivers. The figure suggests that while some information contained in the program was perhaps quite basic (a point reflected in some participants' comments), there was still novel information for the parents to learn and apply to their family situation. The weekly exit survey data also indicates that participants were satisfied with the quality of program facilitation. This finding is important, as facilitators' methods of and motivation for teaching can impact participants and how they learn the skills and perceive the program (Berkel, Mauricio, Schoenfelder, & Sandler, 2011).

Weekly text prompts and videos seemed to have been helpful in reminding parents to use the learned skills and in providing supplementary parenting support. Session four's video, on tips for managing strong emotions and anger in discipline situations, had the highest usefulness ratings (84%), followed by session two (75%), session one (64%), session three (55%), and session five (44%). There were no participants that reported the videos were unhelpful. Session two, on stress management, had the highest helpfulness ratings (75%), followed by session four (69%), sessions one and three (55%), and session five (44%). It is important to note that some participants were not able to receive the text messages and emails. This was brought to our attention by the facilitators toward the end of the program, and it was unclear exactly how many participants were affected. The difficulty appeared to be the result of certain email and cell phone providers' settings. Accordingly, since the completion of this study, a significant amount of time has been devoted to understanding the nuances of different email and cell phone providers and developing resource guides for future *Grow!* program facilitators and participants. Still, usage of these technologies among those who did receive them was high. This suggests

that these aspects of the program are practical to use when properly received.

Curriculum adherence and delivery quality findings, drawn from fidelity observation forms and weekly exit surveys, indicate that program delivery was strong. Though delivery facilitators' self-reported scores cannot be directly compared to the coordinating facilitators' or the program developer's scores, as they are scaled differently, curriculum adherence scores from all groups are high suggesting the curriculum was presented to participants as intended by the program developers. This said, there was some discrepancy in curriculum adherence scores between the coordinating facilitator at site two and the program developer. For instance, during session four, the coordinating facilitator provided a curriculum adherence rating of 97.44%, but the program developer provided a rating of 83.33%. It is possible that the coordinating facilitator for site two might have had a lower threshold for the fidelity ratings than the program developer or that the difference is due to different levels of expectation by the raters for the implementation of the program. Previous studies of implementation fidelity in parenting interventions (e.g., Breitenstein et al., 2010) show that facilitator and independent ratings of adherence and competence can indeed be different, with facilitator self-reports sometimes being positively biased. Accordingly, additional training for the fidelity observations that includes helping coordinating facilitators achieve an acceptable level of inter-rater reliability will be beneficial for future program implementations. In terms of delivery quality, the data provided by the facilitators and program developer shows that the facilitators were friendly, comfortable with delivering the program, and able to present the information to the participants in a coherent manner. Scores across fidelity observers were high and generally consistent, with the largest discrepancy found for clarity, which was also the area with the lowest ratings. For future implementations, delivery facilitators may need more training on or support with making their explanations of activities clear to participants. Still, no raters endorsed a score less than three (out of four) for this item, which is positive considering this was their first time delivering the program.

Interest in the program was high. One facilitator commented during

her interview that interest in the program was so great she was unable to “accommodate all the people that wanted to be in the program”. The other coordinating facilitator indicated the participants enjoyed the program so much that they wanted to come back the next week even though the program was over. The overall participant retention rate (77%) supports the facilitators' perspectives on participant interest and is highly encouraging, given that prior research indicates that retention rates for parenting programs are typically between 40 and 60% (Axford, Lehtonen, Kaoukji, Tobin, & Berry, 2012). Participant attendance was similarly good; 75% of those who completed the program attended all sessions. A variety of recommended retention strategies were utilized to help bolster attendance, including providing meals, child care, and small door prize incentives (e.g., reusable water bottles). Based on previous research, it is likely that these strategies supported the high retention rate (Kumpfer & Alvarado, 2003). In addition, participants' generally high satisfaction with the way in which facilitators delivered the program likely motivated them to come back each week. How facilitators deliver a program and interact with participants has been found to predict attendance (Berkel et al., 2011).

Observed and self-reported participant engagement scores were similarly high. This is encouraging as it suggests that the facilitators were successful at gaining participants' interest and getting them involved with the subject matter. This is important because, as other parenting interventions have found (Baydar, Reid, & Webster-Stratton, 2003; Garvey, Julion, Fogg, Kratovil, & Gross, 2006), greater participant engagement can indeed enhance the achievement of desired program outcomes. Further, participant engagement appears to have increased throughout the program as the average score steadily increased from session one to session five. This is encouraging; though given the small sample size, this point should not be over interpreted.

The findings on treatment enactment suggest that participants were, in general, using the skills taught in the program with their child. Because this is a universal parenting program, it is not surprising that most parents reported high levels of pre-program parenting knowledge and practice; and thus, little change was observed in some of the assessed parenting skills. However, there were two skills in which increases in use were found over a one-week follow-up period: helping a child cope with stress ( $M_{baseline} = 2.56$ ;  $M_{follow-up} = 3.81$ ;  $p < 0.05$ ) and using health promotion strategies ( $M_{baseline} = 2.94$ ;  $M_{follow-up} = 3.44$ ;  $p < 0.05$ ). Health promotion, in particular, is an important component of promoting child wellbeing that is underemphasized in most parenting interventions (Gerards, Sleddens, Dagnelie, de Vries, & Kremers, 2011), but, as we found, is modifiable in the short-term. Follow-up data will need to be collected to see if the initial change can persist after the program ends.

Altogether, these findings speak to the overall feasibility of implementing *Grow!* with a general parenting population in a community setting. Evaluation of implementation outcomes is important for understanding which implementation strategies work best with given interventions, settings, and conditions (Baumann et al., 2015). Implementation evaluation is also key to supporting investigators to disentangle implementation effectiveness from treatment effectiveness and to know, for example, if an intervention failed because it was ineffective or because it was implemented incorrectly. Along these lines, Proctor et al. (2011) suggest that implementation success ( $I$ ) results from the combination of several factors, namely the effectiveness of the treatment being implemented ( $E$ ) plus implementation factors (IO's) i.e.,  $I = fE + IO$ 's. Given the findings presented in this article, the following equation can be written:

$$\begin{aligned} \text{Implementation success of } Grow! &= f \text{ of effectiveness } (= ?) \\ &+ \text{acceptability } (= \text{high}) \\ &+ \text{appropriateness } (= \text{high}) \\ &+ \text{fidelity } (= \text{high}) \\ &+ \text{feasibility } (= \text{high}) \end{aligned}$$

In other words, these findings suggest that the four implementation outcomes all contribute positively to the *Grow!* program's implementation success. This said, there are limitations to this data. First, several implementation outcomes were assessed with self-report measures, and thus, are subject to potential social desirability effects and common method variance. Additionally, the study sample is small, thus limiting generalizability of findings. The small sample size did not afford us the opportunity to examine how implementation outcomes might mediate our moderate treatment effects.

Despite these limitations, the results of this study are promising and we suggest the program warrants further study of its implementation outcomes, specifically within a military context, which is a key avenue for future adaptation and implementation. To this end, a large-scale quasi-experimental study is currently being conducted with military families at four sites within the U.S. and overseas. Clearly, to complete the above-listed equation treatment outcomes of the program also need to be rigorously studied and reported. Moreover, forthcoming research could examine the influence of the intervention process on program effectiveness i.e., the interaction *between* implementation and treatment outcomes. The current research on this topic in the parenting field is mixed. For instance, as discussed above, some studies (e.g., Stolk et al., 2008) demonstrate that implementation processes and parenting outcomes are indeed linked. Others (e.g., Mazzucchelli & Sanders, 2010; Nicholson, Berthelsen, Williams, & Abad, 2010) suggest that differences in implementation processes—across sites or practitioners—have little or no effect on parenting and child outcomes. Understanding of what implementation factors make *Grow!* succeed or fail, and what implementation mechanisms, if any, cause differential effectiveness, will both strengthen the program's effects, as well as move the state of the science around parenting interventions forward.

## Acknowledgements

This material is based upon work supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, and the Office of Family Policy, Children, and Youth, U.S. Department of Defense under Award No. 2012-48709-20033 developed in collaboration with The Pennsylvania State University. We acknowledge all collaborators who have contributed to the THRIVE Initiative and the *Grow!* parenting program, especially Mr. C. Eddy Mentzer (Associate Director for Family Readiness & Well-Being, Office of the Secretary of Defense, Office of Family Readiness Policy, Military Community & Family Policy) for his contributions to program and study design, implementation and interpretation of these evaluation data, and Ms. Alicia Fischer for her literature review assistance.

## References

- Aarons, G. A., Hurlburt, M., & McCue Horwitz, S. (2011). Advancing a conceptual model of evidence-based practice implementation in public service sectors. *Administration and Policy in Mental Health and Mental Health Services Research*, 38(1), 4–23. <http://dx.doi.org/10.1007/s10488-010-0327-7>.
- American Public Health Association. Committee on Child Health & American Public Health Association Committee on Child Health (1955). *Health supervision of young children: A guide for practicing physicians and child health conference personnel*. New York: American Public Health Association.
- Axford, N., Lehtonen, M., Kaoukji, D., Tobin, K., & Berry, V. (2012). Engaging parents in parenting programs: Lessons from research and practice. *Children and Youth Services Review*, 34(10), 2061–2071. <http://dx.doi.org/10.1016/j.childyouth.2012.06.011>.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, N.J: Prentice-Hall.
- Baumann, A., Powell, B. J., Kohl, P. L., Tabak, R. G., Penalba, V., Proctor, E. E., & Cabassa, L. J. (2015). Cultural adaptation and implementation of evidence-based parent-training: A systematic review and critique of guiding evidence. *Children and Youth Services Review*, 53(June), 113–120. <http://dx.doi.org/10.1016/j.childyouth.2015.03.025>.
- Baydar, N., Reid, M. J., & Webster-Stratton, C. (2003). The role of mental health factors and program engagement in the effectiveness of a preventive parenting program for head start mothers. *Child Development*, 74(5), 1433–1453.
- Berkel, C., Mauricio, A. M., Schoenfelder, E., & Sandler, I. N. (2011). Putting the pieces together: An integrated model of program implementation. *Prevention Science*, 12(1),



- 23–33. <http://dx.doi.org/10.1007/s11121-010-0186-1>.
- Breitenstein, S. M., Fogg, L., Garvey, C., Hill, C., Resnick, B., & Gross, D. (2010). Measuring implementation fidelity in a community-based parenting intervention. *Nursing Research*, 59(3), 158–165. <http://dx.doi.org/10.1097/NNR.0b013e3181dbb2e2>.
- Chesnut, R. P., DiNallo, J. M., Czymoniewicz-Klippel, M. T., & Perkins, D. F. (2016). The Grow! parenting program: A hybrid type III study. *Poster presented at 9th Annual Conference on the Science of Dissemination and Implementation* (Washington, DC).
- Chesnut, R. P., DiNallo, J. M., Czymoniewicz-Klippel, M. T., & Perkins, D. F. (2017). A hybrid design study of the Grow! parenting program. *Poster presented at Society for Prevention Research 25th Annual Meeting* (Washington, DC).
- Chorpita, B. F., Daleiden, E. L., & Weisz, J. R. (2005). Identifying and selecting the common elements of evidence based interventions: A distillation and matching model. *Mental Health Services Research*, 7, 5–20. <http://dx.doi.org/10.1007/s11020-005-1962-6>.
- Creswell, J. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage Publications.
- Curran, G. M., Bauer, M., Mittman, B., Pyne, J. M., & Stetler, C. (2012). Effectiveness-implementation hybrid designs: Combining elements of clinical effectiveness and implementation research to enhance public health impact. *Medical Care*, 50(3), 217–226. <http://dx.doi.org/10.1016/j.micinf.2011.07.011>.Innate.
- Czymoniewicz-Klippel, M. T., Chesnut, R. P., DiNallo, J. M., & Perkins, D. F. (2015). Identifying common components of effective parenting programs: The Grow! experience. *Poster presented at 8th Annual Conference on the Science of Dissemination and Implementation* (Washington, DC).
- Damon, W. (2004). What is positive youth development? *The Annals of the American Academy of Political and Social Science*, 591, 13–24. <http://dx.doi.org/10.1177/0002716203260092>.
- Durlak, J. A., & DuPre, E. P. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. *American Journal of Community Psychology*, 41(3–4), 327–350. <http://dx.doi.org/10.1007/s10464-008-9165-0>.
- Garvey, C., Julion, W., Fogg, L., Kratovil, A., & Gross, D. (2006). Measuring participation in a prevention trial with parents of young children. *Research in Nursing & Health*, 29(4), 212–222. <http://dx.doi.org/10.1002/nur>.
- Gerards, S. M. P. L., Sleddens, E. F. C., Dagnelie, P. C., de Vries, N. K., & Kremers, S. P. J. (2011). Interventions addressing general parenting to prevent or treat childhood obesity. *International Journal of Pediatric Obesity*, 6, e28–45. <http://dx.doi.org/10.3109/17477166.2011.575147>.
- Green, B. L., McAllister, C. L., & Tarte, J. M. (2004). The strengths-based practices inventory: A tool for measuring strengths-based service delivery in early childhood and family support programs. *Families in Society*, 85, 3226–3334.
- Grol, R., & Grimshaw, J. (2003). From best evidence to best practice: Effective implementation of change in patients' care. *Lancet*, 263(9391), 1225–1230. [http://dx.doi.org/10.1016/S0140-6736\(03\)14546-1](http://dx.doi.org/10.1016/S0140-6736(03)14546-1).
- Heinicke, C. M., Goorsky, M., Moscov, S., Dudley, K., Gordon, J., Schneider, C., & Guthrie, D. (2000). Relationship-based intervention with at-risk mothers: Factors affecting variations in outcome. *Infant Mental Health Journal*, 21(3), 133–155. [http://dx.doi.org/10.1002/1097-0355\(200007\)21:3<133::AID-IMHJ1>3.0.CO;2-P](http://dx.doi.org/10.1002/1097-0355(200007)21:3<133::AID-IMHJ1>3.0.CO;2-P).
- Kumpfer, K. L., & Alvarado, R. (2003). Family-strengthening approaches for the prevention of youth problem behaviors. *American Psychologist*, 58, 457–564. <http://dx.doi.org/10.1037/0003-066X.58.6-7.457>.
- Materia, F. T., Chesnut, R. P., Czymoniewicz-Klippel, M. T., DiNallo, J. M., & Perkins, D. F. (2017). *Examining implementation feasibility of a multicomponent parenting and health promotion program for military families*. (submitted for publication).
- Mazzucchelli, T. G., & Sanders, M. R. (2010). Facilitating practitioner flexibility within an empirically supported intervention: Lessons from a system of parenting support. *Clinical Psychology: Science and Practice*, 17(3), 238–252. <http://dx.doi.org/10.1111/j.1468-2850.2010.01215.x>.
- McHugo, G. J., Drake, R. E., Whitley, R., Bond, G. R., Campbell, K., Rapp, C. A., ... Finnerty, M. T. (2007). Fidelity outcomes in the national implementing evidence-based practices project. *Psychiatric Services*, 58(10), 1279–1284.
- Nicholson, J. M., Berthelsen, D., Williams, K. E., & Abad, V. (2010). National study of an early parenting intervention: Implementation differences on parent and child outcomes. *Prevention Science*, 11(4), 360–370. <http://dx.doi.org/10.1007/s11121-010-0181-6>.
- Pope, C., Ziebland, S., & Mays, N. (2000). Qualitative research in health care: Analysing qualitative data. *BMJ*, 320(7227), 114–116. <http://dx.doi.org/10.1136/bmj.320.7227.114>.
- Proctor, E., Silmere, H., Raghavan, R., Hovmand, P., Aarons, G., Bunger, A., ... Hensley, M. (2011). Outcomes for implementation research: Conceptual distinctions, measurement challenges, and research agenda. *Administration and Policy in Mental Health and Mental Health Services Research*, 38(2), 65–76. <http://dx.doi.org/10.1007/s10488-010-0319-7>.
- Stolk, M. N., Mesman, J., van Zeijl, J., Alink, L. R. A., Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., & Koot, H. (2008). Early parenting intervention aimed at maternal sensitivity and discipline: A process evaluation. *Journal of Community Psychology*, 36(6), 780–797. <http://dx.doi.org/10.1002/jcop.20280>.
- Torrey, W. C., Drake, R. E., Dixon, L., Burns, B. J., Flynn, L., Rush, A. J., ... Klatzker, D. (2001). Implementing evidence-based practices for persons with severe mental illnesses. *Evidence-Based Practices*, 52(1), 45–50. <http://dx.doi.org/10.1176/appi.ps.52.1.45>.
- Whittaker, K. A., & Cowley, S. (2010). An effective programme is not enough: A review of factors associated with poor attendance and engagement with parenting support programmes. *Children & Society*, 26(2), 138–149. <http://dx.doi.org/10.1111/j.1099-0860.2010.00333.x>.
- Wight, D., Plummer, M., & Ross, D. (2012). The need to promote behaviour change at the cultural level: One factor explaining the limited impact of the MEMA kwa Vijana adolescent sexual health intervention in rural Tanzania. A process evaluation. *BMC Public Health*, 12, 788. <http://dx.doi.org/10.1186/1471-2458-12-788>.