The Two-Generation Mutual Reinforcement Measurement Tool: Development and Pilot Study Findings

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Abstract

Two-generation initiatives intentionally combine intensive, high quality adult-focused services with intensive, high quality child-focused programs (such as Head Start or early childhood education) to improve outcomes for children, primary caregivers, and families. The goal of integrating services for primary caregivers and their children is to achieve better outcomes than those accomplished by serving each generation in isolation (Chase-Lansdale and Brooks-Gunn 2014; Sama-Miller et al. 2017). Although interest in two-generation initiatives has grown, the field lacks commonly accepted definitions and measures of relevant characteristics, processes, and outcomes.

Mutual reinforcement is a key concept in the two-generation field and is of interest to both researchers and practitioners. Mutual reinforcement occurs when service providers align and build on each other's efforts to serve whole families by adopting a shared vision and working toward common or compatible goals. A valid and reliable measure of mutual reinforcement could provide actionable information specific to two-generation initiatives to strengthen their service delivery, and therefore, child and family outcomes. This brief describes the development of the Two-Generation Mutual Reinforcement Measurement Tool, the findings from a small pilot study (May through July 2022), how the tool is scored, and next steps for developing the tool.

This tool is intended for research and evaluation purposes, both formative and summative. To use this tool in a formative way, two-generation initiative staff and partners from the same initiative can work together to answer the questions, generate a mutual reinforcement score using the



electronic version of the tool in Appendix D at <u>https://www.acf.hhs.gov/opre/report/two-generation-mutual-reinforcement-measurement-tool</u>, identify areas for strengthening their initiative, and track changes over time as they work on those areas. We have designed the tool so that higher scores indicate stronger levels of mutual reinforcement. However, this tool and its scoring method are preliminary and not yet validated. While we assume improving scores coincide with strengthening mutual reinforcement, we do not yet know what scores translate to emergent, strong, or exemplary levels of mutual reinforcement. Once the tool and its scoring method are validated, we hope for two-generation initiatives and their research partners to use this tool in a summative way (for example, in an impact evaluation).

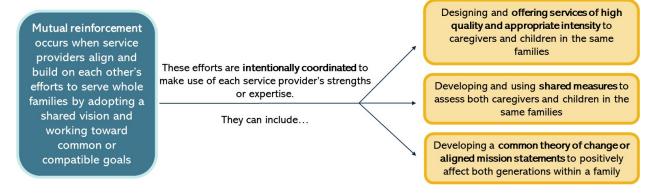
Introduction

Two-generation initiatives intentionally combine intensive, high quality, adult-focused services with intensive, high quality, child-focused programs (such as Head Start or early childhood education) to improve outcomes for children, primary caregivers, and families. These initiatives are theorized to improve families' well-being and reduce poverty transmission across generations. Although interest in two-generation initiatives has grown, the field lacks commonly accepted definitions and measures of relevant characteristics, processes, and outcomes. Measures specific to this field could provide actionable information for two-generation initiatives to strengthen their service delivery, and therefore, child and family outcomes. The Next Steps for Rigorous Research in Two-Generation Approaches (NS2G) project was designed, in part, to fill this gap.

Sponsored by the Administration for Children and Families' Office of Planning, Research, and Evaluation (OPRE), NS2G aims to build the evidence base for fully integrated, intentional models for delivering services with adequate intensity and quality for caregivers and their children. Activities include (1) partnering with four sites on formative evaluations, (2) facilitating a learning community of 10 two-generation initiatives, and (3) developing a tool to measure mutual reinforcement in two-generation initiatives. Mutual reinforcement is a key concept in the two-generation field and is of interest to both researchers and practitioners. We (the NS2G project team) define mutual reinforcement as service providers aligning and building on each other's efforts to serve whole families by adopting a shared vision and working toward common or compatible goals (Figure 1). We hypothesize that mutual reinforcement is necessary to achieve broader, shared outcomes for both generations (beyond what each service provider on its own would be able to help families or family members achieve).



Figure 1. Mutual reinforcement



Mutual reinforcement is related to (but distinct from) the concept of caregiver and child mutual motivation, which is also a construct of interest in two-generation conceptual frameworks, wherein caregivers and children engage in program activities more fully as they recognize and value each other's activities (Sommer et al. 2018). Mutual reinforcement is a key concept related to two-generation service delivery, whereas mutual motivation is one of several expected outcomes of two-generation initiatives. Both concepts may contribute to multiplier effects: families participating in services with a high degree of mutual reinforcement, or those who exhibit a high degree of mutual motivation, may experience better outcomes than families whose mutual motivation is lower or those who receive services with less mutual reinforcement.

To begin an effort to test this hypothesis, we developed the Two-Generation Mutual Reinforcement Measurement Tool that measures the level of mutual reinforcement that a two-generation initiative's services and partners exhibit at a single point in time.¹ Specifically, the measurement tool asks two-generation initiative staff and partners to:

- Consider their partners who contribute to two-generation programs and services
- Determine the extent to which the partners involved in the two-generation initiative have aligned their visions, goals, missions, and theories of change
- Identify how many programs or services the two-generation initiative offers to each generation and to both generations (for example, child-focused with adult elements, adult-focused with child elements, whole family)

Then, the measurement tool asks initiative staff and partners to assess the degree to which:

- Programs and services in the two-generation initiative are of high quality and appropriate intensity
- Partners align and streamline the implementation of these programs and services
- Partners capitalize on their relative strengths or areas of expertise in providing programming and services
- Partners collect data about the two-generation initiative and, if so, (1) what types of data,
 (2) the extent of data sharing and linking across partners, and (3) the quality and usage of data

¹ This preliminary tool is not yet validated, as discussed later in this brief.



This brief describes our approach to the initial development and piloting of the measurement tool, how the tool is scored, the results of our testing, and next steps for developing the tool.

Creating the Measurement Tool

NS2G builds on an earlier project, Exploration of Integrated Approaches to Supporting Child Development and Family Economic Security (2015-2018), under which Mathematica developed a change model to demonstrate how two-generation initiatives can support children and families.²

The change model hypothesized that certain pathways and outcomes are important to include and measure in evaluations of two-generation initiatives. Based on this change model, OPRE was initially interested in developing a measure related to the constructs of mutual reinforcement, alignment, coordination, and intentionality. To create the measure, we prioritized among these potential constructs to focus on one for measurement, conducted a measures mapping exercise, adapted items from existing measures, and filled in the remaining gaps.

Prioritizing constructs for measurement

The Mathematica NS2G team collaborated with OPRE and a panel of four two-generation experts (see Acknowledgements) to select and define a construct that is important to two-generation initiatives and had not been measured.

Following discussions with the NS2G expert panel, we selected the construct of mutual reinforcement because it has the potential to capture the characteristics of a two-generation initiative (such as alignment and coordination) that can help families achieve outcomes beyond what single-generation services could attain. We then refined our working definition of mutual reinforcement using additional input gathered

Defining key concepts

Construct. An abstract idea, underlying theme, or subject matter that one wishes to assess.

Measurement tool. An instrument used to collect data on a construct or variety of constructs.

Item. A single representation of a construct (for example, one question on a survey) that appears in a measurement tool.

Adapted from Salkind (2007), Lavrakas (2008), and Trochim (2020).

from those same experts and a scan of existing literature.

Measure mapping exercise

With a construct and definition in place, we began a mapping exercise in which we compared the selected construct of interest (mutual reinforcement) to existing resources that address the construct. By mapping specific items, ideas, concepts, or activities (collectively, "items") from

² More information on the two-generation conceptual framework is available at

https://www.acf.hhs.gov/opre/report/conceptual-frameworks-intentional-approaches-improving-economic-securityand-child-well. The two-generation conceptual framework is an adaptation of the change model for two-generation 2.0 programs by Chase-Lansdale and Brooks-Gunn (2014). See also Ascend at the Aspen Institute (2016) for a logic model developed at the same time as this conceptual framework.



these resources to relevant components of the definition, we identified where we could leverage and adapt existing items and where we needed to create new items for the measurement tool.

We used broad and targeted efforts to identify examples of existing, related resources. We conducted an independent search that identified eight measures or items (which were embedded in tools or frameworks) that related to mutual reinforcement. We then solicited input on additional measures by posting an announcement to the OPRE website and sharing it with two-generation researchers and other measurement experts. In response, we received three additional measurement tools: one from the field of two-generation approaches, and two from the collective impact field.

Some resources included clearly defined items or questions that had been tested and used already by other researchers. Other resources included frameworks, concepts, or activities that suggested ideas for items to develop. We considered and included both types of resources in our review and refer to them collectively as "tools and frameworks" (see Box 1).

To continue the measure mapping exercise, we made the construct of mutual reinforcement into something we could measure by breaking the definition into four component parts (Partners,³ Principles, Infrastructure, and Service Delivery Strategies; Figure 2). These became the basis for subscales in our measurement tool. We mapped the items from existing tools and frameworks to the four components of the definition.

Box 1. Existing tools and frameworks reviewed

- 2-Gen Principles to Practice tool (Minnesota 2-Generation Policy Network and the Future Services Institute at the University of Minnesota)
- Data Governance for Two-Generation Programs (Annie E. Casey Foundation)
- Guide to Evaluating Collective Impact (Collective Impact Forum, an initiative of FSG and the Aspen Institute)
- Collective Impact Rubrics on "Common Agenda" and "Mutually Reinforcing Actions" (ORS Impact and Spark Policy Institute)
- Self-Assessment of Place-Based
- Systems Change Efforts (Bill & Melinda Gates Foundation's P-16 Community Investment)
- Making Tomorrow Better Together (2017): A Guide to Outcomes for 2Gen Policymakers (Ascend at the Aspen Institute)
- Making Tomorrow Better Together (2020): Process Outcomes and Measures for 2Gen Organizational Change (Ascend at the Aspen Institute)
- Drivers Best Practices Assessment (National Implementation Research Network or NIRN)
- Organizational Assessment Activity (Marguerite Casey Foundation)
- Family-Centered Community Change (FCCC) 2016 Community Partnership Integration Matrix (Urban Institute) ▲

³ The Partners subscale is for informational use only and is not used to calculate the overall score of Mutual Reinforcement. See the Scoring section for more information.



Figure 2. Conceptual components of the Partners, Principles, Infrastructure, and Service Delivery Strategies subscales

Mutual reinforcement								
Relies on the idea that there are	Is determined by the extent to which partners have discussed and agreed upon their							
Partners	Principles	Infrastructure	Service Delivery Strategies					
Organizations, systems, or service providers working together to serve both generations within a family	 A shared vision for change A common theory of change and aligned mission statements to positively affect both generations within a family 	 Common or compatible goals for serving families as a whole Developing and using consistent age- appropriate measures for both caregivers and children in the same family to assess and evaluate their goals 	 Designing and/or offering services of comparable quality, duration, and intensity to caregivers and children in the same families Aligning efforts and activities Building upon existing efforts and activities Leveraging each service provider's area of strength or expertise by intentionally differentiating and coordinating efforts and activities 					

Adapting existing items and filling in gaps

The measure mapping exercise helped us identity duplicative items, adapt language for relevance to the two-generation field, and identify gaps from the existing tools and frameworks. For example, we adapted items designed to measure collective impact (*Collective impact partners use data from the shared measurement system to make decisions and establish priorities*⁴) for relevance to two-generation practitioners (*All partners in our two-generation initiative have used aggregated or individual data to guide action/strategy*). To fill the remaining gaps between the existing items and what we aim to measure, we developed new items based on existing literature and our team's experience with two-generation initiatives. Appendix A contains information on the measurement tool's construction and scoring methodology.

⁴ This item is included in ORS Impact and Spark Policy Institute's Collective Impact Rubrics. Collective impact is commonly referred to as the commitment of a group of actors from different sectors to a common agenda for solving a specific social problem at scale.



Pilot Testing the Measure

Once we developed the instrument and determined a preliminary method for scoring responses, we began the pilot study. We selected three two-generation initiatives that were already engaged in the NS2G project to participate in the pilot. The goals of the pilot were to:

- Determine whether it would be feasible for staff and partners from two-generation initiatives to find time to respond to questions pertaining to mutual reinforcement
- Test the survey for comprehension and ease of use
- Understand whether respondents would find a mutual reinforcement measurement tool useful in their efforts to serve families
- Refine the measurement tool

Eight staff participated in the pilot over three waves of data collection (May through July 2022). Conducting *cognitive interviews* and *survey debriefs* helped us to refine the measurement

Defining key concepts

Cognitive interview. An in-depth interview used to understand the thought process respondents use to answer survey questions. Typically, the respondents do not see the questions in advance and are asked to think aloud as they see the question and formulate their answer. This type of interview aims to find out how respondents understand and interpret questions and arrive at their answers. Researchers use this technique to adjust question wording or item structure, thus making items easier to answer and strengthening the potential validity of the responses.

Survey debrief. An interview after the respondents have completed the survey. This method also identifies how respondents understand the terms and phrases used in individual questions and their overall understanding. This technique helps researchers assess survey length and uncover any issues with the flow of the questions.

tool. Appendix B contains more information on how we recruited participants for the study, how we conducted it, and how our approach to scoring changed over time.

Findings from the Pilot Study Waves

Reserving time fosters individual reflection and fruitful discussion. On average, it took an individual about 27 minutes to complete the tool, which was close to our starting estimate of 25 minutes. The group administration took an estimated 30 minutes (three people spent 30 minutes each, 90 minutes in total staff time); one respondent had completed the tool in advance and the other two respondents suggested adjustments to the first respondent's answers. The time it takes to complete the tool may vary depending on the individuals and level of discussion. We updated the tool instructions to reflect the additional time it might take to work as a group.

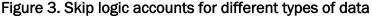
The tool begins with a simple reflection exercise to name an initiative's contributing partners. The first question in the tool, which solely contributes to the Partners subscale, was initially designed for secondary analysis so researchers could understand the various types of partners that two-generation initiatives include. It originally included 28 subitems regarding the number and types of partners. However, pilot participants in Wave 1 found the original question cumbersome and

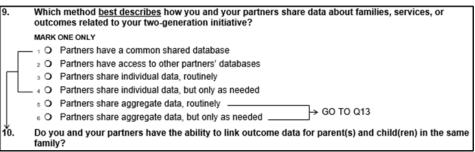


time intensive. Because we did not intend to include this question in our primary analysis (the calculation of mutual reinforcement), we ultimately simplified the first question. Now, the first question simply asks the respondents to reflect on who their partners are to prepare them to answer the following questions about their organization and all their two-generation initiative partners. This eliminated 28 subitems from the measurement tool, appeared to improve usability, and reduced the time required for completing the tool in subsequent waves.

The tool includes items about multiple types of data that initiatives may use. We learned in Wave 1 that two-generation initiatives work with and understand "data" in two forms: individual (for example, a single family member or family unit) and aggregated (for example, a summary or average of all participating families). The original version of the tool contained several questions about data, but it did not specify whether we were asking about individual-level or aggregate data for the initiative's participating families. This made it challenging or impossible for respondents to answer some questions, especially if they only worked with data in an aggregate form. This—solely using aggregate data—is common for cross-sector initiatives that are subject to privacy restrictions that preclude them from sharing data about individuals with their partners. (For example, the Family Educational Rights and Privacy Act [FERPA] limits school districts from sharing individual students' data.) We revised the tool with skip logic, or routing of questions based on a

respondent's specific answers, to account for this diversity in types of data that twogeneration initiatives have access to, work with, and share (Figure 3). This allowed us to eliminate five subitems from the measurement





tool. In subsequent waves, this change appeared to be a better fit with the nature of twogeneration initiatives' data use.

The tool is best suited for group administration. Two-generation initiatives are complex, and individuals may not be able to see and report on all aspects contributing to mutual reinforcement without conferring with their colleagues and partners. Across Waves 1 and 2, respondents reported they lacked confidence in their answers when asked to complete the tool on their own. In Wave 2, three people from the same partner organization completed the tool individually (Table 1). The differences in scores generally reflected the different roles that the individuals played within their partner organization and their ability to complete each section of the tool independently. For example, Individual C, whose subscale scores deviated substantially from Individuals A and B, left many questions contributing to the Infrastructure subscale blank because they were unsure how to answer those questions due to the scope of their position.

	Individual A		Individual B		Individual C	
Subscale	Subscale mean score	Overall mean of mutual reinforcement	Subscale mean score	Overall mean of mutual reinforcement	Subscale mean score	Overall mean of mutual reinforcement
Principles	3.50	2.71	3.75	2.66	3.50	2.37
Infrastructure	3.09		3.09		0.64	
Service Delivery Strategies	1.54		1.15		2.96	

Table 1. Wave 2 scoring by participant

In Wave 3, one person completed the tool first individually, and then met with two colleagues to review and refine their answers (Table 2). The result of this respondent working independently and then with their colleagues was a 0.96-point increase in the overall score of mutual reinforcement, and they reported more confidence in their responses. While this increase could mean that group administration biases responses upward, we believe it is due to each respondent offering their own expertise and knowledge of the two-generation initiative to provide a more complete, accurate response. This is supported by

It was a little hard to [complete the tool] by yourself. It was absolutely easier as a group. I think it helped meeting together to talk about each of our perspectives that made sense to the initiative. Particularly with [our data manager]. It was really an "aha" moment for us and how we could approach this in a holistic sense. Now we have a monthly meeting set up to discuss data, programs, and reporting together.

Pilot participant

respondents reporting more confidence in their responses when working as a group.

	Individua	l administration	Group administration	
Subscale	Subscale mean score	Overall mean of mutual reinforcement	Subscale mean score	Overall mean of mutual reinforcement
Principles	2.25		3.75	
Infrastructure	3.32	2.64	4.00	3.60
Service Delivery Strategies	2.35		3.04	-

Table 2. Wave 3 scoring by tool mode

Sitting down with colleagues to discuss the tool could help organizations and their partners identify what their shared two-generation initiative is doing well and where and how they could improve. Based on feedback from respondents, the sequence in Figure 4 may be the most helpful approach to using the tool—although this pilot did not include testing of Step 2. The arrows between Steps 1 and 2 represent a repetition of this process at regular intervals.



Figure 4. Recommended sequence for completing the tool



Step 1: Organizational reflection

Each partner organization within an initiative completes the tool internally with key staff.

Using the results, staff identify improvements that would strengthen mutual reinforcement with an emphasis on *their* organization's contributions to the initiative.

Staff use their responses to Question 1 in the tool (where they list all their distinct twogeneration partners) to determine who should be involved in the initiative-wide reflection (Step 2).

Step 2: Initiative-wide reflection

Representatives from each partner organization (including staff who are authorized to envision and implement process change) meet to discuss the organization-level results.

Using the collective results, partners determine improvements they can make to strengthen mutual reinforcement *across the initiative.*

Future research will need to do additional testing to understand how individual and group administration affects mutual reinforcement scores, and evaluators should be cautious about comparing scores from individual and group administrations until that testing takes place. We believe the benefit of group administration outweighs the risk of potentially biased responses and revised the tool to include instructions for group administration after learning how this mode might increase accuracy and completeness.

This was really exciting because we're constantly trying to figure out how we can work with the partners to make them feel like they're responsible for their part in the initiative, check each other when someone's falling behind, but also emphasize the importance of collaboration and mutually supporting each other.

Pilot participant

Automated scoring supports the tool's usability and usefulness. All respondents we interviewed thought this measurement tool would be useful in their work. They thought it would stimulate ideas for strengthening their initiative and improve coordination with partners. Respondents reported that they could envision themselves using the tool to A scoring tool would be incredibly helpful because we could include it in our monthly reports. It would be wonderful to illustrate the collaborative nature and progress of the overall partner relationships, rather than the siloed approaches to the work.

Pilot participant

track mutual reinforcement over time and facilitate conversations within their organization and among partners, but they needed to be able to score their responses independently (respondents in the pilot study used a paper version of the tool and returned it to Mathematica for scoring). Based on this input, we developed the electronic version of the tool that automates scoring for users (available in Appendix D at https://www.acf.hhs.gov/opre/report/two-generation-mutual-reinforcement-measurement-tool). Automated scoring will allow users to score their own



responses, see how their initiative compares to the maximum possible score, and track their level of mutual reinforcement over time as they work to strengthen their initiative.

Interpreting results

We designed the measurement tool and its scoring method so that a higher score aims to indicate stronger mutual reinforcement than a lower score. Thus, we hypothesize that if an initiative observes their scores within each quantifiable subscale (Principles, Infrastructure, and Service

Delivery Strategies) increasing over time, they are strengthening their mutual reinforcement (see Figure 2 for more details about each subscale's conceptual components).

The Two-Generation Mutual Reinforcement Measurement Tool has not been assessed for validity or reliability. This means we have not yet taken the mathematical steps to determine the

Defining key concepts

Validity. The extent to which a tool is measuring what it set out to measure. (Not calculated for this tool.)

Reliability. The extent to which the tool can consistently reproduce the same results. (Not calculated for this tool).

extent to which we are measuring what we set out to measure (validity) or the extent to which the tool can consistently reproduce the same results (reliability). Appendix B contains more details about next steps for the tool's development.

Next Steps

Enthusiasm from pilot participants suggests that the Two-Generation Mutual Reinforcement Measurement Tool may add immediate value to two-generation initiatives. Initiatives can begin to use this tool to generate a mutual reinforcement score, identify areas to strengthen based on subscale scores, and facilitate conversations within and across partner organizations around progress and challenges.

This brief summarized the NS2G project's development of the measurement tool. The twogeneration field could further the tool's development by conducting additional testing of individual and group administration with a larger sample (Box 2). The field could also develop resources to enhance two-generation initiatives' ability to use the tool and understand their level of mutual reinforcement, including:

Box 2. Additional statistical testing

The field could conduct additional statistical testing with a larger sample size to help ensure the quality of the Two-Generation Mutual Reinforcement Measurement Tool and the data collected for analysis and use:

- Validating this tool would help researchers determine the extent to which it measures mutual reinforcement and how accurately
- Reliability testing would determine whether scores could be reproduced by similar initiatives.

Both analyses are necessary to confirm our hypothesis that a higher mutual reinforcement score indicates stronger mutual reinforcement than a lower one and determine thresholds for emergent, strong, and exemplary levels of mutual reinforcement. We believe a minimum of 315 unique responses from organizations involved in two-generation initiatives would be an achievable target for this next step. Appendix B explains the rationale behind this target and opportunities for additional testing.



- A web-based version to make data collection and sharing easier
- Methods for incorporating caregivers' perspectives and centering how they experience and understand an initiative's efforts related to mutual reinforcement
- Guidance on reaching consensus when colleagues or partners have opposing viewpoints or scores
- Adapted versions that improve accessibility or cultural relevance for initiatives and their communities (for example, a Spanish translation)

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Finally, we would like to thank Bevin Mory at Mathematica for developing the electronic version of the tool so that two-generation initiatives can use the measurement tool independently and monitor their efforts to strengthen their initiatives.

OPRE's Portfolio on Coordinated Services

The Next Steps for Rigorous Research in Two-Generation Approaches (NS2G) project is part of a portfolio of research focused on coordinated services to support children and families. Projects within this research portfolio address the intentional coordination of two or more services. These projects span OPRE's program-specific research portfolios, including child care, Head Start, home visiting, child welfare, and welfare and family self-sufficiency. More information about OPRE's Coordinated Services projects can be found at https://www.acf.hhs.gov/opre/coordinated-services-research-and-evaluation-portfolio.



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