DATA-DRIVEN DECISION-MAKING USING IDELA

Save the Children

IDELA

Cover photo: Children at a village preschool, called an ECDC (early childhood development centre), supported by Save the Children.

Credit: Save the Children

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Shakila, four, plays with her friends at a Save the Children supported preschool in Zomba District, Malawi.

Credit: Save the Children

INTRODUCTION

Credit: Save the Children

Young children play with building blocks in their preschool classroom in Hpa An, Myanmar.

Objective of this Guide

This guide is written with the conviction that applied research, if appropriately planned, executed, and utilized, can contribute to identifying issues and their causes, solving societal problems, and improving the wellbeing of people and communities. In particular, this guide focuses on the use of data to improve the learning and development of young children, a population that benefits significantly from positive home, caregiver, and classroom investment[1]. While evidence generated from research improves the quality of decision-making in general, this is even more so in the case of early childhood care and development (ECCD). Positive effects of ECCD services and programs on child development and learning might be difficult to perceive and quantify for decision-makers as well as for the beneficiaries. A solid evidence base on the benefits of various early childhood interventions can help effectively advocate for investment.

[1] WHO, 2018; World Bank, 2018; UNICEF, 2019
[2] Kim et al, 2018; James Bell Associates, 2018; Young&Quinn, 2012
[3] Mandinach, 2012; Finnigan, 2014

The goal of this guide is to help organizations and individuals using the International Development and Early Learning Assessment (IDELA) establish their own connections between IDELA data and the goal of improving quality and effectiveness of ECCD programs. The guide offers step-by-step guidance through the processes of research design, communication, and stakeholder engagement that together, create lasting impact for children.

Who is this Guide for?

This guide is for everyone who uses IDELA to assess the learning and development of young children. It may also be a guide for anyone in need of clear examples of data-driven decision-making. IDELA users typically use findings generated from their work to advocate for changes and improvements to ECCD programs. This guide will help them effectively utilize findings to influence decision-making and to advocate for change with policy-makers, practitioners, and communities.

Importance of this Guide

There is no shortage of guides, handbooks, and papers on evidence-based decision-making and using data in the process of policy-making[2]. Numerous papers, articles, and reports assert the importance of data-driven decision-making[3]. Many of them examine the cyclical nature of conducting and applying research, the need to involve all essential stakeholders in the process of planning research, the importance of effectively communicating research findings to relevant audiences, developing actionable recommendations, and advocating improvements based on the arguments built on the evidence.

However, the process of applying empirical evidence from research to practice is rarely, if ever, so easy and straightforward. There are important technical considerations at every step of the process, and multiple stakeholders to engage throughout. Even promising findings from studies that are methodologically rigorous often remain unused, or distilled into general recommendations at the end of a report. This guide works to bridge the gap between data and evidence-based decision-making with specific, practical guidance.

FIRST, THE GUIDE IS FOR EVIDENCE GENERATED USING IDELA

Common themes and questions have emerged on practical applications of the tool and the best ways to apply evidence. This guide helps optimize the use of evidence generated by IDELA for improving programs, cost effective programs, teacher training, and access to quality ECCD.

SECOND, THIS GUIDE IS FOR ADVOCATES

Groups or individuals who use data produced by ECD research to advocate for change to improve the conditions of young children. Advocates may or may not be researchers. Either way, advocates can participate in any stage of the process.

THIRD, THE GUIDE FOCUSES ON THREE DISTINCT TYPES OF AUDIENCES

The targets of advocacy efforts emerging from the studies using IDELA:

1 GOVERNMENTS AT VARIOUS LEVELS

**2** ECD PRACTITIONERS AND ORGANIZATIONS

3 SCHOOLS, FAMILIES, AND COMMUNITIES

About IDELA

IDELA >> is a holistic direct assessment tool measuring developmental outcomes of children aged 3.5 to 6 years old. IDELA was developed in 2011 to address the need for a rigorous, widely applicable and inexpensive tool to assess developmental and learning outcomes of young children. IDELA went through a rigorous process of research, testing, piloting and VALIDATION >>

IDELA is a population-based measure with 22 core items measuring four domains of child development: emerging literacy, emerging numeracy, social-emotional development and motor development. In addition, IDELA also measures two additional constructs: executive function and approaches to learning.

Figure 1. IDELA domains and items.
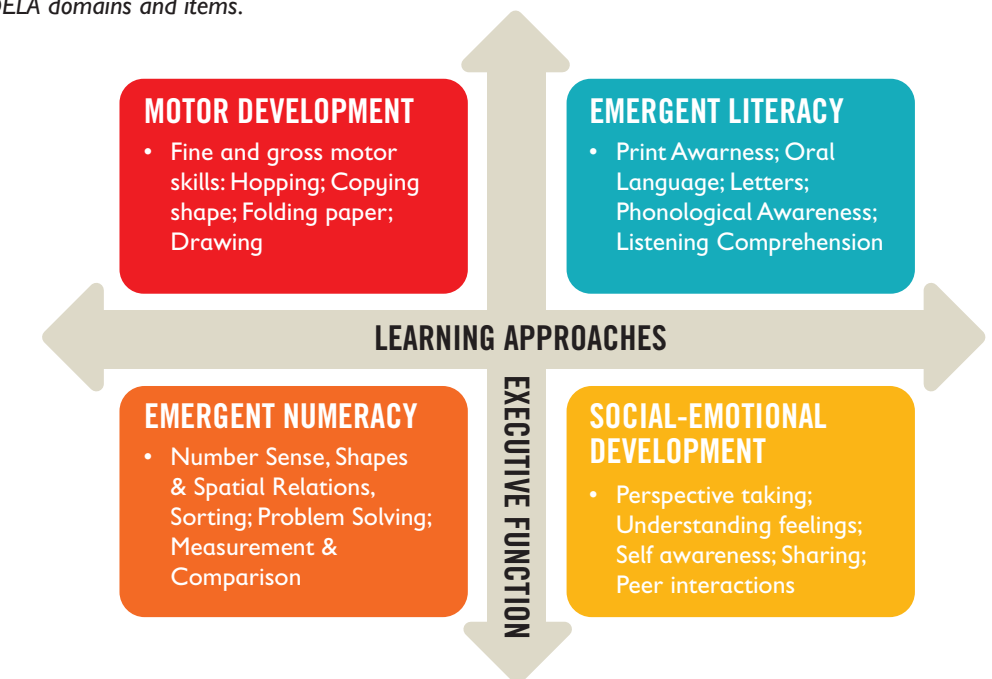
The number of global IDELA users continues to grow. Currently, IDELA is used in 75 countries by 130 ORGANIZATIONS >>

It has been translated into 57 different languages.

Organizations using IDELA can be grouped in the following categories.

- **Academic organizations**
- **International or national NGOs**
- **Research institutions, foundations and think tanks**
- **Multilateral organizations**
- **National or regional governments**
- **ECCD centers and schools**

MOTOR DEVELOPMENT
- Fine and gross motor skills: Hopping; Copying shape; Folding paper; Drawing

EMERGENT LITERACY
- Print Awarness; Oral Language; Letters; Phonological Awareness; Listening Comprehension

LEARNING APPROACHES

EXECUTIVE FUNCTION

EMERGENT NUMERACY
- Number Sense, Shapes & Spatial Relations, Sorting; Problem Solving; Measurement & Comparison

SOCIAL-EMOTIONAL DEVELOPMENT
- Perspective taking; Understanding feelings; Self awareness; Sharing; Peer interactions

Various Uses of IDELA

IDELA provides data on the developmental and learning outcomes of groups of children. In order to effectively use IDELA data to improve programs and policies, it is important to define when it is appropriate to use IDELA. It may not be the right measurement tool for all contexts. IDELA is most commonly used for two types of research: impact evaluations and monitoring studies.

Impact evaluations

Impact evaluations assess whether a program or an intervention has had the intended impact. In fact, about 70% of all studies using IDELA are some sort of impact evaluation. When implementing a new program or approach, IDELA helps answer the question: is the program or approach effective? Or, more specifically, does the program or approach affect the development and learning of young children?

Impact evaluations are usually:

> **Experimental studies** randomly assign study subjects (children, schools, villages etc.) to intervention or comparison groups to ensure that the only difference between the two is the intervention.

> **Quasi-experimental studies** where subjects (children, schools, villages, etc.) are not randomly assigned to intervention and comparison groups.

Impact evaluations try to estimate what would have happened had the intervention not been implemented. Typically, such studies use a comparison group to arrive at this estimate. Children are assigned to one of two groups, experimental or comparison, and assessed at the beginning and the end of the intervention using IDELA. The difference at the baseline in average scores of the two groups is compared to the difference at the endline in average scores. If the experimental group gains more during the intervention period, this excessive gain is attributed to the intervention.

Researchers should exercise caution when stating the gains of an intervention. A number of observable and unobservable factors affect children's developmental trajectories. So it is important to make sure that experimental and comparison groups are as similar as possible except for the intervention. There can be spillover effects from intervention to comparison groups, or, similar interventions implemented by other actors might be taking place in comparison areas. This might sometimes lead researchers to underestimate effect of a given intervention. This is especially true in the case of quasi-experimental studies assessing child development and learning.

Monitoring

IDELA is also a tool used to monitor children's developmental and learning skills at one point in time, or how they change over time. Unlike impact evaluations, monitoring studies do not aim to establish causal links between certain interventions and outcomes. For this purpose, learning and developmental outcomes of children are typically tracked at regular intervals, for example annually or bi-annually. The frequency of data collection is defined based on budget, timeline, and project specifics.

Comparison of children with different backgrounds

Within both impact evaluations and monitoring studies, IDELA data can be used to compare the learning and developmental status of different groups of children. For example, one might compare whether girls and boys perform equally well, or whether various background characteristics, such as family economic status, parental education, or home learning environment are associated with learning and developmental outcomes. Group comparisons can be incorporated into both impact evaluations and monitoring studies.

Identify strengths and weaknesses of a program or approach

IDELA can be used by ECD practitioners and organizations to identify the areas in which the programs implemented by them are particularly effective and the areas which need strengthening. The fact that IDELA assessments generate a total score and separate scores for the four domains, as well as the scores for each of the core items, can be particularly helpful in this respect.

Less appropriate use of IDELA

IDELA is *not* designed to assess or screen individual children. It is a population-level instrument meaning that it is appropriate for assessing average developmental and learning outcomes of a group of children, distribution of outcomes, or differences within a sample. Since it cannot assess development of individual children, it is also not a diagnostic tool used for placement of children in various programs. IDELA is also not a formative assessment tool to be used by teachers in a classroom.

DECISION-MAKING CYCLE

There are many different frameworks to depict the process of applying data and evidence in decision-making[4]. They invariably contain a few critical elements:

Figure 2. Cycle of evidence generation and use.

6. EVALUATION/RESEARCH:
The cyclical nature of the research process implies that after institutionalizing changes, research and evaluation process will continue, with new questions to answer.

5. INSTITUTIONALIZE:
Institutionalization can mean different things in different contexts. It might look like scaling up a pilot intervention, improving sustainability of an ongoing project or the adoption of changes to a program. In every case, institutionalization further cements a proven approach.

4. COMMUNICATE RESULTS TO STAKEHOLDERS:
This stage includes continued interpretation of findings but primarily focuses on communicating findings to various audiences, developing action items, and recommendations.
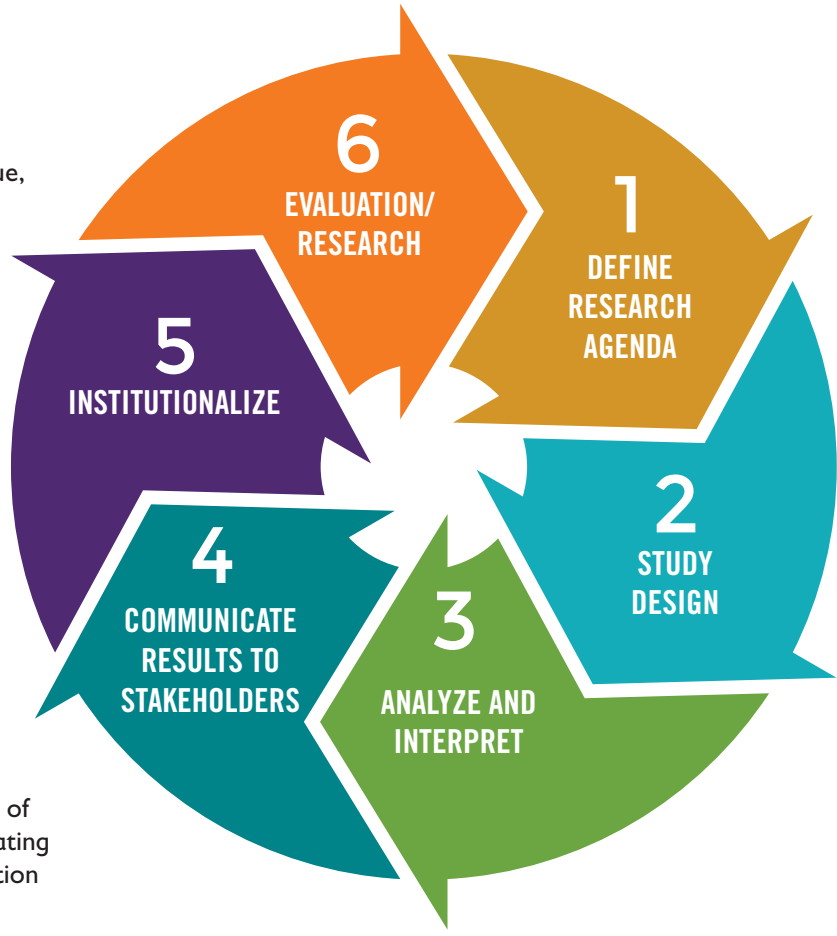
1. DEFINE RESEARCH AGENDA:
Research questions, ideally, respond to the salient needs in any given context, and are informed by existing contextual evidence, like legislation, strategies, or policy papers. This key stage lays the foundation for high quality research outputs as well as successful incorporation of relevant research findings in decision-making.

2. STUDY DESIGN:
This includes the design of the study, developing or selecting appropriate tools that meet the contextual and research needs, data collection, quality assurance, and ethical considerations.

3. ANALYZE AND INTERPRET:
This stage is much broader than simply interpreting the findings, but rather about pulling meaning from the data, determining effectiveness of interventions, estimating the magnitude of impact, assessing the progress of young children, examining associations between child outcomes measured by IDELA and relevant variables, telling a story behind the numbers, or contextualizing findings.

[4]Custer et al., 2018; James Bell Associates, 2018; Kim et al., 2018; Marsh et al., 2006; Masaki et al., 2017

	Establish effectiveness of an intervention	Identify strengths & weaknesses of a program or approach	Monitoring progress over time	Identify equity issues within target population
1 DEFINE RESEARCH AGENDA	With this goal, you answer questions like "Did our teacher training significantly improve children's literacy skills?"	With this goal, you answer questions like "What are the strengths and weaknesses in children's school readiness skills as they enter Grade 1?"	With this goal, you answer questions like "How is children's social-emotional development changing over time in our program areas?"	With this goal, you answer questions like "Are girls and boys benefitting equally from our new ECE approach?"
2 STUDY DESIGN	Requires treatment and comparison group; Typically longitudinal studies with randomized or quasi-experimental design	Comparison group optional; Typically uses cross-sectional design with representative sampling from target area	No comparison group required; Typically uses repeated cross-sectional design with representative sampling from target area	No comparison group required; Requires appropriate sampling of subgroups of interest
3 ANALYZE AND INTERPRET	Uses intention to treat analysis, difference-in-difference or other appropriate analysis approach to determine whether any difference in outcomes is statistically significant	May compare outcomes of study group to local benchmarks or standards for preschool-aged children	Compare change in scores to age-adjusted IDELA scores	Compare differences between groups using T-tests or other appropriate approach to determine whether any difference between groups is statistically significant
4 COMMUNICATE RESULTS TO STAKEHOLDERS	Typically focuses on government or funders and may be highly technical; adaptation needed to share results effectively with local stakeholders	Typically focuses on audiences with ECD expertise such as implementing groups like NGOs, CSOs, or local government	Typically focuses on program implementers, but could be applicable to all audiences	Applicable to all audiences
5 INSTITUTIONALIZE	Advocate to scale effective approaches or determine new approaches to test	Advocate for program or curriculum changes to further improve programming	Develop program or curriculum changes to further improve programming	Develop program or curriculum changes to further improve programming or address inequalities

Zachary and Zaylyn enjoy a book from the reading corner in Colorado, USA.

Credit: Save the Children

DEFINE RESEARCH AGENDA

The road to data-driven decision-making begins with the research agenda. It is indeed the foundation of any advocacy effort. This agenda determines exactly what data will be available to analyze and inform advocacy.

Two principles are necessary at this stage.

1. **Identify end goals**
2. **Identify relevant stakeholders for each stage of the research**

Identify Goals

A clear idea about the end goals of the evidence produced by research is essential before designing the study and collecting data. Studies using IDELA are often closely linked to ECD goals like improving access to different types of ECD services, increasing access for certain groups of children, or improving quality of such services.

For those types of goals, the research objective might be to:

- **Establish effectiveness of an intervention:** Usually it is some type of ECD intervention, such as establishing preschools, quality improvement interventions, or caregiver support programs.
- **Identify strengths and weaknesses of a program or an approach:** This can refer to the studies conducted by organizations and/or governments on small scale to see what works. It can be integrated with classroom observations and/or larger studies.
- **Monitor progress over time:** Instead of evaluating the impact of a specific intervention, a study may monitor how child outcomes change overtime.
- **Identify equity issues:** A lot of studies are designed to find out whether there are differences in the learning outcomes of children be whether sex, background or location. In many cases this is combined with research to examine whether an intervention is equally effective for all participating groups.

Note that these research objectives are not advocacy goals. A research objective establishes answers to research questions. Advocacy goals identify how the generated evidence will be used. The relationship between research objectives and advocacy goals is reciprocal: advocacy goals can inform research objectives and vice versa. Table 2 presents each of the above research objectives paired with possible advocacy goals.

***Table 2.** Relationship between research objectives and advocacy goals.*

Research objective	Advocacy goal example	Primary audience
Establish effectiveness of an intervention	Scale up intervention, or replicate in another setting	Government
Identify strengths and weaknesses of a program or an approach	Improve program, revise curriculum	ECD practitioners, NGOs
Monitor progress of children over time	Introduce new programs and initiatives	Schools, communities
Identify equity issues in learning and development	Design targeted programs for vulnerable groups	Government, ECD practitioners, schools, communities

In many cases, advocacy goals can also tell us who the key target audience of a study is. For example, if the advocacy goal is to scale up a proven intervention, the target audience will most likely be government representatives at various levels since they have the appropriate power to influence program and funding. Most advocacy goals will have more than one target audience. When considering scaling a program up, it is not enough to advocate with the government, but equally important to advocate with families, schools, and communities to demonstrate the benefits of the program or intervention. Consider all the audiences that can be recipients, users, or advocates.

CASE STUDY: MARIA CANO UNIVERSITY FOUNDATION

María Isabel Loaiza Hernández from the Fundación Universitaria María Cano conducted the study, "Comparison of methodologies adopted in early education programs for the promotion of linguistic and cognitive development: private sector – public sector and evaluation of their impact on the development of reading and writing." Professor Loaiza compared different ECCD programming from public and private schools to understand which curriculum promoted linguistic development in children ages 3-5 years.

Research objective: *Identify differences in linguistic and cognitive development between children attending private and public kindergartens.*

Advocacy goal: *Raise local and national government awareness of quality differences in public and private education; parents and guardians to understand different developmental outcomes; use study results to advocate for further research on ECCD.*

Primary Audience: *Government, families and communities.*

Stakeholder communication was a key focus of the research team. Parents and guardians were presented with an information paper about the study and also asked for the content for their children to be tested. This meant that from the start the researchers were transparent with the parents. Communication also extended to the ECE teachers so they were aware of the study and the students' participation. Every time the research moved forward or analyzed results, parents and teachers were updated. Hernandes believes investing in sincere communication from the start helped to develop relationships with these key stakeholders.

Involve Stakeholders Early

The importance of involving stakeholders in the process of research from the very start is consistently emphasized in the literature on evidence-based decision-making. In addition to improving the relevance and impact of your research, meaningfully engaging local communities and stakeholders from the beginning of the research process is a moral imperative. It is too common for researchers from the Global North to lead on the study design process and then seek input from stakeholders in the Global South at a later stage, after key decisions have been made. Further, stakeholders who do not speak a dominant international language (e.g., English, Spanish, French) are often excluded from the study design process entirely. These dynamics serve to maintain and reinforce colonial power dynamics. In order to break this extractive relationship cycle, stakeholders from target communities must be engaged early and often[5].

Involving all relevant stakeholders from the beginning of planning the research

process through presenting findings and recommendations is certainly best practice. However, reality is often different, as researchers and advocates might lack time, resources, or willingness to identify and involve all stakeholders in the process.

It is the responsibility of all researchers and advocates to ensure engagement of key stakeholders, particularly when the research involves marginalized communities. When local stakeholders and target audience are involved as peers from the start, they can meaningfully contribute to the research project. Stakeholders will provide insight to inform specific research questions, tool adaptation, interpretation of results, and appropriate communication channels. This improves the relevance of the work, and ultimately its contribution to intended outcomes. Research projects that proceed without thorough engagement of all stakeholders risks being ineffective or exploitative and reduces the possibility that the work will result in positive change for the intended communities.

4-year-old Valentina draws a rabbit from a storybook she recently heard in class in the Sonsonate district of El Salvador.

[5]Peace Direct, 2021

CASE STUDY: PHARO FOUNDATION

Demonstrate, cultivate, advocate.

The Pharo Foundation's Early Childhood Education (ECE) program in Hargesia, Somaliland is working to increase access to quality ECE for children from poor and middle-income families by integrating ECE into the public education system. When the Foundation stared programming, Somaliland had neither a national ECE policy nor ECE curriculum. Private preschools in the capital Hargiessa use different curricula, in different languages. Pharo Foundations' quasi-experimental study using IDELA aimed to measure impact and effectiveness of programming, results that would hopefully be able to demonstrate effectiveness to government stakeholders as well.

Laying the groundwork for a new program in a country that didn't provide wide access to ECE meant a huge campaign for community and parental support. The Pharo Foundation organized local community sensitization campaigns, garnered support from religious leaders and formed mothers' committees at each ECE center. They admit that these early efforts were difficult and without much progress. In the second year of programing they were able to present results to the parents, bringing them to the schools to demonstrate, in person, through

visuals and conversation, how the classes were positively impacting the children.

Pharo Foundation found that even with the right government relationships, a few key pieces still needed support in order for the Ministry of Education to accept and respond to the research findings. First, their efforts required an ECE champion within the government. Second, the Pharo Foundation had to demonstrate that the choice of measurement tool, IDELA, was not a written exam, but rather a play-based, in-person assessment appropriate for young children. Third, Pharo Foundation stepped in to build facilities and provide in-kind resources to take the start-up cost burden off the government. Finally, the results needed to be analyzed by gender as all audiences were eager to understand how girls and boys performed.

The results of this programming and research, however, are encouraging. An independent consultant, contracted by the Ministry, took Pharo's IDELA results and the ECE curriculum and used them to produce an ECE policy paper that was widely accepted by the government. As Yohannes Keliku stated, "you can see the Pharo Foundation footprint everywhere in that policy."

Teaching aids developed at a workshop for parents to use with their preschool children in Kampong Chan District, Cambodia.

Credit: Save the Children

STUDY DESIGN

Once advocacy goals and research objectives are identified, they must inform all key aspects of the research: design, sample, instruments, and analysis techniques. For example, if the goal of the study is to establish effectiveness of an intervention, it is recommended to select an experimental or quasi-experimental design to make sure that by the end of the study advocates have a plausible answer to the question: what would be children's developmental status had the program not been implemented? For example, a study conducted in Brazil by Universidad de São Paolo to investigate the effects of a new intervention designed to improve children's executive functioning randomly assigned participants to intervention and control groups.

Research Design

Quality research design requires the researcher to consider not only what is effective for the research objective, but also what is feasible in a given context. Conducting AN EXPERIMENTAL STUDY >> where one group of the population receives certain benefits while another does not, might cause ethical considerations. One example is a humanitarian context where children are particularly vulnerable and in need of services. It is therefore important to balance ethical considerations with the level of rigor researchers would like to see in the study.

Engaging local stakeholders will help researchers and advocates address these issues and, in QUASI-EXPERIMENTAL DESIGN >> stakeholders will help identify appropriate comparison groups.

CASE STUDY: UNIVERSIDAD DE SÃO PAULO

In 2018, Professor Alexandra Bretani and her colleagues at the Universidad de São Paulo started an ambitious study to determine if Brain Games, an effective tool for building children's self-regulation and executive function in the United States, would be equally effective in São Paulo creches. Given the Early Infancy Statue which supports the development of self-regulation and executive function, "reaching all Brazilian children with an intervention package like this seems feasible in the long run as long we can demonstrate the program is a feasible, effective and cost-effective tool to improve self-regulation and executive functioning skills."

To answer these questions the team use a variety of measurement tools: IDELA, SDQ, RACER, and a psychological assessment. Since Brazilian schools teach numeracy and literacy a bit later than American schools, the researcher worried IDELA might not detect the changes in child development over time. The research team also wanted tools to accommodate learning disabilities, a full range of social emotional conditions, and school readiness. Carefully chosen tools helped to ensure they would get kind of data they wanted to answer their unique questions.

Communication with the government focused on scalability and impact. Because the program was closely tied with larger health, well-being and education work, there was more trust from the local community. "The strong links between the University Hospital social service, the families and the local public day-cares should help overcome these barriers; local sensitization meetings will be organized to reduce the risk of refusals and attrition." It may also contribute to easier scaling of the program in the future.

> " **The main question for scalability and impact is whether the package can be delivered effectively at public daycare centers, and whether this delivery translates into improvements in children's outcomes. To answer this question, we propose to conduct a randomized controlled trial at 60 public crèches in São Paulo, Brazil.** "
> Professor Alexandra Bretani

IDELA users often ask whether there is a need to have a comparison group when conducting an IDELA study. The answer to this question is, it depends. It depends on what the goal of the study is. If the goal of the study is to evaluate effectiveness of an intervention, then it is important to have a comparison, or a control group. Having a valid counterfactual, or a comparison group to establish effectiveness, is important for any type

of intervention and this is particularly true in case of early learning and development. Young children develop rapidly. Their IDELA scores would increase over time even without intervention. Simply comparing scores of the same children at two different time points cannot give an accurate idea of whether an increase in scores is due to an intervention or the result of natural development. Therefore, in order to state "the intervention

improved children's IDELA scores," it is essential to have a comparison group. Strongly consider the use of a comparison group if your advocacy goal is to convince a target audience that an intervention is worth scaling up or replicating or to present evidence of effectiveness to a donor.

Stakeholder involvement in design can help draw an adequate sample of children and families for intervention or comparison groups. If the objective of a study is to identify differences in developmental status by certain equity factors, it is important to make sure that representative samples of those groups are selected. For example, a **CROSS-SECTIONAL STUDY >>** in Vietnam aimed to compare performance of the children across six districts. Therefore, the sample of children was stratified by district. Without such that **STRATIFICATION OF SAMPLE >** certain groups of interests to researchers might be underrepresented. This can happen for example, when the population of one district is considerably smaller than others. In such case researchers need to make sure that enough children from this district end up in the final sample to draw reliable conclusions.

Tool Selection

IDELA is a strong measurement tool for early learning and development, but in many cases it may not be the only tool needed in a study. If the advocacy goals of a study require examining children's developmental status in families with different socio-economic status, a tool that looks at socio-economic factors or the home environment will be needed to complement IDELA.

Elamu Kayange, Save the Children's Area Programme Manager, shares his notes with colleagues from Actions for Development Programmes (ADP).

Credit: Save the Children

The IDELA Home Environment Tool acts as this complement, and about one third of IDELA studies employ this supplemental tool. Similarly, a classroom quality or program quality measure will be required for a study examining program delivery. Partners have used the IDELA Classroom Environment tool as well as other classroom environment tools such as the Early Childhood Environment Rating Scales (ECERS)[6] to examine the relationship between classroom quality and children's learning and development. It is possible to pair IDELA with tools that measure other types of outcomes for children such as their emotional wellbeing, nutritional status, or exposure to health and safety risks.

Tool Adaptation

Any tool used in a new context should be appropriately adapted. This applies not only to translation in the national or regional language, but more rigorous adaptation around multi-lingual settings, cultural practices and norms, and available materials. Involving stakeholders with an in-depth knowledge of the particular community is essential. In doing so, the research team stays on track to collect quality data that can effectively inform decision-making.

Over years of IDELA administration and testing around the world, we have developed detailed guidance around how to adapt each item in the tool. This includes information about the goal or purpose of each item to help guide translation. We recommend that translations be in children's mother tongue to promote comprehension and engagement from children. If children in your study speak a variety of mother tongues, we recommend you translate the tool into multiple languages. In cases where the language of instruction differs from children's mother tongue, it may be warranted to assess children in both languages.

Users can change, add or remove items as they see fit. However, please note that IDELA has been validated with the core items in their current format. Therefore, any substantial changes to items could undermine the validity of the tool. Adaptations could also improve the tool and may be of great interest to other IDELA users so we ask that any modifications made to the original tool are thoroughly documented and shared. One method for testing new items while also maintaining a valid tool is to use an additive approach – use the core items as they are and add any additional or modified items. In this way the domain and overall structure of the tool will remain intact and you can also learn about how new items function.

The IDELA website and community of practice offers dozens of **LANGUAGE TRANSLATIONS >>** and tool adaptations[7]. Users of the tool can start with these adaptations in their efforts to contextualize the tool for this own study. In addition, **WEBINARS >>** are available to provide more in-depth discussion of global adaptations.

CASE STUDY: TWO RABBITS

Dengbe Bide is an early childhood development (ECD) program in Cameroon, built by and for the Baka, an indigenous group of hunter-gatherers. US-based nonprofit Two Rabbits collaborates with local Cameroonian nonprofit ASTRADHE to develop curriculum, teachers and technology that address the education and cultural needs of the community. While IDELA was a good fit for the team's measurement needs, it was far from an "off the shelf" tool. Two Rabbits and ASTRADHE undertook a rigorous translation and adaptation process, bringing IDELA from French into Baka and ensuring consistency with a back translation and field-testing. In looking at domains of development, the ASTRADHE did not feel the SEL tasks fit well in the Baka community, and rather than adapt, the team decided to create their own SEL measures entirely[8].

In designing its study, the Two Rabbits and ASTRADHE teams wanted to first understand the impact of their work; was their program effective in improving children's development and if so, in which areas? IDELA would allow them to break down the children's scores by sex, age, and domain to achieve this level of understanding. In addition, they wondered if their program had similar impact as compared to other ECD programs. The data they collected needed to help answer these questions, and also be compelling for government, NGO, parent and community audiences. The study found that "one year of participation in the program had a statistically significant positive relationship on literacy, motor, and total child development scores. The program was most impactful for children with the greatest need. Participating children with the lowest scores at baseline experienced the most growth across all developmental domains."[9]

Strong communication with parents through the teaching staff ensures that parents were supportive of the testing and eager to see the results. They were made aware from the program's outset that children's skills would be assessed by teachers and by ASTRADHE staff.

Two Rabbits and ASTRADHE used IDELA findings to advocate for community-based and mother tongue ECD approaches. The Cameroon Ministry of Basic Education (MINEDUB) was dubious at first of the use of indigenous languages in ECD programming, as well as the employment of Baka teachers who lacked formal teaching certification. Two Rabbits also kept in close touch with UNICEF which was working in partnership with MINEDUB to adapt and develop preschool policies for Cameroon as a whole. By communicating IDELA results to these key stakeholders through meetings, infographics, and one page summaries of the research, Two Rabbits and ASTRADHE provided useful and accessible information to inform policy conversations that have contributed to more supportive attitudes towards local language instruction and community teachers. The success of the first data collections has now engendered more demand for further information about the effectiveness of locally-led ECD interventions.

[6] Harms, T., Clifford, R. M., & Cryer, D. (2014).

[7] Note that access to the library of translations is limited to IDELA partners. If you'd like access to the full IDELA toolkit and the translations, please complete the online MOU. http://idela-network.org/mou-form.
[8] Anzoim et al., 2021
[9] Two Rabbits, 2019

ANALYZING AND INTERPRETING EVIDENCE

Interpretation of findings is one of the key stages in conducting monitoring, evaluation, or research. Impactful research asks not only 'what does the data tell us', but also 'so what?' That is, how can this new information inform or influence key stakeholders? For example, if the goal of a study is to evaluate the impact of a pilot intervention with the prospect to scale up, or replicate, the researcher must understand the gains that occurred and their size. This information might then be used in conjunction with other evidence like the financial cost of the program, length of the program, and evidence regarding the effectiveness of other similar interventions. Together, this information will help policy-makers or organizations make decisions about the future of the program.

Analysis

It is important in all quantitative studies, including those involving IDELA, for the analysis to be guided by the research questions that were defined at the outset of the study, as well as by theory and context. If the prospective audience of the study is interested in comparisons across certain equity factors, such as gender, or language spoken at home etc., it is essential to include these factors in the analysis. In the case of IDELA in particular, we recommend disaggregating or controlling for children's age in any analysis. IDELA can be used with children from a wide age range, and interpretation of results will be substantially different depending
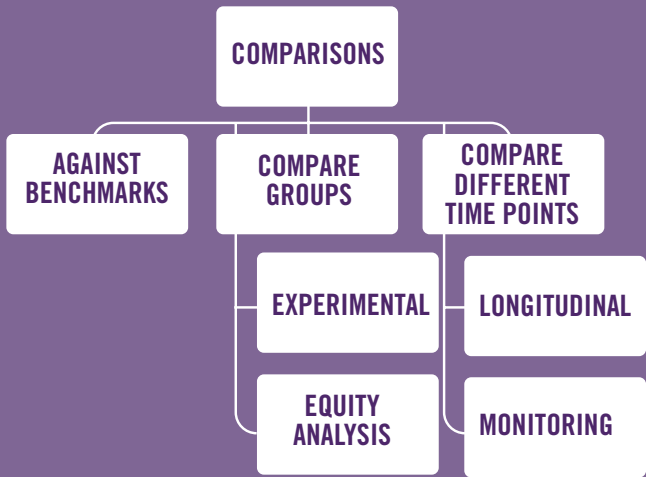
on the age of the children so it is always relevant to incorporate an age variable in your analysis. In addition, we recommend performing analysis not only on the total IDELA score, but for the four domains separately. Disaggregating scores by domain can be particularly helpful when the audience for the research are ECD practitioners/organizations working to improve the curriculum or a program.

Typically, if IDELA is used with age-appropriate group of children, a NORMAL DISTRIBUTION >> of scores is expected. For these types of data average scores may be descriptive and insightful. In some cases, looking beyond average IDELA scores in different groups of children may reveal more information in the data. A distribution may not be normal and instead strongly skewed. In this case it is helpful to look at the entire distribution to see what drives the variability. In addition, in impact evaluations, looking at the entire distribution will help us see whether all

the children are benefitting similarly from an intervention, or whether the positive effects are driven only by specific children.

Figure 3. *Making the right comparisons.*

```
                    COMPARISONS

AGAINST          COMPARE         COMPARE
BENCHMARKS       GROUPS          DIFFERENT
                                 TIME POINTS

            EXPERIMENTAL      LONGITUDINAL

            EQUITY            MONITORING
            ANALYSIS
```
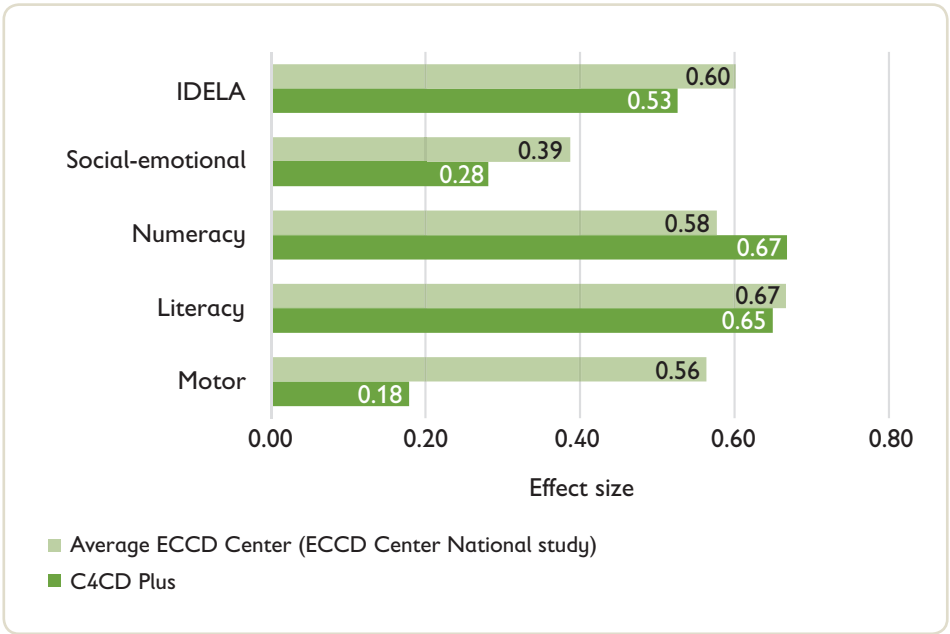
Making the right comparisons is one of the key factors in analysis and interpretation of IDELA results. Depending on your research questions or advocacy goals, it might be appropriate to compare results against certain standards, criteria or benchmarks; compare results of different groups within your study to one other; or compare progress over time.

Save the Children works to promote quality data collection and analysis for partner using IDELA. See Annex 1 for quick analysis guidance and visit ANALYSIS RESOURCES >> **on the IDELA website for more details.[10]**

[10] Note that access to the library of analysis materials is limited to IDELA partners. To access the full IDELA toolkit and the translations, please complete the online MOU.

16

Effect Sizes

One standard way of presenting results, which helps researchers and audience gauge the magnitude of the impact, is EFFECT SIZE >> or Cohen's d, is an universally accepted measure, which is calculated by dividing coefficient by standard deviation. Instead of answering the question: 'how many more percentage points on IDELA did the children from intervention group gain compared to the control group?' we ask 'how many standard deviations more did the intervention group gain?' While this way of framing findings might seem too technical, it is indeed widely accepted among researchers of all backgrounds and in addition, there is a convention of characterizing range of effect sizes as small, medium or large. Because effect size is standardized, this classification can refer to any effect size in any study, any tool, and any range of scores. Typically, effect sizes of up to .25 standard deviations are considered small, .25 to .50 are medium and anything over half a standard deviation is large.

Take the sample below for example. Figure 4, depicting results from an evaluation of a home-based preschool program (I.e., C4CD Plus) in Bhutan. Even without knowing anything about IDELA as a tool, the illustration shows that this intervention was highly effective compared to average ECCD centers.

Figure 4. *Magnitude of learning and development gains from C4CD Plus and ECCD Center programs.*

Domain	Average ECCD Center	C4CD Plus
IDELA	0.53	0.60
Social-emotional	0.28	0.39
Numeracy	0.58	0.67
Literacy	0.67	0.65
Motor	0.18	0.56

Effect size (x-axis: 0.00 – 0.80)

■ Average ECCD Center (ECCD Center National study)
■ C4CD Plus

Presenting results as effect sizes is particularly useful for advocacy purposes if the goal is to argue for the advantage of a given intervention in comparison with other interventions.

For a non-technical audience, it might be helpful to situate the effect size information in a more familiar context. For example, a study might look at four and five year old children, some in a control group and some in an intervention group. At baseline, all five year olds will score higher than the four year olds, simply due to natural development. The difference in scores, of 20 points, for example, is then a proxy for 1 year of development progress. At the second point of data collection, researchers can examine how the comparison and intervention groups scored. If the intervention group of 4-year-olds gained 30 points over the year, researchers and advocates can frame this as an effect which is worth half a year's development rate without intervention.

The intervention children not only gained the normal developmental amount of 20 points, but also gained an additional 10 points.

Save the Children and the American Institutes for Research were able to draw these kind of conclusions for their work with the Early Years Preschool Program in Bangladesh. The study's effect size mentions was moderate. They tailored their description of impact to an audience familiar with early childhood development and education. The research team described the gains seen from the intervention as

> " *equivalent to bridging the gap between children whose mothers did versus did not complete a primary education.* "

Photo Save the Children

Children learning basic numbers in Bhutan.

CASE STUDY: BANGLADESH EARLY YEARS PRESCHOOL PROGRAM (EYPP)

In 2008, the government of Bangladesh committed to implementing two years of preschool nationally, a significant commitment already backed by evidence. In practice however, only one year of preschool was offered. Save the Children implements the Early Years Preschool Program (EYPP) which offers an additional year of preschool to children aged 4, before they begin a one-year government pre-primary class at age 5. In addition to the EYPP curriculum, EYPP also includes teacher training, teacher support for parents, and the development of learning materials.

With funding from the World Bank, the American Institutes for Research (AIR) collaborated with Save the Children Bangladesh to test whether adding this second year of preschool (as delivered through the EYPP) was a worthwhile policy that should be implemented nationally.

Save the Children laid significant ECD groundwork before undertaking this research. They had worked in the target communities and had established relationships with the community, families, and government. Parents and teachers supported a play-based curriculum. Despite these programmatic and policy foundations a gap remained; the government of Bangladesh wanted evidence that a second year of preschool was truly beneficial and worth the investment.

Globally, many preschool programs give children a short-term boost in school readiness, but eventually these benefits fade away. When designing their research, AIR made the decision to check the EYPP's short-term effects on school readiness, and to determine whether these differences persisted after all children (with or without the EYPP) had one year of government preschool as usual. The study found that yes, the EYPP produced impacts on children's learning and development that persisted to their transition into grade one.
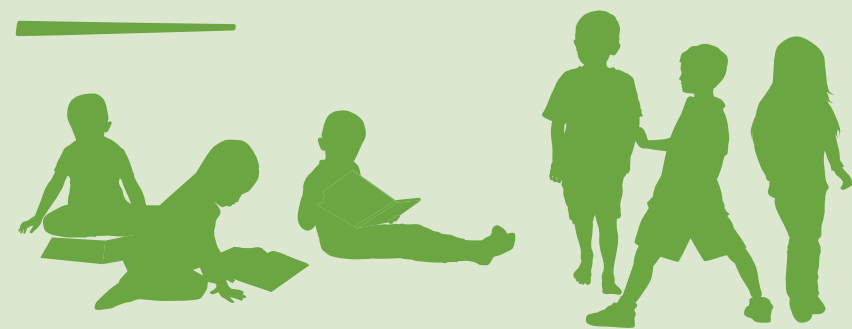
AIR's recommendations:

1. *Have a clear pathway to success – bring in the right partners and develop the right relationships with people with budget power. Acknowledge the cost effectiveness of interventions or plan for ways to address financial barriers. Overall, have a way forward without major roadblocks to scale.*

2. *If the aim is to bring programming to scale (if it is found to be effective), is critical that decision-makers are involved from the outset.*

3. *Find the exact measurements and evidence that the government needs. What's going to matter to them? A cost point, a specific metric? Figure this out early.*

Several factors contributed to the successful use of project outcomes for effective decision-making:

- *Potential advocacy goals for the study were defined from the beginning. Bangladesh had already introduced one year pre-primary education for all children and the commitment to expand it to two years was already expressed in the National Education Policy of 2010. The program and the study were built on this foundation. The National Government.*

- *Continuous involvement of all relevant stakeholders. Stakeholders from all levels, starting from parents, including school committees, local education administrations all the way through the national Ministry of Education were involved in the process of program and research planning.*

- *Effective communication of study findings. AIR together with Save the Children developed the communication strategy where the findings were conveyed to the highest-ranking officials of the Ministry of Education. At the same time, the project had a very effective press communication strategy.*

Estimating 'Good Performance'

Sometimes researchers are estimating not impact, or differences between groups, but the performance of one group of children. Audiences, whether it is governments, schools, or communities, might be interested in knowing: how well the children in this particular group are doing?

IDELA has a few strengths that make interpretation of results easy:

- There is a strictly defined score range – from 0 to 100 percent correct, for each item, each domain and total IDELA score. Therefore, simply by knowing the average score we can have a rough idea regarding the performance level. For example, if average score of children in a sample is 80 percent correct (out of 100) on an item, domain, or total IDELA, we can assume, without any further knowledge, that performance likely is quite good. On the other hand, if the average score of a sample is 20, it can be assumed that performance is not excellent.

- Performances in different developmental domains can be analyzed individually as the domains have been VALIDATED SEPARATELY >> This allows for a deeper dive into the nuances of children's skill development in different areas and makes IDELA applicable across a wide range of interventions. Scores in different domains can be compared to one other, but note that they may have different levels of difficulty so use caution in interpretation.

Establish Performance Benchmarks

IDELA was designed to measure the skills that help children transition into primary school, based on existing curricula and standards from around the world. Despite this, there is no universal IDELA score to indicate the school readiness of children.

With this limitation in mind, there is still a strong push to group or benchmark IDELA scores. It is natural to want to know if a particular score is "good" or if children are "ready". Any researcher determining their own benchmarks is advised to contextualize and adapt their benchmark for their particular population. This is a significant undertaking, and requires stakeholder and expert input to be done wisely.

Save the Children does not offer set benchmarks, but we roughly define "mastering" the content in the assessment as scoring 75% correct or better on the overall assessment, "struggling" with the tasks as scoring under 25% correct, and "emerging" as scoring between 25 and 74% correct. These conclusions are drawn from the reasoning that a child scoring less than 25% correct is, at a maximum, only getting one in four questions correct. They are not meaningfully engaging with the content of the assessment, whereas those scoring 75% or higher (3 out of 4 questions correct or better) are displaying mastery of the content. Developing mastery of a skill takes time and repetition so children in the 25 – 74% correct category are those who are actively engaging with the content and are moving along the continuum of skill growth.

To set a benchmark USING THIS METHOD>> one could monitor the proportion of children achieving "mastery" (75% correct or better), the proportion struggling (less than 25% correct), or potentially both. Note that the proportion of children achieving one of the benchmarks may differ slightly year to year just by chance. This will be especially true if you have a small sample. For example, if 10 out of 20 children score 75% correct or better in Year 1 and 11 out of 20 achieve the same score in Year 2, the proportion of children meeting the benchmark will increase from 50 to 55%, but is that a meaningful increase in the number of children achieving the desired score? In order to better understand changes in the proportion of children achieving a benchmark over time, take care to select an appropriately sized sample.

Still, these groupings are not formal school readiness benchmarks. Users can and should choose to define their own levels of achievement based on one or more of the following factors:

- **National and /or regional preschool curriculum or primary curriculum**

- **Children's ages**

- **Previous studies in the same context**

Estimating Improvement Overtime

If the research objective is to determine 'what portion of children saw improved IDELA scores?' it might be difficult to answer this question, particularly in the absence of a comparison group. Often, IDELA data includes multiple age groups. We can use information about the differences in children's scores by age at baseline to estimate typical IDELA score growth in a given context. Specifically, if we can understand the IDELA score differences between children of different ages, we can use this information to estimate the proportion of children that have improved age-adjusted IDELA scores at endline. This approach should not be used when all children at baseline are of the same age. While the change in scores associated with age is not likely to be an unbiased estimate of the effect of one year on a child's learning and development, it provides a "good enough" estimate.

A similar approach is use for estimating improvement in IDELA scores when longitudinal data is not available. A sample is taken at the beginning and end of a school year (or project cycle) with the population the same for both the baseline and endline, but different children at each time point. One can then calculate the "expected improvement" using the baseline data in the same way as with longitudinal data.

Where the method differs is in the final step. Because we cannot compare the baseline and endline scores of individual children, we instead compare the best score at baseline with the best score at endline, the second best score at baseline with the second best score at endline, etc.

First, sort baseline scores from highest to lowest, and then sort endline scores from highest to lowest as well side-by-side. Then calculate the pairwise difference between the equivalent rank of baseline and endline. We can compare this pairwise difference with the "expected improvement". If the difference is greater than the expected improvement, we consider the child to have an "improved" IDELA score.

One more point to take into consideration when designing a study with such a longitudinal approach, is age-appropriateness of IDELA as a tool. IDELA is designed for children aged 3.5 to 6.5. If children are 6-year-old at the outset of the study, in one year they will be already outside the range age of IDELA and we might witness significant ceiling effects in the outcomes, which will mask any actual effects and might invalidate entire study and fail to produce any actionable evidence.

Sammy, ten, reads with his mother Josephine and sister Janvier, two and a half, at their home in Gicumbi district, Rwanda.

Credit: Save the Children

CASE STUDY: NADIA SIDDIQUI

Does attending school make a difference in children's cognitive and social emotional skills in India and Pakistan? Dr. Nadia Siddiqui at Durham University in the United Kingdom seeks to answer this question in her IDELA research. The project is a longitudinal design in which children will be re-assessed after a year. The unique aspect of this project is that it includes children who attend schools and as well as those who do not attend schools or drop out after enrolment.

The onset of COVID-19 made a second round of data collection difficult, following the March 2020 baseline. This is an opportunity for the research team, however, to capture learning loss over one year. Now, the research has changed to examine the learning status of children who have been to school and stopped, versus children who never attended school and have remained out of school.

Dr. Siddiqui recommends other researchers, "make it local and powerful" when it comes to working with the government. "Policy or any intervention has to be embedded in local context. It has to be local to convince any audiences to support its implementation." "Evidence published in academic journals does not reach relevant audience in an effective way. However, we see engagement with evidence is possible through tailored presentations, translated summaries, videos, and animations. Similarly, local voices talking about evidence can be helpful". She also recommends showing shared cost strategies where a donor maybe be willing to fund "x" if the government pays for "y". Making evidence based decisions financially easier may help move a conversation towards implementation.

For a more technical audience, Dr. Siddiqui has had success with social media channels, like Twitter. She says, Twitter is "popular with government and journalists in India and especially Pakistan. It attracts a wide audience, which includes teachers and ECD educators. Rather than an academic conversation it allows a more open and casual dialogue. A successful social media campaign by Pakistani teachers has influences policy changes in teacher recruitment and transfer policies. Teachers should be encouraged to make groups and communities on social media for wider knowledge sharing, influencing policy, discussion of practice, and use of research evidence.

Equity Analysis

Most studies using IDELA review performance of children as a whole, and also analyze differences in performance based on various background characteristics. There are many different characteristics for IDELA score comparison, a frequent one being equity analysis by gender. All IDELA datasets include information about children's gender and many studies seek equitable outcomes for girls and boys. A study comparing developmental and learning outcomes between boys and girls at a given time can compare the average IDELA scores of the two groups. Analysis by gender and other characteristics is particularly important if any follow-up action, like funding, scalability, or public support might depend or be informed by these differences.

Apart from gender, IDELA scores can differ by other characteristics, such as place of residence, native language, ethnic background, parents' education, socio-economic status of the family, or learning environment at home. This is where the choice of tools and adaptations made during design is critical; with the right tools collecting the right kinds of data, a rich variety of comparison is possible. The IDELA Data Explorer provides many examples of how the child assessment tool can be linked with a caregiver questionnaire to generate insights into which groups of children are thriving or struggling the most in a given context.

FOR EXAMPLE >> this page for a study from the SNNPR region of Ethiopia clearly demonstrates the connections between children's home environments and their development.

COMMUNICATING EVIDENCE TO STAKEHOLDERS

Communicating findings from quantitative data analysis is notoriously difficult for several reasons. First, researchers often tend to focus on technicalities of the analysis and therefore findings might be difficult to understand for less technical audiences. Second, and conversely, oversimplification of results can hide important nuances and might mislead audiences. Finally, researchers may be tempted to focus only on findings that confirm their preliminary hypotheses, and likewise advocates can be tempted to focus on the findings that support their advocacy agenda.

The following key principles are useful to avoid these biases:

Report Comprehensively

Researchers and advocates might be often tempted to choose and report only those findings which are most favorable and which might advance the advocacy agenda, benefit a particular organization, school population etc. Researchers and advocates should endeavor to present the full picture and to look for the reasons why expected outcomes were not achieved.

Find the connections that matter

Studies using IDELA generate a lot of data and information. It is both interesting from research perspective, and useful from advocacy perspective to be able to describe trends

12 Wolf et al., 2019

For example, a randomized control trial of a pre-service training program for Ghanaian kindergarten teachers found positive effects on teachers' knowledge and implementation of national curriculum. However, the training program had no effect on child outcomes, as measured by IDELA. Children in the classrooms taught by teachers from the intervention group did not improve scores in any IDELA domains more than the comparison group. The study report and article outline potential explanations for such findings, like the need for in-service training in professional development programs.[12]

and connections. These can be used to tell a compelling, data-driven story to a desired audience.

For example, The national ECCD study in Bhutan yielded a wealth of data. Among many interesting findings were two related to childrens' locations. First, the study found that rural ECCD centers were severely under resourced compared to urban centers. Yet, the study also found that children with access to ECCD centers in rural settings showed just as much developmental gains as children in urban settings. These two findings might lead to the conclusion that it is very important to provide access to the children in rural areas, even if it is not possible to provide optimal resources at the initial stage.
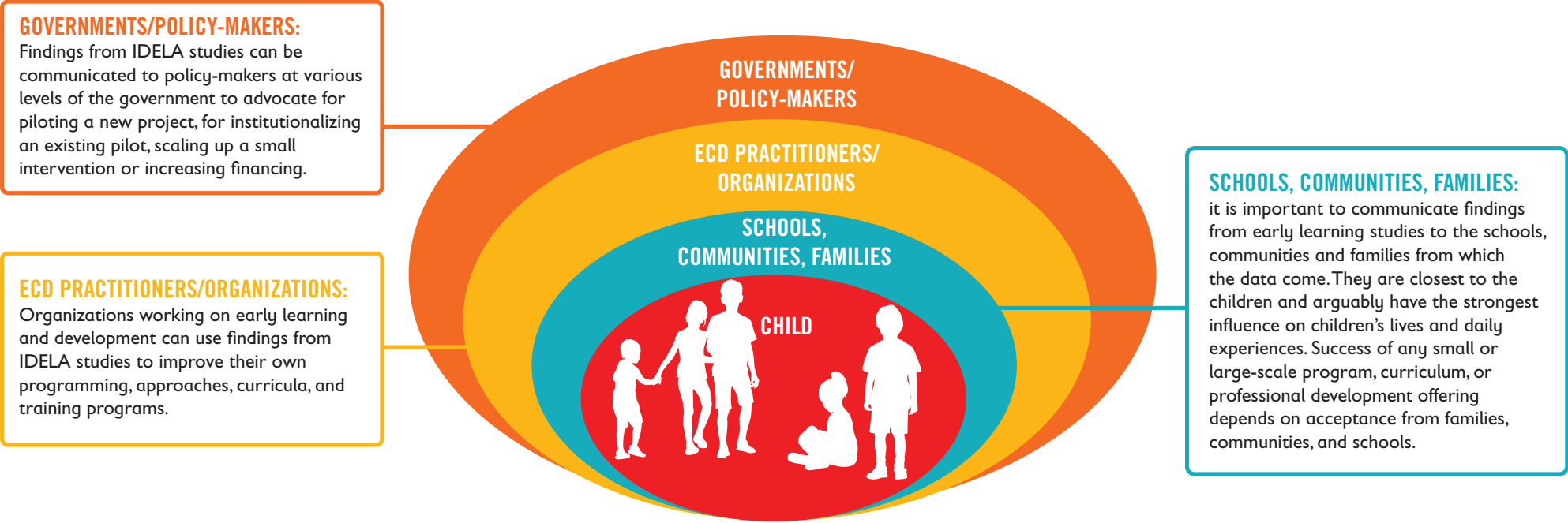
Be transparent about significance

When it comes to data analysis, significance is not a straightforward concept. It can refer to statistical or substantive significance. Often there is temptation to interpret statistically significant results as also substantively important and large. However, statistical significance simply refers to the extent to which we are likely to find the results similar to what we are seeing in the given sample in the population from which the sample was drawn.

Interpreting the importance of a statistically significant result requires knowledge of the children and context in question, and is an important collaboration point between researchers and practitioners.

Communicating to Different Audiences

In the spirit of Ecological Systems Theory[12], there are multiple potential audiences for sharing IDELA data, including government, ECD practitioners, schools, communities and families with children at the center. These audiences cover the key actors who impact children's learning and developmental.

Figure 5. Communicating to different audiences.

GOVERNMENTS/POLICY-MAKERS:
Findings from IDELA studies can be communicated to policy-makers at various levels of the government to advocate for piloting a new project, for institutionalizing an existing pilot, scaling up a small intervention or increasing financing.

ECD PRACTITIONERS/ORGANIZATIONS:
Organizations working on early learning and development can use findings from IDELA studies to improve their own programming, approaches, curricula, and training programs.

SCHOOLS, COMMUNITIES, FAMILIES:
it is important to communicate findings from early learning studies to the schools, communities and families from which the data come. They are closest to the children and arguably have the strongest influence on children's lives and daily experiences. Success of any small or large-scale program, curriculum, or professional development offering depends on acceptance from families, communities, and schools.

Communicating evidence to relevant audiences is the key stage for advocacy efforts. It ties back to the original reasons the data was collected in the first place and ensures analysis is put into action. It is the task of advocates to make sure that findings are presented in the right format, at the right time, to the right audiences, with the right framing.

It is useful to keep the following key principles in mind:

Engage relevant stakeholders in the development of a communications strategy

A communication strategy for research findings includes identifying audiences, and selecting appropriate time, place, and formats for

12 Bronfenbrenner, 1979

communication. Key stakeholders most familiar with the given context can advise on the best people to target, as well as strategies and framing for communicating evidence. In certain cases, particularly when studies are of national scope, it helps to have an advisory panel.

Select the audience for presenting the findings

In most cases there is no single audience to whom study findings are communicated. Typically, audiences include government officials, schools, communities, target families, teachers, academics, and press. Researchers as well as advocates often neglect schools, communities, and families when strategies are

developed for communicating research findings. Yet, having a local support and buy in can help to form a strong foundation for advocacy.

Governments at various levels are very often the audience for research findings and advocacy messages. In particular, in case of IDELA studies at the national level, the audience is usually representatives from ministries of education, health, social protection, or families, depending on the structure and status of preschool education in the given country. At regional and local levels, audiences are representatives from regional or district departments of education, health etc. Selecting the right people within the line ministries and departments is also important.

Use Appropriate Language for Communication of Findings

There is often uncertainy among IDELA users about the language used for communicating findings.

IDELA results can be communicated as:

1.

A comparison between two groups. In this case we ask whether average scores of two groups differ from each other. For example, in a cross-sectional study, we can talk about difference in scores between girls and boys, comparison and intervention group, children living in rural areas and children living in urban areas.

2.

Progress over time. In this case we use data to make statements about how certain groups of children improved their scores over time.

3.

Combination. Offer statements about how particular groups gained more compared to other groups.

Relation Between Research Objectives and Advocacy Goals

Research Objective
What is the impact of offering an additional year of preschool on the cognitive development of young children in a rural setting?

Policy Brief
After one year, when children were entering government preprimary school at age 5, those in the program group were developmentally more advanced than children in the comparison group, even though many children in the comparison group also attended preschool.

Girls reaped the largest benefits from the program, gaining more than boys in literacy, numeracy, and social emotional development, though boys also benefitted.

Technical Report
We looked at cognitive development in terms of children's emergent literacy, numeracy, executive function, and approaches to learning. At midline, we found positive EYPP impacts on children's cognitive development in literacy, numeracy, and approaches to learning but not in executive function. The positive effects were moderate in magnitude, equivalent to bridging the gap between children whose mothers did versus did not complete a primary education, and we found significantly greater benefits for girls than for boys in all three areas that showed positive effects (literacy, numeracy, and executive function). We also found significant, sustained positive intervention effects on children's overall school readiness (across all IDELA tasks), with a significantly greater intervention effects for girls than for boys.

Research Objective
Were the results sustained?

Policy Brief
The positive effects on learning and development persisted into year two, right before the children entered primary school – a remarkable finding given that nearly all children in both study groups had just completed the one-year government pre-primary class.

Technical Report
At endline, the intervention effects persisted for both emergent literacy and emergent numeracy, but the effects on approaches to learning faded to insignificance, with still no significant program effect on executive function. For both literacy and numeracy, the effect sizes were relatively stable between midline and endline, meaning that the gaps between the treatment and control groups persisted (but did not widen or narrow). Therefore, the persisting effects of the EYPP are in the areas of academic learning (here, literacy and numeracy) and not on other areas such as motor development or approaches to learning. This result is not surprising, as the main goal of the intervention is to prepare children for schooling. At both timepoints and in both areas of development, girls obtained a significantly larger benefit from the intervention than did boys (although boys still benefitted, as well).

6-year-old Salim rests his learning materials on top of his head after an ECCD class in his community in Maradi, Niger.

Credit: Save the Children

Select the appropriate format for presenting findings

Medium, format and content should be tailored to the needs, capacity and time of the audience. Typically, findings from studies using IDELA (similar to most applied social research studies) can be presented in the form of:

- **Reports** usually contain comprehensive information about the objectives of the study and research questions, background and context about the intervention, study methodology, findings, and recommendations. Findings presented in the research reports are typically quite extensive covering every major topic, relationship, and trend explored by the study. For example, THIS REPORT >> from a study by Food for the Hungry in Bangladesh.

- **Briefs** cannot be as comprehensive as reports due to space limitations. Typically, a brief is one or two pages long and contains the most salient information for its audience. Even though the space is limited, briefs should still contain information on background and methods. In briefs it is particularly important to be selective about presenting the findings making sure that only the most relevant and interesting findings are presented. In addition, the findings would ideally tell an interesting story through the text and graphs. A brief will also contain conclusions and recommendations, which are succinct and practical. For example, THIS BRIEF>> from New York University about a preschool teacher training program in Ghana.

- **Presentations** offer a balance between verbal narrative and visual storytelling. They vary in style and length depending on the audience. For example, THIS PRESENTATION >> from ChildFund in Indonesia.

- **Academic papers.** Highly technical reports on a research study which are typically peer-reviewed prior to publication and include an introduction, theory, literature review, methods, results, and discussion sections. For example, THIS PUBLICATION >> about an IDELA study in Nepal.

- **Data visualization dashboards.** Visualization dashboards are a compelling way to present the findings of quantitative analysis. IDELA has its own data visualization platform, the DATA EXPLORER >> which allows users to explore key findings from studies using IDELA across the world.

Tables vs. figures

'A picture is worth a thousand words' applies to graphs in research reports as much as to actual pictures. Even when the data and information contained in tables and graphs are exactly the same, graphs are often much easier for an audience to understand by the audience, especially when the audience does not have technical or analysis knowledge. Compare Figure 5 from IDELA Data Explorer depicting average IDELA and domain scores of the children from Armenia with the same data presented as a Table 4 below.
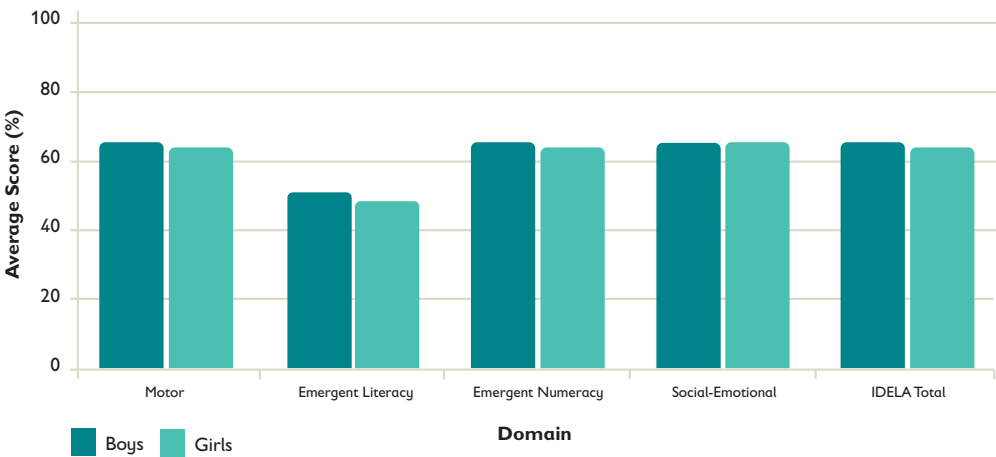
Figure 6. Average IDELA scores by domain and sex.

Table 3. Average IDELA scores by domain and sex.

Category	Boys	Girls
Motor	65.15	64.15
Emergent Literacy	50.94	48.02
Emergent Numeracy	64.85	60.38
Social-Emotional	65.43	65.28
IDELA Total	**61.59**	**59.46**

For most audiences, the graph offers the more compelling way to present the information. Almost immediately, a viewer understands that girls's scores are lower than boys' scores in every domain. CREATING EFFECTIVE GRAPHS >> to communicate findings is not an easy task and requires taking into account the nature of data, variables used, audience. On the other hand, TABLES >> can contain more detail and nuance about the findings and can be better used with the audience with more technical knowledge of the subject and analysis methods.

Communicate findings on a sustained basis

Often researchers or advocates produce a report, or organize an event to disseminate the findings and recommendations without subsequent follow-up. Some of the successful advocacy cases using IDELA studies have, in fact, relied on sustained communication of evidence to the right audience at various stages of the study implementation.

Credit: Save the Children

Save the Children Early Childhood Care and Development coordinator Joaquim Carlos Mabote leads a training for animadores, early childhood animators.

CASE STUDY: RWANDA, ADVOCATING FOR CHANGE

Until few years ago, effective strategies for providing opportunities for early learning to children under 6 were absent in Rwanda. Save the Children coordinated research and policy efforts to 1. Establish evidence base for pre-primary education in the country and 2. To support the national government implement crucial changes.

The first piece of analytical evidence came in fact from a political economy analysis conducted in the country in 2013. It indicated that there was no effective early childhood education curriculum in Rwanda. Furthermore, while there was an early childhood education policy in place it was not comprehensive and did not include an emphasis on cognitive development for children under three years of age. There was limited understanding about the importance of early learning and literacy for children 0-9 years among stakeholders including parents, policymakers and technocrats.

An additional gap that surfaced was related to research and implementation literacy and early learning programs in Rwanda especially for children under 6 years. There was limited data on what works in ECD, how it works and how much it would cost for the government to adopt such interventions. These and other results from the PEA influenced a robust research and advocacy agenda to target different gaps in the system, including stakeholder behavior, policy and implementation gaps.

Following this, Save the Children produced evidence on the effectiveness of certain ECD interventions using IDELA to measure child outcomes. A quasi-experimental study in Rwanda study in 2015 compared four different groups to each other: children who did not have access to ECD services at all, children who has access to Save the Children's flagship ELM at center and ELM at home programs and children who had access to other ECD services. Not only did the study show that access as such had positive impact on child development, but that quality of services was of importance.

In particular, results demonstrated that

a) Children were struggling in literacy and maths skills pre-intervention and made significant gains post-intervention using Save the Children's Emergent Literacy and Maths Curriculum. This suggested that there was a need for a structured pre-primary curriculum that emphasized foundational skills for preschool children.

b) Children in the parenting only group had almost caught up, in terms of school readiness with those children in the formal schools. This suggested that investment in parenting education – where parents are trained on simple activities that can support reading and maths at home – are almost as effective as a structured preschool program. This was particularly relevant for those children who are not yet able to access the formal system.

The evidence from this program has influenced the government of Rwanda's pre-primary curriculum. It is estimated that up to 80% of the changes have been influenced by Save the Children's Emergent Literacy and Maths (ELM)/ Ready to Learn approach. The ECD policy was also revised in 2016 to comprehensively cover the 0-3 age ranged and to place emphasis on cognitive development. Save the Children in collaboration with other partners also successfully advocated for increased ECE funding including funding for teacher salaries and resources for pre-primary classrooms such as storybooks for promoting emergent literacy.

Evidence-Informed decision-making has also become intrinsic to the internal culture of Save the Children. Reflections and evaluations have led to program and practice improvements, adjustments to the teacher-training approach and adaptations to the parenting education approach.

In a nutshell, a critical component of enhancing the use of evidence for decision-making was the involvement of partners. Each time new evidence emerged partners were invited to a dissemination event. This permitted collective reflection and was one of the most powerful approaches for ensuring a feeling of joint ownership of the evidence was created and policy action and advocacy points included partner voices.

These relationships have also influenced Save the Children's research priorities and have contributed to demand-led research that responds to government priorities. The approach has led to the publication of academic papers that demonstrate how to encourage system change using evidence and with a collaborative effort with partners.

Develop Actionable Recommendations

Developing actionable recommendations might seem an easy and straightforward task. However, it requires a lot of effort and insight from stakeholders, particularly when a piece of research is produced with the intent to influence policy or decision-making. Most research pieces are accompanied by a set of recommendations at the end. However, we define 'actionable recommendations' as specific, supported by evidence, and action-oriented.

The first step towards making actionable recommendations is taking a step back from the specific findings to see a bigger picture, to situate findings in the larger context of the specific study, as well as within the realm of similar research pieces. For example, in the case of Rwanda, Save the Children used results from a political economy analysis conducted prior to their impact evaluation to identify key areas where the results from their evaluation could inform the broader ECD policy landscape in the country.

In addition, to the extent possible recommendations should address the source or root cause of an outcome. For example, the national ECCD study in Bhutan found very strong ties between children who had access to ECCD services and children who scored higher on IDELA. At the same time, learning gains were not uniform across all children. Through detailed analysis, researchers found that more learning was happening in higher quality classrooms. Further, researchers asked the question: what drives the high quality of classrooms, which can then contribute to better learning? Data showed that facilitator-child and child-child interactions had a stronger relationship with quality than other aspects of the classroom environment. Hence the recommendation of the study was NOT to simply open more ECCD centers so more children could attend, but rather to invest in pre- and in-service teacher training focused on fostering positive interactions in the classroom.

As seen in these examples from Rwanda and Bhutan, the most impactful IDELA studies are those that use IDELA alongside other measurement tools so that information about children's learning and development can be appropriately understood in the context of their learning environments. Depending on the focus of your work, the larger context can range from the policy environment to the home, but being able to answer questions about how and why children arrived at their current developmental status is critical to making informed recommendations about how to improve in the future.

Parent Volunteer and mum of Monyrath, Din Sitha, 38, leads a First Read workshop for parents of preschool children in Kampong Chan District, Cambodia.

CONCLUSION

We are incredibly proud of the impact that IDELA partners around the world have had on local and global learning environments for young children, and we hope this guide further supports those efforts. However, with more than half of the world's children unable to access formal early childhood education programs and the mounting demands on caregivers of young children, there is more to be done to bolster children's early learning and development in the years leading up to primary school.

Understanding how and why children arrived at a certain level of school readiness is critical to developing, maintaining or expanding services that work. To that end, there are a few key steps in the data-driven decision-making process that will maximize the utility of your work. Meaningfully engaging with local stakeholders before designing a study so that your work reflects the needs of the children and families you hope to support is an important first step in developing information that is as relevant as possible to the needs in a community. Then, identifying measurement tools to use alongside IDELA in order to illuminate connections between learning environments and child development will help to answer pressing questions about enablers and inhibitors of early learning and development. Finally, situating your study in the larger context of early childhood development or pre-primary education efforts in your area will go a long way in ensuring the results are leveraged by relevant stakeholders.

The preschool years (ages 3 – 6) are a time when children's brains are developing the foundations for language, problem solving and social skills, which they will carry with them for the rest of their lives. There is a movement toward providing better services to children and families in this age group at local, national, and global levels but more data and information are needed to drive forward solutions that are best suited to each community. IDELA studies that focus on children's learning and development as the primary outcome have the opportunity to offer child centered, data-driven recommendations to this important work.

6-year-old Salim and his father, who is also Salim's kindergarten teacher, after an ECCD class in his community in Maradi, Niger.

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ANNEX 1

Table 4. IDELA core task and domain structure.

Motor Development	Emergent Literacy	Emergent Numeracy	Social-emotional Development
Hopping	Print awareness	Comparison by size and shape	Peer relationships
Copying a shape	Expressive vocabulary	Sorting and classification	Emotional awareness & regulation
Drawing a person	Letter identification	Number identification	Empathy
Folding paper	Emergent writing	Shape identification	Self-awareness
	First letter sounds	One-to-one correspondence	Solving conflict
	Oral comprehension	Addition & subtraction	
		Puzzle completion	

Table 5. Steps for Basic IDELA Analysis.

Steps	Details	Example
Clean data for all assessment questions	Check for outlying values, and recode missing values as needed	• Remove or recode scores that fall outside the range of possible values • If a specific code is used for questions that were skipped or refused (e.g., 999), recode these values to either missing or 0
Generate task-level scores	Add all scores for questions within a given task together and divide by the total possible points	Add the scores from all questions in the shape identification task together (shapeid1 – shapeid5), and divide by five
Generate domain-level scores	Add task-level scores within a domain together, and divide by total number of tasks	Add scores for all tasks in the numeracy domain together and divide by seven
Generate total IDELA scores	Add all core domain scores together and divide by 4.	Add scores for all domains (i.e., motor, literacy, numeracy and social-emotional) and divide by four *Note, executive function and learning approaches are not core domains so they are not typically included in the total IDELA score.*

Julio, 11, reads with his 18-month-old sister, Ariana, in Colombia.

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