Learner Variability in Early Elementary Math Products: Request for Grant Proposal

Overview

Formally launched in 2016, Digital Promise Global's (DPG) Learner Variability Project (LVP) initiative aims to lead the way in translating the latest research on learner variability to support the development of edtech products deeply rooted in learning sciences and designed to serve each learner. This RFP is for early elementary math products targeted to prekindergarten through second grade.

Vision for Supporting the Variability of All Learners

The growth in learner variability in today's classrooms is staggering: learners who come to school hungry, those who must map out safe paths to walk to school, students who are bored because traditional methods of instruction do not engage them or meet their needs, and readers who decode written material too slowly to keep up in a class of written words.

Our education system has been slow to support the millions of students who are bright, capable, and eager to learn but are held back by traditional pathways designed for the mythical "average" learner and insufficient strategies to address learner variability. The table below reveals the tremendous market opportunity that exists to support these learners.

Learner Diversity in the U.S.

Subgroup	Past	Present
Low SES	14.4% of people under 18 in poverty (1973)	17.5% of people under 18 in poverty (2017)
Diagnosed Disabilities	8.3% of people age 3-21 (1976-1977)	13.7% of people age 3-21 (2017-2018)
Learning Differences	<No comparable data available>	20.0%+ (est.) of K-12 students (2014)
ELL	4.0% of people age 5-18 (1980)	9.6% of K-12 students (2016)
Gifted / Talented	4.06% pre-K - 12 students (1987-1988)	6.7% of K-12 Students (2013-2014)
Trauma	<No comparable data available>	46.3% of children had at least 1 adverse childhood experience (2016)

Past Data Table Source: *The Growing Diversity in Today's Classroom*

Even using conservative estimates of overlap, the above categories encompass 35 to 40 percent of the student population. That is 20 million learners. Diverse learners are not a sidebar--they are part of our core student body.

To more effectively support and empower a diverse student population, our education system must become adept at understanding how individual learners learn best and develop opportunities for each student to reach their full potential. Without changes, the social and economic disparities and achievement gaps of historically marginalized learners in the traditional education system will persist and grow.

The idea of personalizing learning has captured headlines, but one critical aspect is rarely discussed: the explicit acknowledgement of the importance of learning sciences research in determining how to best understand and reach each learner and how to incorporate these research findings into the products being designed for today's classroom.

Developers of technology-based products can make much better use of existing and emerging research to truly support each learner. DPG works with top researchers across the field of learning sciences to provide open-source learner models on the LV Navigator that seek to present in clear, practical ways the research that underpins who each individual is as a learner and how to support how they learn best.

The purpose of this RFP is to incentivize early math edtech products to develop research-based supports for the variability of all learners so that more users, especially those who typically struggle, will achieve greater success and learning within the product.

DPG seeks to award funds to organizations (including not-for-profit and for-profit) who share the goal of accelerating inclusion of research-based features and supports for learner variability. DPG is looking for creative early math product developers to be thought partners in developing "innovative approaches that allow students to engage with content differently, [by asking] what does technology make possible that could not be done before?" (*Ed Tech Developer's Guide*, 2015, p. 8). By collaborating with early math products to develop research-based supports for learner variability, DPG can help grow the market of research-based products that educators, students, and families can select from to best support individual learning needs.

DPG will work together with each grantee's design team (to be called "Collaborator") to assess their product using the LVP Math PK-2 Learner Model. DPG will then provide recommendations to improve supports for learner variability for the learners addressed by the product's mission.

Following this assessment, the Collaborator may receive funds up to $50,000 to support the development and/or redesign of features as determined in the final assessment report. There will be a required match up to 2:1 that will be determined on a case-by-case basis. DPG's staff members will provide research expertise and feature design support to the Collaborator's team during this design process. DPG and the Collaborator will also partner to measure the effectiveness of LVP-based features that are redesigned and/or built into the Collaborator's platform. Finally, as a result of this partnership, DPG and the Collaborator will share information, learn from one another, and work together to identify and develop opportunities for national attention resulting from the dissemination of communications, case studies, and other deliverables associated with this collaboration.

We invite proposals from edtech organizations who want to further their use of research in developing early math product features to support more learner variability.

Market Context

A market scan quickly identifies the mismatch between the strong desire to personalize learning in classrooms and schools across the nation and the lack of research-based edtech tools. Ninety-five percent of teachers in a 2013 Harris Interactive survey agree that edtech enables individualized learning, and sixty-two percent of teachers in a 2019 Digital Promise survey believe it helps them find new learning strategies. Yet, research by the Joan Ganz Cooney Center has found that most products do not have strong research support.

This is not just a call-out of product developers, however. The reality, according to Digital Promise's study, *Using Research in Ed-Tech*, is that, while "edtech tools are a promising way to apply this knowledge in real-world education practice, ... it can be difficult for developers — many of whom are not research experts — to navigate the academic literature and apply relevant research in product design."

It is for this reason that DPG aims to lead the way in translating the latest research on learner variability to inform, develop, and bring to market new models for supporting learning for each learner. With this fund, DPG hopes to support edtech organizations who share this goal of accelerating the inclusion of research-based supports for learner variability in early math product development.

Use Case

This scenario is representative of our overall vision. It is presented here as a potential example to help guide respondents only and should not be perceived as prescriptive or limiting in any way.

ReadWorks leverages learning sciences research in support of its mission to help solve America's reading comprehension crisis and student achievement gap. ReadWorks provides free resources to K-12 teachers, including a library of curated nonfiction and literary articles, reading comprehension and vocabulary curricular supports, assessments, and teacher resources.

When ReadWorks sought a partnership with DPG in 2017, their resources were being used in over 61,000 public K-8 schools in the United States. ReadWorks sought to partner with DPG as ReadWorks was developing its first digital platform for students. ReadWorks' goal for seeking a grant was to infuse the latest research on learner variability into improving their platform design to better support the full diversity of learners.

As the first step of the partnership process, DPG explored ReadWorks' mission statement, vision, and goals for its digital reading platform. Using the Reading PK-3 Learner Model, DPG identified the learner factors in ReadWorks' mission, such as Vocabulary and Background Knowledge, which served as the starting point for the assessment process.

DPG then extensively reviewed ReadWorks' product to create a draft assessment report of how ReadWorks could design its platform to further support learner variability by integrating supports for surrounding factors that the LVP Learner Model shows are critical for developing their primary factors of Background Knowledge and Vocabulary. This report included recommendations of factors and strategies from the LVP Reading PK-3 Model to potentially develop as features in the digital platform. The report was then finalized with both DPG and ReadWorks teams working together to create a development plan and timeline that aligned with their shared goal of increasing support for learner variability as well as ReadWorks' product roadmap.

With this established plan, ReadWorks, using the grant and their matching funds, began to develop these features. In conjunction with the development process, ReadWorks also worked with DPG to design studies to assess the impact of the newly implemented features on learner outcomes. Finally, throughout this partnership, ReadWorks and DPG cross-promoted each other's efforts towards the mutual goal of advancing the understanding of the critical importance of research-based products and features that address learner variability. You may read more about this partnership in our case study.

Rules and Guidelines

Funding Criteria

For this RFP, we are targeting not-for-profit or for-profit organizations who wish to work collaboratively to use research to increase supports for learner variability in their edtech products. Specifically, we are targeting organizations/individuals with edtech products that support math in prekindergarten through second grade.

We will consider proposals from organizations who have:

- Evidence of financial stability (e.g., sustained level of growth in funding or revenue, commitment from a major funder);
- A significant market reach taking into account the size of the district[s] you are working in (e.g., 60% of all elementary students in a rural district, 30,000 students in an urban district). These examples are not to be considered minimum thresholds. They are examples of how a significant market reach can be defined differently;
- A staff member who can devote 30% time to the partnership, which will be a minimum 6-month engagement with the final timeline established on a case-by-case basis; and
- Staff capacity to, on mutually agreed timelines, participate in research-based design sessions and incorporate the recommendations of this partnership into product development timelines.

Preference will be given to organizations who meet at least some of the following criteria:

- Evidence of incorporating academic research into product development;
- At least 1 study of product's impact completed internally and/or with an outside research partner;
- At least 1 early elementary math researcher serving in an advisory capacity;
- Examples of public sharing of research results; and
- Support within the product for data interoperability.

We will not consider incomplete proposals.

Intellectual Property

Grant awards will be subject to the following intellectual property terms:

- The awardee will retain ownership of its edtech product and the materials it provides to DPG.
- DPG will retain ownership of its pre-existing materials and the materials it produces in the course of its research. DPG will grant the awardee a non-exclusive, worldwide, royalty-free license to use the materials to implement recommendations made by DPG in the awardee's edtech products.
- DPG will not be prohibited from developing similar materials for or making similar recommendations to any other awardees or third parties.
- DPG may freely use and share data, information, and results derived from the research and collaboration that is the subject of the Proposal, so long as the awardee is not identified (i.e., the data, information, and results are aggregated or anonymized).
- DPG will share data and information derived from the research where the awardee is identified only with the awardee's consent.

Evaluation Criteria

Complete proposals received by the deadline will be evaluated on the following rubric:

	Range			
Category	**No Response Provided**	**Does Not Meet Expectations**	**Meets Expectations**	**Exceeds Expectations**
Qualification & Organization History ● Meets Funding Criteria ● Response to #1				
Understanding of the LVP Framework ● Responses to #2, 3, & 4				
Technical Aspects of Proposal ● Fully addresses the vision raised herein				
Significance and Potential for Scale ● Responses to #1, 5, & 6				

Timeline and Support

This is an open RFP for 2019. Applications will be accepted on a rolling basis, and we will try to provide a decision within 4-6 weeks of receiving a completed application. We hope to grant 2 or 3 awards for the Math PK-2 Learner Model, and we will close this RFP when we have reached the limit of our grant funds, even if this is before the end of 2019. We will also be opening new RFPs for our other learner models.

If you have questions about the application process, please email lvppartners@digitalpromise.org. You will receive a response within 3 days.

Applicants may also request a 30-minute video conference call to talk through a series of questions. Please email lvppartners@digitalpromise.org to request this conference call.

How to Apply

Response Requirements

To apply, please submit a proposal using the Proposal Narrative Template that includes the following:

1. Overview and Product Mission (approximately 1.5 pages)
Tell us about your organization, including:

- Your mission
- If and how you have used scientific research on how people learn to inform product design
- If and how you have tried to address learner variability in your product
- How long you have been in operation and how long your product has been on the market
- Significant milestones in your history
- Financial stability markers
- Metrics on product reach and impact, including if and how you have completed research on product impact and if and how you have disseminated results

- The team member who would be the lead contact for and devote 30% time to this partnership
- Other team members who would be involved including, for each, their role in the organization/your work

2. Learner Factors Identified within Mission (1-2 explanatory paragraphs/bullet)
DPG presents in each of its Learner Models (see the LV Navigator) the critical variables that affect how we learn best--that is, the ways learners vary. We call these our learner factors or just factors.

Using the LVP Math PK-2 Learner Model on the Navigator, identify 1-2 factors from our list of factors that are a focus of your mission. These factors might be directly stated in your mission, or your mission might focus on these factors without stating them directly. For each factor, provide 1-2 paragraphs explaining why this factor is important to the learning goals of your product and why this factor is important for supporting the variability of all learners. Your answers to these questions may overlap as you consider your mission.

3. Learner Factors Expanded from Factors in Your Mission (1-2 explanatory paragraphs/bullet)
Using the factor connections that show on the factor chart on the LVP Math PK-2 Learner Model, identify 1-2 factors that connect with a critical factor from your response in the prior section. For each connecting factor, provide 1-2 paragraphs discussing why this factor is important to consider to support and/or expand your mission and why this factor is important for supporting the variability of all learners. Your explanations of each connecting factor may overlap as you consider the expansion of your mission to more fully support each learner.

4. Strategies for Supporting the Variability of All Learners (1 explanatory paragraph/bullet)
Identify 2-3 strategies using the suggested strategies on LVP Math PK-2 Learner Model that can support 1 or more of the factors identified in the prior sections. These can be strategies your product already employs or strategies you would like to consider using in your product. You may choose to examine multiple strategies for the same factor (i.e., you do not need to reference 2-3 factors). For each strategy, please provide:

- The strategy name
- The factor the strategy supports
- The way your product uses this strategy or a way you could conceive using this strategy

5. Goals for Partnership (1-2 paragraphs)
Based on the initial review you have done of your product in the prior sections, what are 2-3 high-level goals you hope to achieve through this collaboration?

6. Funding Request and Matching Funds (1 page or less)
The funding section of the Proposal Narrative Template asks for:

- The amount of funding requested
- The amount of match you anticipate applying and how you plan to make this match (e.g., in-kind labor, existing funding)
- A high-level breakdown of how these combined funds will be used (e.g., personnel, project design and management, UX and visual design, teacher/student guidance/resources, marketing, etc.)

Your responses should be based on the initial review you have done of your product in the prior sections as well as the initial high-level goals you hope to achieve through this collaboration. You do not need to identify specific design goals or development plans, as those will be jointly developed with the DPG team should you earn this funding.

Submission Instructions

- Make a copy of the Proposal Narrative Template, naming it “ProductName.SubmissionDate” (e.g., LVPWebApp.11.15.18).
- Complete all steps of the application within the template.

- Email your completed application (saved as a PDF or Word document) to lvppartners@digitalpromise.org. You will receive a confirmation email once your application is received. If you do not receive the email (check your spam folder) within 5 business days of submission, please email lvp@digitalpromise.org.

Selection and Award Process

Application Review and Scoring

All applications will be reviewed using the evaluation rubric.

Final Application Review and Collaborator Selection

We reserve the right to ask organizations selected for investment to answer an additional set of questions that enable us to perform a more detailed due diligence review. DPG is not obligated to make any awards. Selection is tentative and contingent upon negotiation of a successful agreement.

All program requirements shall be set forth in writing in an Award Letter and/or a Memorandum of Understanding or other agreement entered into by the Collaborator and DPG (collectively, the "Award Documents"). All funding will be contingent on execution of these Award Documents. The policies and procedures have been developed specifically for this RFP and are not negotiable. You are advised to ensure your organization/you can accept all policies and procedures at the time of proposal submission. The Policy Handbook can be found here.

About Digital Promise Global

Digital Promise Global shares a mission with Digital Promise: to accelerate innovation in education to improve opportunities to learn.

American education has pockets of excellence that outshine the best of the best around the world. All across the country, students are designing, coding, composing, animating, and publishing. They are experimenting and solving problems of water and energy, creating community guides and gardens, and connecting across cultural and national borders through virtual exchanges. All across the country, innovative education leaders and classroom teachers are engaging, motivating, and nurturing students to develop mindsets for lifelong learning.

And yet, huge gaps exist between learning outcomes, graduation rates, and college readiness of students based on race, class, and where they live. Gaps exist between high-performing and underperforming schools based on differences in access to funding and resources, community commitment, and the willingness of school leaders to innovate. Gaps exist between the abilities of adults to be productive in a rapidly changing global economy and good citizens in a democracy based on the quality of their experiences in school.

Our vision is that all people at every stage of their lives have access to learning experiences that help them acquire the knowledge and skills they need to thrive and continuously learn in an ever-changing world.

To achieve this vision, we must work together to close the Digital Learning Gap. Because when all learners have equitable access to learning technology, when everyone participates, and when everyone learns, we all benefit from a more engaged, informed, and just society.

To learn more, please visit DPG's website.