

# EF+MATH

## Developing Education Products with Equity at the Center

### Learnings from the EF+Math Program

---

#### Introduction

This document is intended to support education product development teams to radically rethink design assumptions and biases in current ways of working, in the service of racial equity and anti-racism. This resource may be especially salient for organizations that have publicly spoken out about their commitments to Black and Latinx students and educators.

The EF+Math Program has been encouraged by the significant and widespread advocacy for social change focused on race. We believe it is aligned with the program's primary objective—**to rework research and development (R&D) as inclusive and anti-racist**—an urgent imperative for education product developers across the research, non-profit and for-profit spectrum working to increase racial equity.

#### EF+Math Program Context

The [EF+Math Program](#) was created to fund and support teams to develop innovative, research-based, and effective learning approaches. The focus is to significantly improve math outcomes for Black and Latinx students in grades 3-8 in historically under-resourced schools, by embedding executive function (EF) training into high-quality math learning. Our theory of action is **inclusive R&D**: the design and development of educational products and programs that center Black and Latinx educators and students from the beginning and throughout the R&D process.

The program's governance consists of a unique combination of innovative people, processes, and practices designed to address implicit and explicit biases in funding and development that impact what, and who, gets funded. These biases limit what gets built, and whether products are specifically designed to lift up the excellence of Black and Latinx students. One important component of fair and just funding and investment practices is to make each step of the process broadly transparent and educative; this document is one component of EF+Math's

commitment to transparency and to sharing our learnings with the broader education ecosystem.

EF+Math values diversity, equity, and inclusion in every aspect of its work. We formalized these values in our [Call for Proposals](#) to R&D teams, calling out the criterion: ***“Strong teams will represent the racial, ethnic, and gender balance of the students the program serves.”*** We also made explicit our *inclusive R&D* theory of action, which requires Black and Latinx educators to be included, and indeed centered, in the R&D process. Yet, despite clear guidelines and transparent rubrics about the focus on equity and a research primer on the topic, [Executive Functions, Mathematics, and Equity: A Primer](#), only 27% of proposing team leads were people of color, 19% of proposals included only one person of color, and 6% did not include a person of color at all. Given the sincere commitment that so many proposing teams indicated to the mission of EF+Math, we inferred from these numbers and other aspects of the proposals that existing product organizations would benefit from ideas and suggestions for approaching R&D differently in the name of equity. Below we outline some principles based on our ***inclusive R&D*** model.

## Key Principles

The design challenge below is intended to guide discussion and action, and leads to key principles in doing our work differently.

***“How might we redesign education research and development to intentionally meet the needs of Black, Latinx, and high-poverty students? What processes and/or tools might support this advanced R&D approach to solve education’s grand challenges?”***

- [Designing a Process for Inclusive Innovation](#) (Digital Promise, 2020)

Inclusive R&D is an intentional, equity-first method that supports teams of cross-sector collaborators (for example, an AI engineer, an equity-focused researcher, a middle school math teacher, and a neuroscientist) to engage in rapid, iterative prototyping that addresses long-standing challenges in a particular area of learning. ***Our goal is to leapfrog more top-down R&D efforts, to discover and develop new approaches that support significant gains in outcomes for Black and Latinx students, and to model what could be possible if we can take an assets-based approach from the beginning of the R&D process.*** Other notable principles of the program ensure:

- In-classroom educators are not only at the table **at ideation or product concept** but also have an **elevated voice** in the co-design process and throughout continuous improvement cycles of an **inclusive R&D model**;
- Products begin with **designing for equity** (rather than consider equity an add-on after design and/or development has been complete);
- Products are grounded in the **science of learning**, and are tested and continuously improved in racially, socioeconomically, and geographically diverse classrooms to produce learning opportunities that are useful and usable to teachers and students; and,
- Opportunities for **multi-disciplinary teams** that include racially diverse leaders to co-create ideas for bold new concepts and approaches, not necessarily based on existing market dynamics.

## Four Questions to Challenge Your Product Development Teams to Design for Black and Latinx Students

While all product development processes are unique to an organization, division, business, team, or even to a single product, there are common phases. Any or all of these phases can -- and should -- be designed for equity. By designing for equity in an intentional way, namely drawing on the practices of [Targeted Universalism](#), product development teams are more likely to pursue strategies that are optimized for specific groups in order to improve outcomes for *all* students. Likewise, by incorporating principles from [Design Justice](#), teams are more likely to solve for the right problem and incorporate the knowledge, experiences, and assets of the communities with whom they are designing. Inclusive R&D can also be interrogated through the lens of "[decolonization](#)": In order to successfully empower students and teachers, product development teams must intentionally work to transcend differences not only in perspectives and experiences, but also economic and political power. Taking these ideas into account, the questions below are organized within the Inclusive Innovation framework as described in the paper [Designing a Process for Inclusive Innovation](#) by Digital Promise, a partner of EF+Math. Please see **Further Reading** below for other frameworks to draw from, including [EquityXDesign](#), [Liberatory Design](#), and [Asset Based Community Development Design](#).

## 1. Who is making this product? Who are co-designers?



*This question draws from the  
Inclusive Innovation stage of:*

### CONNECT & COMMIT

**The goal of this phase is to build relationships, trust, and a shared commitment to tackling an equity-focused challenge.**

From the **Inclusive R&D** perspective, we move from...to...

FROM ...		TO ...
<i>Describes many traditional product development processes</i>		<i>Describes a newer model of <b>Inclusive R&amp;D</b> that prioritizes and centers equity</i>
The team who will conceive the product will have product (often content or domain) expertise, and/or technology/programming expertise.	→	The team who conceive of the product includes students, educators, learning scientists, equity experts, engineers, and content and assessment experts.
Some of the R&D team may have made the original or previous “version” or adjacent product(s).	→	Some of the R&D team will have worked out of their comfort zones/expertise areas on multi-disciplinary projects previously.
The team is primarily made up of white employees. There may also be other imbalances (e.g., engineering teams primarily male).	→	The team includes people of color, particularly Black and Latinx leaders, and women in leadership and engineering roles.
Designs and prototypes are created by internal teams or traditional “vendors”.	→	Designs and prototypes are co-designed with practicing educators, internal teams, researchers, and “vendors”, including Black and Latinx educators, students, and members of the community in each role.

### What can you do today to Connect and Commit?

- Understand where people of color, particularly Black and Latinx leaders, are in your internal product teams and vendors. What are their roles?
- Are you hiring for “cultural fit” or diversity? How can product team members reach outside their familiar circles? Do referral programs (and recruitment pipelines) need to change? Is your organization doing all they can to hire Black and Latinx candidates for all roles/at all levels, particularly in leadership and in the design and development levels?
- Be anti-racist: read, listen, educate yourself on systemic racism, the four major components of oppression: internalized, interpersonal, institutional, and ideological oppression, and the many dimensions of power you and your White colleagues may hold. Don’t leave it to your Black and Latinx colleagues to raise these issues or explain them to you.
- Seek out Black and Latinx entrepreneurs, engineers learning scientists, educators and vendors.

## 2. Why are you making this product?



*This question draws from the Inclusive Innovation stage of:*

### INQUIRE & INVESTIGATE

**Deeply investigate the challenge from multiple perspectives and arrive at target outcomes of measuring progress against the challenge.**

From the **Inclusive R&D** perspective, we move from...to...

FROM...		TO...
A business team or product/service group is developing a product (or feature) because it is adjacent to an existing tool, product, or service, or because it is an incremental innovation to an in-market	➔	A business team or product/service group is developing a product (or feature) because it will solve a learning challenge for Black and Latinx students in under-resourced schools and communities.

solution (most likely designed for White, communities).	
The leader of the team/project is the business leader and is empowered to make business decisions.	→ The leadership of the team/project includes a business leader and multiple community stakeholders who are empowered to make product and business decisions that are anchored on equity.
Research base is primarily market scans, current customers/users interviews, and focus groups.	→ Research includes latest literature review, interviews with non-customers/users and first person stories, including communities of color and studies that disaggregate outcomes for Black and Latinx students.
Target outcomes for students are not explicit or diffuse.	→ Target outcomes are explicit and arrived at through iteration and partnership with co-designers.

### ***What can you do today to Inquire and Investigate?***

- *What do you know about the students and/or educators you are aiming to serve? Have you engaged meaningfully with them and brought them fully into the design and development process?*
- *Have you documented first person narratives of who they are and what they say?*
- *Have you prioritized understanding the knowledge, experiences and other assets the students and educators bring to the learning process, and not focused exclusively on the deficits and constraints?*
- *What recent research exists about what works in the domain or subject you are building for? Specifically, what research exists about the experiences or outcomes for the diversity of Black and Latinx students (including the diversity of experiences, including multi-generational, low-income, urban, rural, migrant, language and dialect variability)?*
- *Continue (or begin) the conversations about systemic racism with your colleagues, and connect the conversations specifically to actions that can be taken in your R&D process.*

### 3. How will you make this product?



*This question draws from the  
Inclusive Innovation stage of:*

## DESIGN & DEVELOP

**Create one or more prototype  
solutions that can be tested for  
target outcomes.**

From the **Inclusive R&D** perspective, we move from...to...

FROM...		TO...
Traditional silos where workstreams, themes, grades or content areas work independently.	→	Multi-disciplinary teams including students and educators that share targeted outcomes and agile, continuous improvement processes for sharing learning during design.
Function follows form and tradition in specification.	→	Form following function based on users and context, not just existing paradigms.
Focus groups and presentations of prototypes to prospects.	→	Early working prototypes with rapid iterations that are used by end users that reflect the diversity of the student and educator populations.
Narrow, generic (or no) use cases.	→	User research and user personas that intentionally unpack biases and help define priorities for very specific use cases and user flows.
Marketing product features-benefits-advantages.	→	Marketing the targeted outcomes to specific and diverse end-users.

### What can you do today to Design and Develop?

- Consider a current project: What could you do right away to put a prototype in the hands of users now, rather than much later? How will you identify users that reflect the students you will be serving/designing with and for?
- Reflect true diversity in marketing or communication campaigns – “in front of, and behind the camera”; i.e., represent the lives and identities of students and educators in imagery, and in the teams creating those communications. Audit these campaigns for cultural fluency, not relying on cultural stereotypes.
- Continue (or begin) the conversations about systemic racism with your product development colleagues, and connect the conversations specifically to actions that can be taken in your R&D process.

## 4. What is the potential for impact? How will you know?



*This question draws from the Inclusive Innovation stage of:*

### IMPLEMENT & ITERATE

**Implement one or more prototypes, tracking multiple progress indicators (beyond cost and schedule) staying focused on target outcomes.**

From the **Inclusive R&D** perspective, we move from...to...

FROM...		TO...
Overly flexible implementation models (“works anywhere for anybody”).	➔	<p>Co-designing implementation models as part of prototype iterations to reach high participation of Black and Latinx students.</p> <p>Targeted outcomes are defined as part of the inclusive process by students, educators and communities.</p>



Assessment and data architecture defined by content sequence.	→	Assessment and data architecture defined by targeted outcome(s) and mitigating assessment biases.
All content and features are released for everyone in a single release.	→	Iterations that double down on content and features designed to maximize target outcomes for Black and Latinx students, using principles of <i>targeted universalism</i> .
Generic benefit-oriented product marketing to all users, or a single constituency.	→	Customized marketing and impact data shared with specific users/segments designed to support specific and timely implementation needs.
Revenue and Net Promoter Scores (NPS) as success measures.	→	Revenue, NPS, target outcomes analyzed by student subgroup, and segmented student NPS.

### ***What can you do today to Implement and Iterate?***

- *Discuss the last two products released by your teams. What were their outcomes for students? For students from under-resourced schools? For Black and Latinx students? If you didn't measure outcomes, what would you have liked to use to measure impact? Do the data privacy guidelines that you use to track or disaggregate outcomes center racial equity considerations?*
- *Continue (or begin) the conversations about systemic racism with your product development colleagues, and connect the conversations specifically to actions that can be taken in your continuous improvement R&D and data privacy processes.*
- *Elevate the work and diversity of Black and Latinx colleagues within your organization and across the industry, with co-designers and/or those implementing prototypes and products that are making a difference for Black and Latinx students from low-income communities.*

## Concluding Thoughts

Put simply, products that work for Black and Latinx students are products that have been designed with equity at the forefront and throughout the process and have *clear target outcomes for Black and Latinx students*. Designing for equity does not mean simply products which have “diverse” authorship or Black and Latinx models or avatars in a brochure, or meet a state’s RFP guidelines for equity or “MWOB”, or have been user-tested with a few “urban educators and students”, or even have a testimonial from a Black or Latinx superintendent.

Fundamentally, products that are designed for equity are not designed “by us for them”. Rather, they are co-designed, together, with Black and Latinx educators and students using a process that celebrates and elevates the assets of diverse communities. These products also must meaningfully and demonstrably iterate to improve so as to impact the target educational and learning outcomes for all children. Together, we hope to encourage a comprehensive shift to a truly equitable education system, where students from all backgrounds are empowered to achieve their most ambitious dreams, unencumbered by the structural barriers of racism and inequality.

Special thanks to our partners at [Digital Promise](#), for applying their Inclusive Innovation model as a framework for our Inclusive R&D practice. Likewise, a special thanks to our partners at [Onward](#), for applying their equity by design practices to our everyday work.



## Further Reading

*Asset Based Community Design: A Toolkit*

<https://resources.depaul.edu/abcd-institute/resources/Pages/tool-kit.aspx>

*Executive Functions, Mathematics, and Equity: A Primer*

[https://static1.squarespace.com/static/5d0922cc7057e60001fb066c/t/5dd2f002db60447f5cf40581/1574105092451/EF%2BMath\\_Primer.pdf](https://static1.squarespace.com/static/5d0922cc7057e60001fb066c/t/5dd2f002db60447f5cf40581/1574105092451/EF%2BMath_Primer.pdf)

*Equity Centered Design Framework*

<https://dschool.stanford.edu/resources/equity-centered-design-framework>

*Designing a Process for Inclusive Innovation*

<https://digitalpromise.org/wp-content/uploads/2019/11/Designing-a-Process-for-Inclusive-Innovation.pdf>

*Decolonizing Edtech: Hunger, Fear, and Liberation*

<http://decolonizingedtech.xyz/>

*Design Justice Network Principles* (EF+Math is a DJN signatory)

<https://designjustice.org/read-the-principles>

*Liberatory Design*

<https://nationalequityproject.org/resources/featured-resources>

*Targeted Universalism: Policy and Practice*

<https://belonging.berkeley.edu/targeteduniversalism>

## Developing Education Products with Equity at the Center: Learnings from the EF+Math Program

**Citation:** EF+Math Program. (2021). *Developing education products with equity at the center: Learnings from the EF+Math Program*.

**Publisher:** AERDF

**Link to Collection:** <https://hdl.handle.net/20.500.14099/4>

**Version:** 1

**Terms of use:** Developing Education Products with Equity at the Center: Learnings from the EF+Math Community © 2021 is licensed under [CC BY-SA](#)

*Together, we advance scientific discovery and inventions that generate new, powerful emergent technologies, programs, tools, methodologies, and solutions – catalyzing PreK-12 learning nationwide.*

To stay updated and for more information about our Inclusive R&D resources and publications, please join our community.

To access the entire public Library@AERDF, please visit [aerdf.org](https://aerdf.org)

JOIN US

