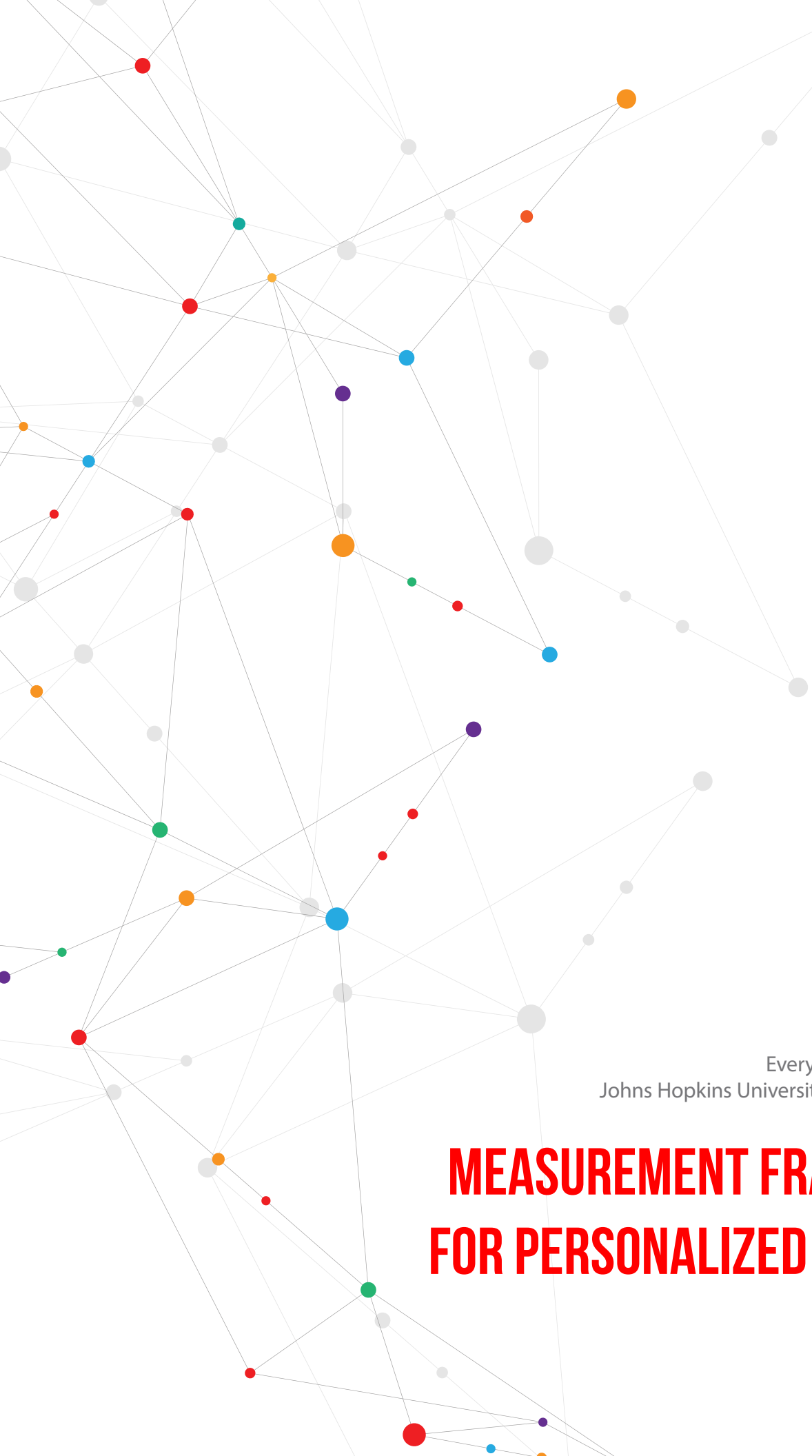

Everyone Graduates Center
Johns Hopkins University School of Education

MEASUREMENT FRAMEWORK FOR PERSONALIZED LEARNING

GUIDEBOOK

The Leon Lowenstein Foundation provided funding to the Center for Social Organization of Schools (CSOS) for the purpose of advancing personalized learning, and thereby greater equity in educational outcomes. The CSOS worked to develop a practical personalized learning measurement framework that educators can widely use that enables them to measure effectively the impact of personalized learning on students' academic, cognitive, and social-emotional growth and outcomes.

We acknowledge and deeply appreciate the contribution of the many educators from Loveland, CO, Westminster, CO, Baltimore, MD, and Annapolis, MD who contributed to the development of the framework.

Special Thanks: Robert Balfanz, PhD; Emily Clark, PhD; Jeri Crispe; Gregg Howell; Amanda Martorana; Maria Waltemeyer.

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MEASUREMENT FRAMEWORK FOR PERSONALIZED LEARNING GUIDEBOOK

The Measurement Framework for Personalized Learning was intentionally co-created with educators from the field using the Liberatory Design Process from the National Equity Project. The design and structure of the Measurement Framework for Personalized Learning is driven by Liberatory Design ensuring that equity is at the heart of measuring Personalized Learning.

This guidebook is a resource for educators looking for a Measurement Framework for Personalized Learning that is both evidence-based and rooted in the learning sciences. In addition, this guidebook is practical and applicable to most types of school settings serving students from diverse socioeconomic backgrounds.

As you and your team, teachers, and systems begin to interact with the framework, it is important to include the context and wisdom of your local school system users. Our framework is designed to create belonging for all students through a culture of dignity with a focus on individualized supports to further the overall health and success of the students served.

To gain wisdom from the classroom, the Everyone Graduates Center at Johns Hopkins University School of Education hosted six Virtual Design Thinking Sessions using the Liberatory Design Process. Educators from Loveland, CO, Westminster, CO, Baltimore, MD, and Annapolis, MD deeply engaged in and contributed to the research of the Measurement Framework for Personalized Learning. Participants had prior experience with Personalized Learning and/or were interested in learning more about Personalized Learning.

Our sessions were not about researchers, trainers, and professional developers holding the almighty expert knowledge, but rather we were focused on the contributions, reflections, and learnings that were shared by our Design Thinking session participants. We used the Liberatory Design thinking approach to center our equity lens on noticing what we as humans bring with us to the design process. We asked the participants to identify who they were and who were our end users (the students we serve). Our educational designers began by placing themselves, right at the center of noticing that what one brings to any other person and to any context allows for authentic human centered design. Only then were we able to co-create and to empathize with humility, curiosity, and courage.

The practice of equity-centered design, known as Liberatory Design, invited participants (designers) to be more self-aware, more inclusive, and inspired to co-create. It incorporates approaches that allow the educators involved to notice and to reflect on the identities, experiences, and biases we all bring to every context and relationship we are designing with while embracing our human complexities. It created the space to build, to learn, and to prototype.

During each session educators engaged in Empathy Interviews to better understand "the wisdom in the room" by seeking to understand each other's thoughts, emotions, and motivations. After reviewing the empathy interview protocol our designers interviewed each other. The designers took notes and shared them with everyone as we collectively built an empathy map using the Miro platform to illustrate our findings and reflections.

The information below supports engagement and implementation of the Measurement Framework for Personalized Learning using this guidebook.

WHY A GUIDEBOOK?

The guidebook provides an opportunity to engage with the prototype for implementing personalized measurement routines. The guidebook further offers developmentally appropriate tools to help build the skills and capacity of educators to access and enact actionable data, tools, and constructs to better support students socially, emotionally, and academically.

WHAT IS THE GUIDEBOOK?

The guidebook is the result of engaging educators in the process of design thinking while aiming for greater equity, by co-creating a practical measurement framework for personalized learning that educators can widely use to effectively measure the impact of personalized learning on students' academic, cognitive, and social-emotional growth and outcomes, while validating the overall effectiveness of a personalized approach.

HOW DO YOU USE THE GUIDEBOOK?

The guidebook starts with **Part 1: The Measurement Tools** which identifies the measurement tools a team could use to better understand how to enact the Measurement Framework for Personalized Learning. **Part 2: The Measurement Framework Prototype** leads the team through practical guidance to support summative and comparative measurement, in addition to existing state, local, school district and school testing.

FOR WHOM IS THE GUIDEBOOK WRITTEN?

The guidebook is written for all educators seeking to better serve students through personalized and authentic engagements that are centered around equitable practices and codesigned learning environments.

This guidebook was made possible by a grant from the Leon Lowenstein Foundation.

PART I :
THE MEASUREMENT TOOLS

We centered the Measurement Framework in the learning sciences by conducting extensive research across the educational, cognitive, and behavioral literatures of both existing and emerging research and development of the key components of learning, examination of the measurement practices of early adopters of personalized learning and dialogues with diverse groups of educators where these existing measurement tools could be found or adapted. This search focused on current findings of best ways to measure students' baselines, growth, and outcomes for academic, cognitive, and social-emotional learning.

We identified four key areas as central to evaluating the impact of personalized learning and designed our Measurement Framework to include these four measurement tools as key quantifiable components of learning where personalized learning may be impactful: **Acquiring and Retaining Knowledge and Academic Skills, Learning How to Learn, Motivation to Learn and the Social Emotional Components of Learning.**

The elements of each tool include: the evidence-based research as to why this resource, practical application methods and reflections from classroom-based educators. measurement tools that have been validated through research and can be practically applied in any classroom setting. With this measurement approach, educators have a means to effectively measure the impact of personalized learning.

ACQUIRING AND RETAINING KNOWLEDGE AND ACADEMIC SKILLS

MEASUREMENT TOOLS DEFINED

How much does one learn during instruction and how much of the learning does one retain for easy access over time?

Evidence-Based Research:

- 100 years of Research and Design of effective assessments
- Recent computer adaptive testing for deeper learning
- Minimal guidance on knowledge and skill retention

Practical Application:

- Formative and Summative Assessments
- Computer Adaptive Assessments
- End of unit tests with items embedded from prior units

Educator Reflections:

- Create real world relevant problems to solve
- Ensure multiple entry points
- Provide flexible learning modules
- Include arts as a vehicle for presentation
- Incorporate curiosity driven, authentic activities
- Add interdisciplinary units or PBL
- Interweave repetition – applying old skills in new ways
- Bring in consistent opportunities to demonstrate new skills
- Develop checkpoints (quiz at the end of the week or every other week) and warm-ups that apply the skills previously learned
- Design ongoing assignments that are revisited after each unit
- Generate – Formative: short 1 – 3 question check-ins, exit tickets, reflection posts, and summative: teacher-made tests/quizzes, district assessments

LEARNING HOW TO LEARN

MEASUREMENT TOOLS DEFINED

How much progress is being made in becoming an independent (self-regulated) learner? Are critical management functions of learning – executive function and meta-cognitive abilities being developed and utilized?

Evidence-Based Research:

- Executive Function and Metacognition measurement tools designed for individuals not classes
- Recent efforts to develop class assessments is making progress and available to use

Practical Application:

- Surveys and Group Measures
- Executive Function Measures
- Metacognition for Middle School (MS)/ High School (HS)

Educator Reflections:

- Include student self-reflection, self-monitoring, and choice
- Let students determine measures of success
- Provide all students with Individual Education Plans
- Incorporate Learning Reflections Posts: short response; multiple choice of learning preference; small group verbal reflections; digital polls online
- Offer more modalities to learn the materials, so students can choose how best they learn
- Take away the barriers that hinder for example: use speech to text
- Model how to take notes
- Make connections to prior knowledge, finding how it can be relevant or related to students' lives or experiences. Students love to talk about their lives and what they know

MOTIVATION TO LEARN

MEASUREMENT TOOLS DEFINED

Are students more motivated to learn? Engaged in the learning process? Do they see value and utility in putting in the effort required to learn? Do they feel welcomed in the learning environment and supported in their learning?

Evidence-Based Research:

- Well-developed field
- Key is to select most useful tool from a wide selection of surveys

Practical Application:

- Longer surveys establish baseline data
- Shorter surveys: monthly
- Emoji surveys: weekly

Educator Reflections:

- Ensure student self-advocacy through self-awareness of needs
- Build growth mindsets
- Instill value through stories of self
- Have students use ethnicity as catalyst for research, project creation, exploration
- Identify connections for engaging in interdisciplinary work
- Make sure students set their purpose
- Discuss the WHY
- Access student interests and incorporate into lessons – learning should be a joyful experience
- Instill motivation: student choice; interest polls; working with partners
- Utilize different resources to meet the same end goal.
- Allow choices
- Identifying the product (end goal). Is it something students can find pride in?
- Show how potential careers are aligned with students' interests

This guidebook was made possible by a grant from the Leon Lowenstein Foundation.

SOCIAL-EMOTIONAL COMPONENTS OF LEARNING

MEASUREMENT TOOLS DEFINED

Are students developing the critical social-emotional mind-sets and actions which have been linked to better and stronger learning i.e., growth mindset, goal setting and self-management? Are they developing the emotional well-being needed to sustain learning over the long term?

Evidence-Based Research:

- Rapidly developing, emerging field
- Evidence of what aspects provide short term learning gains
- Debate on merit and challenges with self-reporting tools

Practical Application:

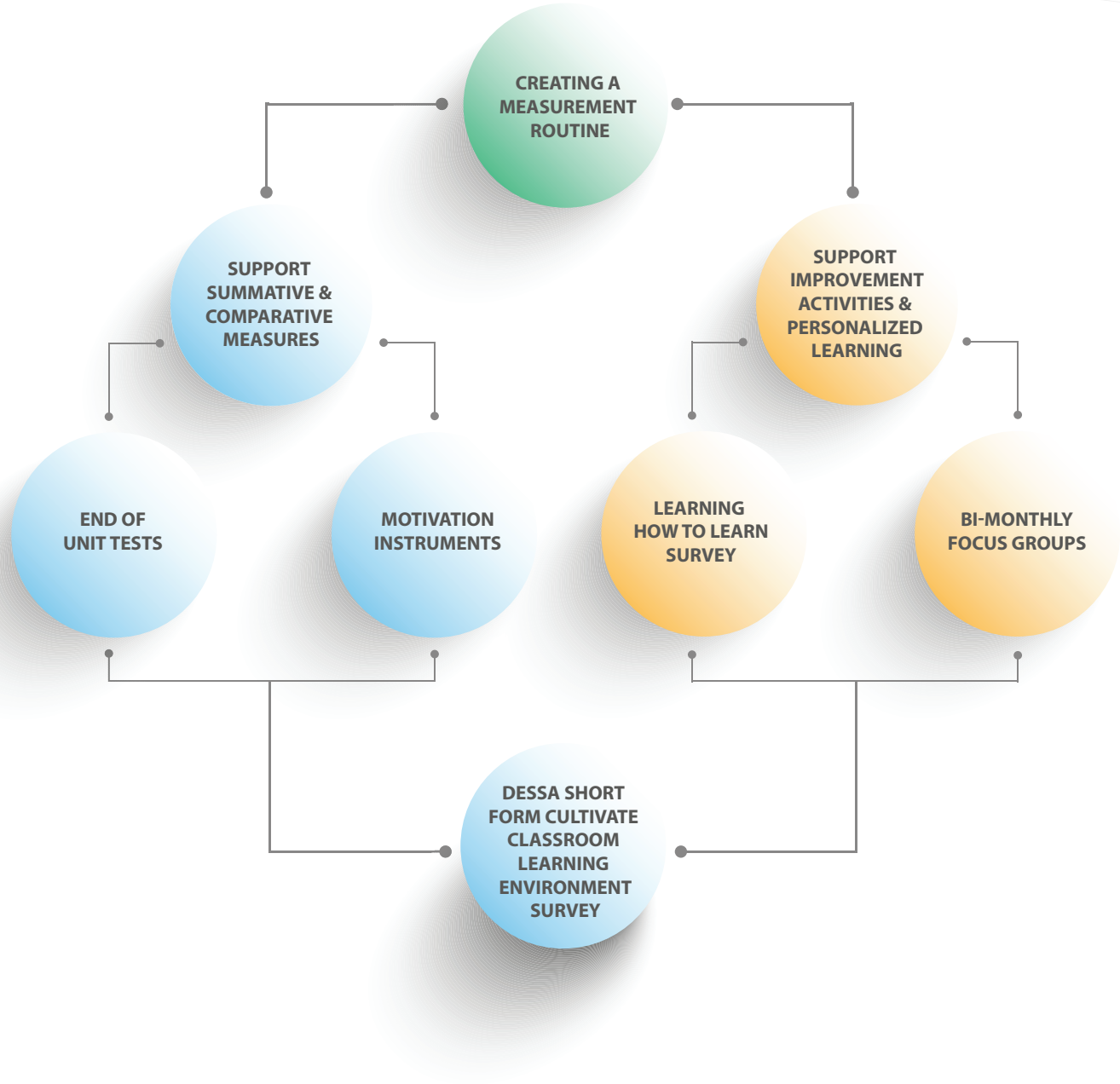
- Examples of existing surveys – Devereux Elementary Student Strength Assessment (DESSA) Short form
- Cultivate Classroom Learning Environment survey

Educator Reflections:

- Instill trust
- Recognize students' personal, social emotional lives
- Include "temperature checks" of how students are feeling about the learning process. What is working? What is confusing? What is overwhelming? What can we adjust or change?
- Provide teachers with trauma informed training
- Children want to be heard. Genuinely affirm what they are feeling/thinking
- Acknowledge students' personal interests outside of the classroom including successes, and challenges
- Allow time for students to share their thoughts and feelings
- Praise all attempts
- Incorporate daily affirmations and validation of feelings, accomplishments, and growth
- Have students share his/her/their personal narratives/storytelling
- Set aside time to have students talk to their peers
- Use student check-ins – ex: battery and weather – my battery is 95% and my weather is stormy as my family is having some health issues

PART II :
THE MEASUREMENT FRAMEWORK PROTOTYPE

The Measurement Framework Prototype as outlined below incorporates elements of more traditional assessments and those designed to inform conversations and open collaborations that honor the "just in time" needs of students during their individual learning journey. Creating the opportunity for real time adjustments based on actionable information.



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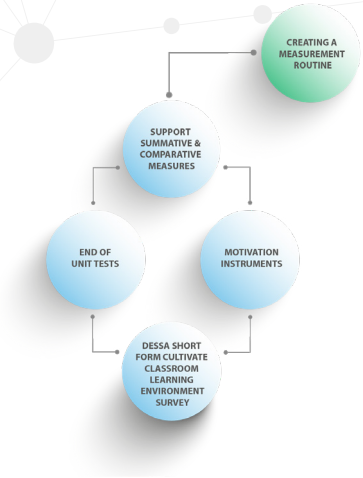
HOW TO ACTUALIZE AND IMPLEMENT THE FRAMEWORK PROTOTYPE

PRACTICAL GUIDANCE

The table below provides a deeper dive into the actual measurement resources and evidence-based practices to support **SUMMATIVE AND COMPARATIVE MEASURES** through the incorporation of links resourced by the researchers and classroom educators.



CREATING A MEASUREMENT ROUTINE

- Assessments reflect interdisciplinary studies
- Student owned learning progressions – where students are choosing the pieces of evidence that demonstrate their acquisition of skills throughout a course
- Use similar assessments multiple times – sometimes changing the ask only measures the ability to follow directions – make sure the focus is on the learning not the format
- Measurement Routines: need to be timely; decide on when and how to administer; based on universal understanding – provide "canned" questions/surveys that are authentic – teachers can then modify based on needs of students; should not be time-consuming to administer

SUPPORT SUMMATIVE AND COMPARATIVE MEASURES

Examples/Thoughts/Scenarios

- Engage students in smaller groups to compare/analyze work. What do you admire in another student's work? Could you add that to your own? Do you have feedback to offer? This is, of course, only possible in a classroom with a foundation of respect and validation.
- Praise – Question – Polish
- Create 60 second podcasts
- Performance-based assessments and/or project-based assessments
- Use of infographics as study sheets
- Summative assessment should cause instruction that needs specific formative assessment to continue to assess retention of skills.
- Preview rubrics and expectations.
- Allow more verbal responses/audio feedback
- Peer review
- Create trivia game to practice recall
- Talk about learning styles – have students give input on the ways they learn best
- Rubrics and specific feedback to help motivate students to do better/best

END OF UNIT TESTS

Use formative and summative assessments from your school

What We Learned: Educator Reflections

- ⌘ If a student is missing evidence to demonstrate one standard… they don't fail a course. They have an opportunity to demonstrate the evidence they need to show competency/acquisition
- ⌘ Student need access to previous responses and assessment answers and feedback so they can synthesize their accumulated learning
- ⌘ Provide a balance of performance-based and traditional end of unit tests – allow students to apply their knowledge and understanding in new and novel ways
- ⌘ Curriculum should be built from the assessment, not start with curriculum, and then create unit tests
- ⌘ End of unit test sounds final – learning is never finished – end of unit checkpoint allows for growth mindset

Tools & Resources

- ⌘ Create abridged version(s) using one fifth or less of the original assessment
- ⌘ Computer adaptive
- ⌘ Deeper learning assessments

MOTIVATION INSTRUMENTS

What We Learned: Educator Reflections

- ⌘ Opportunity for multiple attempts
- ⌘ Opportunity to share their work or illustrate how it connects to their world
- ⌘ Students lead discussions
- ⌘ Students love competition and visuals – provide instruments that have images to respond to perhaps with some "video-game" like levels of attainment
- ⌘ Publish work on website, display in school, create a book.

Tools & Resources

Select one of the existing surveys and administer twice a year, start and end of school year along with the abbreviated survey of three to four questions to be given monthly. In addition, a weekly emoji-based survey optimized for students' mobile devices.

- ⌘ Learning Process Questionnaire
- ⌘ Motivation for Reading Questionnaire
- ⌘ School Motivation Questionnaire
- ⌘ Expectancy Value Cost Scale
- ⌘ Intrinsic Motivation Inventory
- ⌘ Engagement Versus Disaffection with Learning: Student/ Teacher Reports
- ⌘ Patterns of Adaptive Learning Scales
- ⌘ Learning Process Questionnaire
- ⌘ Motivated Strategies for Learning Questionnaire
- ⌘ CA SEL Learning and Health Survey
- ⌘ CORE District SEL Survey
- ⌘ Academic Self-Regulation Questionnaire

SHORT FORM SURVEYS
CULTIVATE CLASSROOM LEARNING ENVIRONMENT SURVEY

What We Learned: Educator Reflections

- ⌘ Solicit students' ideas in creating a classroom environment survey – what they view as important

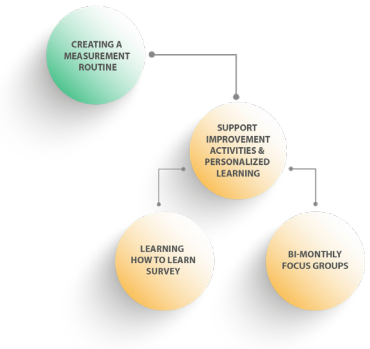
Tools & Resources:

- ⌘ Create abridged version(s) using one fifth or less of the original assessment
- ⌘ Computer adaptive
- ⌘ Deeper learning assessments
- ⌘ DESSA – DESSA is one example of an exemplar strengths-based measure designed to assess students' social and emotional competencies. DESSA is grounded in resilience theory. The DESSA captures multiple perspectives of students' strengths, with different surveys completed by teachers, after-school staff and parents. We recommend using the shorter assessment (DESSA-mini) that is available to measure and monitor students' social and emotional development throughout the school year. You are welcome to use additional surveys like DESSA or whatever your district may be currently using.

HOW TO ACTUALIZE AND IMPLEMENT THE FRAMEWORK PROTOTYPE

PRACTICAL GUIDANCE

The table below provides a deeper dive into the actual measurement resources and evidence-based practices to support **IMPROVEMENT ACTIVITIES AND PERSONALIZED LEARNING** through the incorporation of links resourced by the researchers and classroom educators.



CREATING A MEASUREMENT ROUTINE

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- Use similar assessments multiple times - sometimes changing the ask only measures the ability to follow directions - make sure the focus is on the learning not the format
- Measurement Routines: need to be timely; decide on when and how to administer; based on universal understanding - provide "canned" questions/surveys that are authentic - teachers can then modify based on needs of students; should not be time-consuming to administer

SUPPORT IMPROVEMENT ACTIVITIES AND PERSONALIZED LEARNING

Examples/Thoughts/Scenarios

- Mixed-media journals that are created by the students for self-assessment and tied into core content units
- How are we giving students opportunities to see themselves in the skills / content they are engaging and demonstrating?
- Create a digital version – student blogs
- How might we offer courses that are an introduction/bootcamp/ overview that will ensure students have the skills and knowledge to access higher levels of courses? Example: a social studies course that gives students an entry point to all four Social Studies (SS) standards that will ensure they have the skills necessary to not just engage in all their other courses, but ensure they have the SS skills necessary to be a productive member of society if we can guarantee nothing else
- Student-Teacher Dialogue Journal focusing on areas of strengths how to approve
- Grouping students who are experts in one area with students who need reinforcement and vice versa. Give every student the opportunity to be the expert in some areas

LEARNING HOW TO SURVEY

Focus for elementary level is executive function and for secondary level the focus is metacognition.

What We Learned: Educator Reflections

- Reflection Journals focusing the choices a student makes to complete an assignment/project i.e., visual, written, speech, etc.

Tools & Resources

- Choice to select either one of the new classroom level group measures or abbreviated surveys of three to four questions to be given monthly (motivation survey)
- Global self-report includes:
  - Junior Metacognitive Awareness Inventory
  - Self-regulation strategy inventory
  - Metacognitive Awareness of Reading Strategies Inventories (MARSI)
- State Metacognitive Inventory
- Event measures: Behavioral Traces
- Log files from computer activity
- Software Ratio of Planning Computer experiment simulation Coding work
- Think-Aloud protocol-prompting students to describe everything they are doing
- Microanalytic Assessment
- Experience sampling method
- Executive Function Measurement
- Goal directed activity
- Distinction in correlates of executive function based on emotional context
- Combined with performance assessments: NIH developed Cognition Battery as part of toolbox for the assessment of neurological and behavioral function

BI-MONTHLY FOCUS GROUPS

What We Learned: Educator Reflections

- Use a variety of methods and processes to capture, build and refine structures around personalized learning based on the incorporation and learning from student voice

Tools & Resources for capturing student voice

- Charettes
- Conversation Cafes
- Circles
- Student Surveys
- Student councils
- Student journals, blogs, and social media
- Student led conferences
- Democratic classroom practices
- Youth led action research
- Student advisory committees

This guidebook was made possible by a grant from the Leon Lowenstein Foundation.

THOUGHTS TO CONSIDER FOR USING THE FRAMEWORK

BELONGING THROUGH A CULTURE OF DIGNITY

As we developed the Framework centered around equitable actions and outcomes for our educator end users, we are providing the following guidance and considerations for interacting with this Measurement Framework:

- ⌘ Respect individuality
- ⌘ Ensure all students are equitably supported by the framework to meet their potential
- ⌘ Incorporate student voice and interests
- ⌘ Commit to using the framework in a way that overcomes the influence of status or positional power
- ⌘ Focus on growth over achievement
- ⌘ Eliminate stigma of learning differences
- ⌘ Research Practice and Industry Partnerships RPP Framework – apprenticeships and internships
- ⌘ Differentiate access
- ⌘ Honor diversity
- ⌘ Contextualize and deepen relevance of content
- ⌘ Focus on students' assets
- ⌘ Prepare for post-secondary
- ⌘ Create entry points that acknowledge bias and focus on identities
- ⌘ Develop capacities for students to contribute to their communities, cultures, and their future selves

PROFESSIONAL LEARNING
HOW TO USE THE GUIDEBOOK FOR PRACTICAL APPLICATION

This section provides a process to walk educators through the new framework as they develop a plan for bringing the framework to life in classrooms at all levels.

PROFESSIONAL ENGAGEMENT ACTIVITY A: MEASURES AND TOOLS

PROFESSIONAL LEARNING: Identify skill and capacity opportunities connected to the Measurement Framework for Personalized Learning

TIMING: The engagement activity will take approximately 25 minutes to complete. If you do not have time to complete both activities, you could choose to do them on different days or different sessions or simply move to the second activity, Activity B.

PREPARATIONS:

Roles: Facilitator, Timekeeper, Note Taker, Team members (Educators interested in engaging with the framework)

- **The Facilitator**: Guides the team through the engagement activity while maintaining a positive, safe space for the discussion. Ensuring equal speaking opportunities by upholding the team norms. Communicates conclusions and next steps.
- **The Timekeeper**: Ensures all time limits are respected, including time for discussing specific topics and for ending on schedule.
- **The Notetaker**: Captures the discussion, decisions and action items that have been agreed upon and reflects this back to the group to ensure all the important meeting outcomes and actions have been noted.
- **The Team**: Participate fully in the discussion and dialogue. The team is respectful of each other's input and experiences. Follow the team norms.

Materials: A copy of the matrix for each participant.

- Give each team member a copy of the Measures and Tools Matrix below.
- Have each team member individually identify the measurement tools and/or resource he/she/they are currently using in the Measurement Framework by simply placing an R, Y or G in each corresponding square of the matrix or highlighting the square with each color to create a heat map.

Red (R) – We are not here yet.
Yellow (Y) – We are on our way
Green (G) – We are fully engaged

- Now as a team, have each member give input into a group matrix based on his/her/their individual reflections.
- Reach consensus as a team on each theme and identity identifying them as R, Y, or G
- Have team members share specific evidence or practices that supports their responses.

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Start the discussion by reviewing the Measurement Framework and any Implementation efforts that your team may already be engaged with during current classroom practice. (Have the team discuss and record this information on the Evidence Matrix in the Evidence row.)

Timing 25 minutes – For each set of questions

- What measurements will we choose or are we using?
  - Did we ask ourselves if we are already engaging in any part of the framework?
  - Will the framework build on existing work?
  - What is the lift required to implement the Measurement Framework?
  - What is the applicability of the Measurement Framework in our current context and the future?
  - Is the Measurement Framework sustainable not just temporary?
  - Does the Measurement Framework help us go deeper in our work?
  - Does the Measurement Framework align to our strategic priorities and align to the vision of our school?
  - How can we plan for long term implementation and impact with the Measurement Framework?
  - How will we audit the Measurement Framework against the students in our school who are at the center of all learning?
  - How much work will the Measurement Framework be for our educators?
  - Can we choose a part of the Measurement Framework to implement that does not feel overwhelming?

MEASURES AND TOOLS MATRIX
BREAK THE PROTOTYPE APART

MEASURES AND TOOLS	SUMMATIVE AND COMPARATIVE	IMPROVEMENT ACTIVITIES AND PERSONALIZED LEARNING
ACQUIRING AND RETAINING KNOWLEDGE AND ACADEMIC SKILLS	Formative and Summative Assessments	
	Computer Adaptive	
	End of Unit Tests, with items embedded from prior units	
Evidence – How do you know? Describing qualitative or quantitative information		
LEARNING HOW TO LEARN		Surveys and Group Measures
		Executive Function
		Metacognition – Middle School (MS)/ High School (HS)
Evidence – How do you know? Describing qualitative or quantitative information		
MOTIVATION TO LEARN	Longer Surveys – baseline	
	Short Surveys – monthly	
	Emoji Surveys – weekly	
Evidence – How do you know? Describing qualitative or quantitative information		
SOCIAL-EMOTIONAL COMPONENTS OF LEARNING	Existing Instruments DESSA Short Form	
	Cultivate Classroom Learning Environment Survey	
Evidence – How do you know? Describing qualitative or quantitative information		

This guidebook was made possible by a grant from the Leon Lowenstein Foundation.

IDENTIFY TEACHER ACTIONS

PROFESSIONAL LEARNING: Review the spaces on the above matrix where there is no evidence of Summative and Comparative Measures or Improvement Activities and Personalized Learning, then use the following to narrow your focus on aligned actions your team should focus on. If you are using a variety of measurement tools for Summative and Comparative Measure and Improvement Activities and Personalized Learning, then determine if there are new tools and resources your teachers or school would like to engage in.

TIMING: The protocol will take approximately 60 – 90 minutes to complete.

Follow the same preparations as described in Part A

PROCESS:

Have your team engage in a self-directed learning cycle with a measurement tool table.

- ⌘ We will self-select an element from the Measurement Framework to explore
- ⌘ Set goals for what we want to learn
- ⌘ Plan for how we will reach our goals
- ⌘ Learn new skills and ideas
- ⌘ Show or demonstrate our learning, then reflect

Step 1: Select a Measurement Tool

- ⌘ Have each team member go to the Measurement Framework Tools tables (below).
- ⌘ Click on a resource link
- ⌘ Start exploring

Why did our team choose this tool?

Step 2: Set a Goal

Write an aspirational goal.

What is an Aspiration?

- ⌘ Articulates your big idea about deeper learning
- ⌘ Acts like a north star, guiding your actions
- ⌘ Paints a picture in people's minds
- ⌘ Used to inspire and rally others

Aspiration Goal Criteria

- ⌘ It is adult and student focused
- ⌘ It's about the "why" and "how"
- ⌘ It's not too broad
- ⌘ It's positive
- ⌘ It's in your sphere of influence

Example of an Aspirational Goal

- ⌘ We will learn and implement 2 new measurement tools that offer students a chance to share about their motivation to learn and about what they have learned.

Aspirational Goal:

Step 3: Plan

What resource/s will we choose to engage in learning?

What evidence do you have to support beginning with these resources?

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Step 4: Learn

Engage in the Measurement Framework Tools Table

- While learning we will give ourselves permission to:
  - Create
  - Journal
  - Google
  - Engage in another resource not in the theme table
  - Etc.

Set our own speed limit

- Speed through
- Take a Sunday stroll

Use the space below to take notes or capture inspirations while exploring the resources

Step 5: Share/Show

What will we share with our colleagues that we learned during our self-directed exploration of the Measurement Framework Tools that we can implement immediately in our classrooms, teams, or school?

Step 6: Reflection

As a team reflect on what you learned and how it has helped prepare your team for the implementation of the Measurement Framework.

Reflection Questions to guide the conversation and thinking

What is one thing that you wish you would have known before you started this journey today?

What would you change about the element you engaged with?

What other ah-ha's, wonderings, think abouts surfaced for you or the team?

MEASUREMENT FRAMEWORK TOOLS TABLES

To acquaint yourself with some of the icons included in the Tools Tables Guide use the icon guide below:

ICONS	WHAT THEY MEAN
	Implementation – What is the lift to enact the resource?
	Timing – How long will it take to review the resource? Most of the resources will take 10 minutes to review with a maximum engagement time of 20 minutes.
	Materials – Tool and Resource links to explore
	Summative Comparative Measurement Tools – How will we engage to prepare for tool/resource implementation?
	Improvement Activities and Personalized Learning Measurement Tools – How will we engage to prepare for tool/resource implementation?

HOW TO READ THE MEASUREMENT TOOLS TABLES

For what part of the Measurement Framework does this resource apply?

What is the lift for our team?

Description of and link to resources

 **MEASUREMENT TOOLS:**

		
20 min	Mid Lift	Sampe description about resources.  Learning Process Questionnaire

How long it will take to review the resource?

Links to the connected tools and resources

MEASUREMENT FRAMEWORK TOOLS: MOTIVATION INSTRUMENTS

		
15 min.	Low lift	Student approaches to learning and studying An Assessment of learning motives and strategies across three approaches: • Surface: minimal meeting of requirements • Deep: intrinsic interest in what is being learned • Achieving: to enhance ego and self-esteem to obtain the highest grades Learning Process Questionnaire
15 min.	Low lift	Relation of children's motivation for reading to the amount and breadth of their reading Motivation for Reading Questionnaire
15 min.	Low lift	Evaluation of the Big Two-Factor Theory of academic motivation orientations: An evaluation of jingle-jangle fallacies School Motivation Questionnaire
5 min	Low lift	A practical measure of student motivation Expectancy Value Cost Scale
10 min.	Low lift	Intended to measure subjective experience related to target activity in laboratory experiments but has been modified slightly to fit specific activities Intrinsic Motivation Inventory
15 min.	Low lift	A motivational perspective on engagement and disaffection: Conceptualization and assessment of children's behavioral and emotional participation in academic activities in the classroom Engagement Versus Disaffection with Learning
15 min.	Low lift	Personal Achievement Goal Orientations, Perception of Teacher's Goals, Perceptions of Classroom Goal Structures, Academic-Related Perceptions, Beliefs, and Strategies, and Perceptions of Parents, Home Life, and Neighborhood Patterns of Adaptive Learning Scales
15 min.	Low lift	Motivational and self-regulated learning components of classroom academic performance Motivated Strategies for Learning Questionnaire
10 min.	Low lift	The questionnaire assesses domain-specific individual differences in the types of motivation or regulation. That is, the questions concern the regulation of a particular behavior (e.g., exercising regularly) or class of behaviors Academic Self-Regulation Questionnaire
20 min.	Mid lift	Students in grades five to twelve will be asked to self-report on a series of behaviors (e.g., coming to class prepared, following directions) and beliefs (e.g., whether it is more important to be talented or to put forth a lot of effort), that, taken together, have been validated as indicators of social-emotional skills such as self-management and growth mindset CORE District SEL Survey

MEASUREMENT FRAMEWORK TOOLS: LEARNING HOW TO LEARN SURVEY

		
5 min.	Low lift	Monthly measures for classroom level group consisting of surveys that are three to four questions in length  Choice to select either abbreviated surveys and/or motivation survey
20 min.	Mid lift	a) Measures students' knowledge and regulation of cognition b) The inventory measures – Managing your environment and behavior, seeking and learning information Maladaptive regulatory behavior c) The inventory indicates how often you use reading strategies when reading academic materials  Global self-report include: a) Junior Metacognitive Awareness Inventory b) Self-regulation strategy inventory c) Metacognitive Awareness of Reading Strategies Inventory (MARSI)
10 min	Low lift	Measures awareness, cognitive strategies, planning, and self-checking  State Metacognitive Inventory
15 min.	Low lift	The Think aloud process assists students with reading comprehension  Think-Aloud protocol-prompting students to describe everything they are doing.
20 min.	Mid lift	An assessment for considering social and emotional competence in learning and aims to detect the emotions that students show during their learning interactions and make these emotions explicit to them  Microanalytic Assessment
30 min.	Heavy lift	How the combination of self-determination and learning and optimal experience and learning improve student success academically and socially emotionally  Experience sampling method
30 min.	Heavy lift	Processes measured in students fall into general constructs of working memory, inhibition, and cognitive flexibility  Executive Function Measurement
20 min.	Mid lift	The NIH Toolbox is a comprehensive set of neuro-behvioral instrument that quickly assess cognitive, emotional, sensory and motor function  Combine with performance assessments: NIH developed Cognition Battery as part of toolbox for the assessment of neurological and behavioral function

MEASUREMENT FRAMEWORK TOOLS: FOCUS GROUPS

		
10 min	Low lift	A Charrette is an intensive planning session where community members, designers and others collaborate on a vision for development. It provides a forum for ideas and offers the unique advantage of giving immediate feedback to the designers. More importantly, it allows everyone who participates to be a mutual author of the plan. Charettes
20 min.	Mid lift	Conversation Cafés are lively, hosted, drop-in conversations among diverse people about our feelings, thoughts, and actions on a specific topic or project. Conversation Cafes
20 min	Mid lift	Connection circles are a relationship building process used to promote understanding, share experiences, build relationships, and establish a circle practice. Circles
15 min.	Low lift	A student survey allows students to voice their issues, needs, and desires, giving feedback on how a teacher can change his or her instruction to help them perform better in class. Student Surveys
30 min.	Heavy lift	How to start a student council. Student councils
30 min	Heavy lift	How to establish student led conferences. Student led conferences
20 min.	Mid lift	Best Practices for student advisory committees. Student advisory committees
10 min.	Low lift	Learn how through this teacher-student partnership, students are empowered to take more responsibility for their own learning and tend to be more intrinsically motivated. Democratic classroom practices
30 min.	Heavy Lift	Youth Participatory Action Research (YPAR) is a community-based social justice research framework that inclusively supports the leadership and knowledge of youth most impacted by disparities to develop solutions for social, cultural, and political transformation. Youth led action research

DESIGN SESSION POWER POINTS

March 25, 2021 Design Time

Sept./Oct. 2020 Design Time Session

APPENDIX

Prior to engaging educators in our Design Thinking sessions to co-develop the Measurement Framework, we conducted literature searches of educational and psychological research in the key areas of Knowledge Acquisition and Retention, Executive Function/Metacognition, and Motivation to Learn. In conducting these searches, we aimed to uncover: 1) what research-validated measures exist to measure each area, particularly among middle and high school students; and 2) how the existing measures relate to academic outcomes.

KNOWLEDGE ACQUISITION AND RETENTION

Our literature search did not uncover novel ways to measure knowledge acquisition and retention, and found relatively few examples of research considering long-term knowledge retention as an outcome in naturalistic educational settings. There were many examples of studies that looked at the effects of various instructional practices (such as giving students mnemonic strategies, having them engage in spaced practice of the material, or teaching them strategies for how to organize and comprehend new material) on delayed knowledge recall. However, when defining "delayed recall" in their research designs, these studies generally assessed knowledge retention after a period of several days, or several weeks at most. Few studies assessed how and whether students were retaining knowledge at long enough intervals to allow for building connections between content covered in different semesters, for example. With few exceptions, these studies measured performance on a test covering specific material (e.g., recalling the definition of newly-learned vocabulary words), and did not consider longer-term or more global academic outcomes.

EXECUTIVE FUNCTION/METACOGNITION

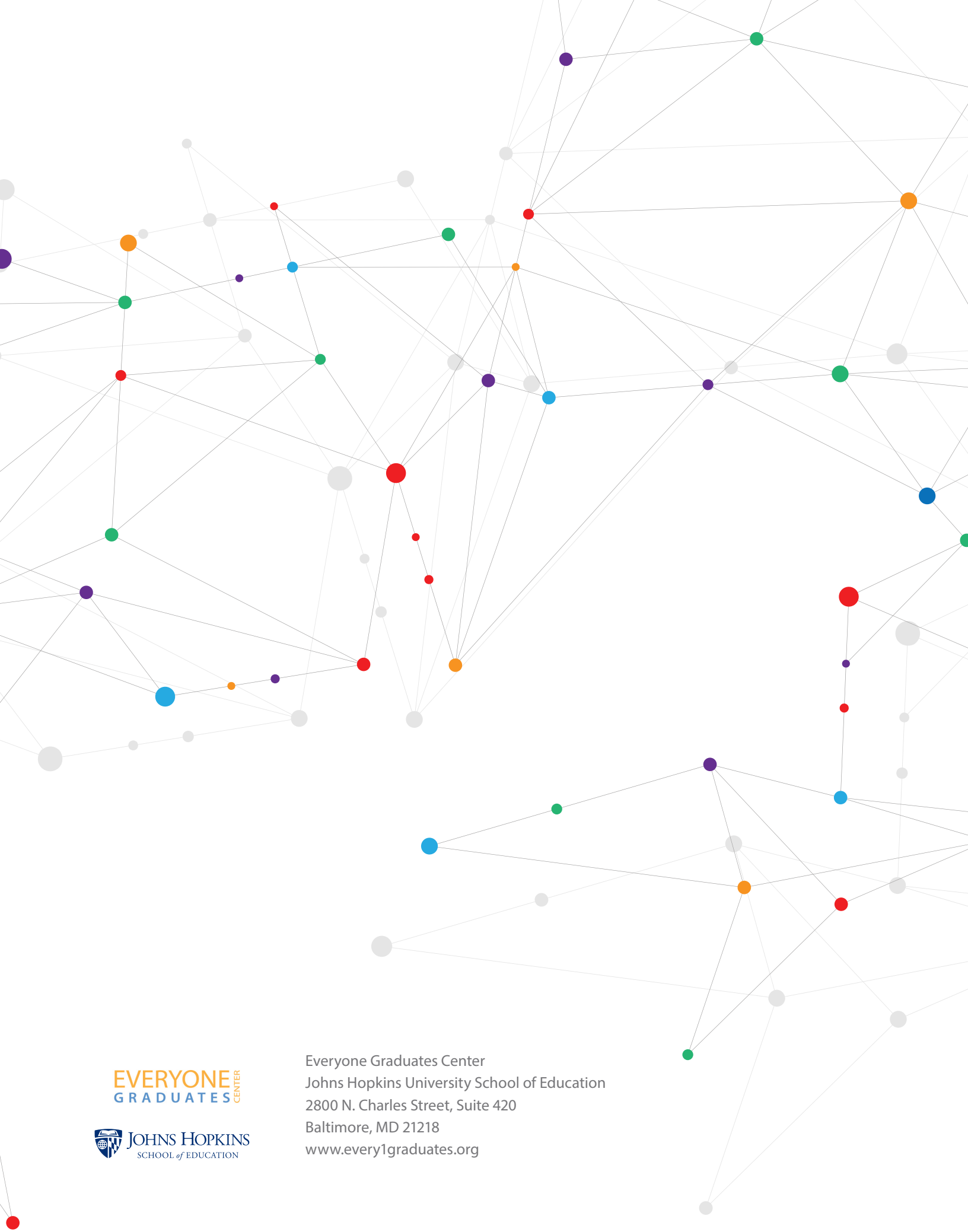
We narrowed our literature search to measures of executive function for younger students, and focused on metacognition for older students. The majority of executive function measures were proprietary tools involving individual testing of each child by an examiner with some level of expertise in administering and scoring the test. These tools may be more appropriate in a school setting for assessing students when there is particular concern about the development of executive function. Additionally, there are several teacher and parent rating tools of executive function, but they also tended to be time-intensive. Although these performance-based assessments and teacher and parent rating tools generally correlated with some academic outcomes, the time and/or skill required for their use means they would not be appropriate for regular classroom-wide use. More recently, a team of researchers (Obradović, Sulik, Finch, & Tirado-Strayer, 2018) developed and validated a promising computerized pilot tool that mimics the tasks involved in traditional executive function measurement but would allow for an entire classroom to complete the assessment simultaneously and independently. Initial validation of this tool among elementary school students showed it to be predictive of teacher-reported self-regulated behavior, standardized test scores, and academic achievement.

In turning to metacognition measures for older students, most existing measures we found in the research literature were student self-report surveys (either global reports of tendency to engage in metacognition, or specific reports of what metacognitive strategies a student used or would use to complete a particular task). Correlations varied widely based on survey measure and outcome measure, but studies found some support for these self-report surveys of metacognition as modestly predictive of various academic interest and achievement outcomes. One of these scales also had a complementary teacher-report version. Although we found few studies assessing its predictive validity, evidence from other domains suggests that parents and teachers may be more accurate reporters of student behavior than students themselves, so such a teacher-report survey may be worth consideration. We also found various event measures used to capture evidence of students' metacognition rather than asking

for their reports on it. These measures included behavioral traces (e.g., logs of what tools students interacted with and for how long in a digital learning tool), think-aloud protocols (coding students' in-the-moment descriptions of how they are completing an academic task for evidence of metacognition), and microanalytic assessment (asking students specific questions about their metacognitive strategies immediately before, during, and after an academic task). These event measures that did not rely on student self-reflection and self-report generally showed stronger correlations with academic outcomes in the few studies we found, but they vary in how feasible it would be for teachers to regularly use them with an entire classroom, as some require considerable data collection or coding effort. There are ongoing efforts to embed trace technologies into learning programs, particularly at the higher education level. This could be something to pay attention to going forward, as embedded trace technologies integrated into responsive digital learning systems could provide actionable information on metacognitive processes at the classroom level.

MOTIVATION TO LEARN

The many measures of motivation to learn/academic motivation that we found in our literature search were almost exclusively self-report student surveys, and the specific content and focus of these surveys was very influenced by the specific motivation theory from which they were derived. These theories included self-determination theory (distinguishing between intrinsic and extrinsic motivation) and expectancy-value theory, as well as an attempt to combine and reduce these theories to two factors of learning motivation and performance motivation. For regular classroom use, in which one might be more interested in a global assessment of motivation rather than teasing apart various theoretical facets of motivation, the Engagement versus Disaffection with Learning scale could be of more use. Available in both student self-report and teacher-report forms, the measures assess signs of behavioral and emotional engagement and disengagement. Numerous studies have found that this measure is both predictive of academic outcomes, particularly course grades, and responsive to changes in the classroom environment, such as a supportive relationship with a teacher, that might affect motivation.



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