USING OPPORTUNITY-TO-LEARN DATA TO SUPPORT EDUCATIONAL EQUITY

October 2020

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National Center for the Improvement
of Educational Assessment
Dover, New Hampshire

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In March 2020, the coronavirus pandemic and attending shift to remote schooling initiated a dramatic impact on student learning, an impact that state and district leaders feel a sense of urgency to understand and address. These leaders are accustomed using state and district test data to shed light on student achievement and growth. But without state test data last year, and justifiable concerns about the trustworthiness of state assessment scores in the 2020-2021 school year, state leaders may feel they are in an almost impossible bind. These conditions warrant an expanded indicator system.

Opportunity to learn (OTL) data can be helpful in this regard, and education leaders therefore should focus on designing and implementing OTL data-collection strategies. There is a long tradition of collecting such data as part of surveys of educational conditions and as components of large-scale testing programs. These data have been important for understanding varying levels of educational resources, such as access to high-quality curricular and instructional materials, as well as opportunities to learn in safe and healthy contexts. When OTL-related questions are embedded in tests, they have the added benefit of providing valuable information for interpreting test results. Many argue OTL data are necessary in any year, but particularly so in 2020-2021. Indeed, it will be exceedingly difficult to accurately interpret state test scores this year—a year of continued COVID-19 disruptions—in the absence of additional data to properly contextualize the results.

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WHAT IS OTL?

Opportunity-to-learn is a more than 50 year-old concept that has evolved from a focus on whether students have had sufficient access to instruction or content linked to particular concepts, to a more robust conception regarding the conditions and resources provided to schools to enable students to succeed. Floden (2002), in a summary of OTL measures associated with international assessments, reported that Husen (1967, pp. 162-163) receives credit for one of the earliest definitions of OTL, which held that OTL refers to whether "students have had the opportunity to study a particular topic or learn how to solve a particular type of problem presented by the test" (cited in Floden, 2002, p. 232). *Debra P. v. Turlington*, a 1981 case in Florida, provides one of the most famous applications of student-level OTL data. Here, the U.S. Court of Appeals ruled that if the Florida high school graduation test "covers material not taught the students, it is unfair and violates the Equal Protection and Due Process clauses of the United States Constitution" (644 F.2d 397 [1981], as cited in McDonnel, 1995).

OTL entered the policy realm in the early days of the standards-based reform movement, with "debates over educational standards and whether schools had a responsibility to provide students with an adequate opportunity to learn before they could be held accountable for meeting achievement standards. That debate came to a head in 1994 with the passage of the federal Goals 2000 legislation" (McDonnel, 1995, p. 306). This legislation resulted in a call for OTL-related policies that describe the resources the state and district policymakers are expected to provide if students and teachers are to meet the high expectations prescribed by state content standards.

> The broader notion of OTL—the resources provided to school districts by states, and to schools by school districts—is the appropriate conceptualization as we consider the disruptive effects of COVID-19 on educational opportunities.

The National Council on Education Standards and Testing (1992) used the term "school delivery standards" instead of OTL to push policymakers to recognize that this matter was as critical to standards-based reform as were content standards and assessments: "*School delivery standards* should provide a metric for determining whether a school 'delivers' to students the 'opportunity to learn' well the material in the *content standards*" (p. E-5, emphasis in the original).

The broader notion of OTL—the resources provided to school districts by states, and to schools by school districts—is the appropriate conceptualization as we consider the disruptive effects of COVID-19 on educational opportunities. UCLA's Institute for Democracy, Education, and Access (no date) concisely summarized this viewpoint:

> Opportunity to Learn (OTL) is a way of measuring and reporting whether students and teachers have access to the different ingredients that make up quality schools. The more OTL ingredients that are present in an individual school, school district, or even in schools across the state, the more opportunities students have to benefit from a high quality education. OTL standards provide a benchmark against which the opportunities that a school provides can be measured. (p. 2)

WHY OTL?

There are at least two reasons to collect OTL data in 2020-2021 (Marion, Gonzales, Wiener, & Peltzman, 2020). First, even if the 2021 state assessment is administered somewhat normally in schools, making valid

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interpretations of the results will be a challenge (Keng, Boyer, & Marion, 2020). And where a critical mass of students test remotely, which is the expectation, these important inferences about student and school performance will be even more tenuous. State leaders need to understand the circumstances and opportunities facing students in order to properly interpret test results this year and beyond. For example, did a student answer a question incorrectly because they did not know the concept tested, did not receive instruction on that concept, or did not have the technology to perform their best on the test? OTL may reveal that students were instructed asyncroynously (which is considered less effective than in-person or synchronous instruction) on many of the concepts

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where a particular class or group of students performed poorly on the test. In short, OTL data will support more appropriate interpretations of test score data.

Second, summative assessments, even in the best of conditions, do not provide enough information necessary for policymakers to understand students' learning context. States and districts need a broad array of indicators, such as whether students have adequate access to devices and broadband, the type (e.g., synchronous/asynchronous) and amount of remote instruction available, and the level at which students are engaged, to surface any inequitable opportunities and, in turn, direct resources where they are most urgently needed.

Many previous OTL data-collection efforts focused on student- and teacher-level variables, such as whether students were instructed on certain concepts, the extent to which students received regular feedback on their performance, or whether students had seen questions like those on the test previously. My colleagues Nathan Dadey and Damian Betebenner outlined a set of high-priority indicators to capture whether students' learning experiences are remote or in-person. COVID-19 disruptions have put educational inequities in stark relief, crystalizing the need for state leaders to collect data at multiple levels of the system: state, district, teacher, parent, and student. Therefore, state leaders should construct a robust OTL data collection system whether statewide standardized tests are administered in any form this year or not. States can use this occasion to install a long-term, systematic OTL data collection and reporting system.

OTL DATA COLLECTION

Designing for the long-term

States should move forward as quickly as possible with designing a long-term OTL system, knowing that any new data-collection effort will be both time- and resource-intensive—particularly this year. This does not mean that full implementation needs to occur this year, but it makes sense to try to design a robust OTL data collection and reporting system that can be rolled out over time.

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Designing an OTL system is similar to other design activities. State leaders will need to work with their assessment and accountability specialists, technical advisors, and key stakeholders to attend to the following general steps.

1. **Purposes and uses:** What are the purposes and uses for the specific OTL indicator? The first step in designing a comprehensive OTL reporting system is to clearly articulate the purposes and intended uses of the new data to be collected. For example, if a state were able to collect student-engagement data and then link those data to student test scores, the announced purpose of this data collection might be to better understand the relationship between student engagement and test performance.

2. **Decisions:** What decisions do you want to make and/or how do you plan to use the information? For any indicator, state leaders should ensure that data are only collected when there is a clear and compelling purpose to do so. How will we use this new piece of information, and how will this use improve the decisions we make? Following the example above, state leaders might decide to use their growing understanding of the relationship

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between engagement and test performance to allocate funding and/or professional development support to school and districts struggling to engage students.

3. **Data Collection:** What data do you need to be able to support these decisions/uses? State leaders must carefully consider what data and in what form will be necessary to address the intended uses. State leaders must clarify how the data will be collected and estimate the difficulty involved in doing so.

4. **Analysis Plan:** System designers must create an analytic plan to ensure the proposed data and analysis approach will have a chance of yielding results to serve the intended uses.

5. **Consequences:** What are the potential unintended negative consequences of collecting these data? State leaders must anticipate likely misinterpretations and misuses of OTL data and work to preempt such misuses. For example, some are justifiably concerned that reporting the the more challenging conditions experienced by some students could lead to lower expectations for these students. Therefore, state and district leaders must provide additional resources and interventions to help students found to be lacking in opportunity the chance to meet grade level expectations.

6. **Audit:** State leaders should commission an audit of currently collected data to avoid duplication of effort and to create a more efficient overall system. States collect a lot of data throughout departments of education and in many other state agencies. Before launching new data collections, states should inventory the data they already collect to see if it fits with their OTL designs established above and can serve the intended purposes.

Starting now
Dadey and Betebenner (2020) recommended that, because state agencies will be challenged with many demands this year, states should prioritize collecting a limited amount of student-level data this year. For example, the amount of time students experienced face-to-face instruction each week as well as the amount of time each week the student experienced synchronous and asynchronous instruction would be high-priority indicators to understand the influence of the pandemic on student learning.

However, Dadey and Betebenner were concerned that relying on weekly or daily records could be overwhelming this year, and they suggested considering more general information collected at the school level. In other words, instead of keeping track of the amount of face-to-face instruction for each student each week, teachers could report the approximate time the class experienced face-to-face instruction. Such data are less able to be linked to student-level test scores, but this disadvantage would be offset by the reduced burden on data collection.

In spite of Dadey and Betebenner's cautions, I maintain that system-level (e.g., device availability and internet access) data are necessary to understand the scope and inequities of the pandemic-induced disruptions. Understanding the effects of COVID-19 disruptions requires an understanding of what I call institutional OTL, which pertains to the resources and access provided by states and districts. Indicators include internet access, device availability, the presence of a high-quality curriculum, and teacher professional development to support remote learning, all of which help policymakers thoughtfully interpret test scores and then direct resources as needed. State leaders, therefore, should craft an OTL data-collection plan across multiple levels of the system and, in turn,

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design reporting systems that allow stakeholders to appreciate the degree to which learning opportunities are available for all students. To move from the abstract to the concrete, I provide in Appendix A examples of indicators for different categories of stakeholders. I also describe various data-collection approaches and, for each, the expected difficulty of collecting the data.

Continuous improvement and evaluation

While it is tempting to collect any data on anything that one might find intellectually interesting, all data collection and reporting systems require resources and effort from both those collecting the data as well as those submitting the information. Therefore, it is critical to ensure that all data elements are related, either directly or indirectly, to student achievement. As part of the analytic plan described above, states should design a continuous improvement and evaluation plan to regularly refine the OTL system. In addition to examining the quantitative relationships among the indicators and student achievement, states should evaluate the degree to which stakeholders use the OTL reports as intended.

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Final thoughts

Again, I recognize that state and local education professionals are overwhelmed this year; some readers may wonder if I am suggesting just one more thing. That is not my intention, which is why I propose that state leaders and key stakeholders approach this work deliberately and balance OTL data collection efforts against competing demands. States should strategically determine which data should be collected and reported this year to better understand the impact of the COVID-19 disruptions on students and schools, and when and how additional indicators will be subsequently phased in. OTL information can help leaders and educators understand and improve educational opportunity, which is one step in bridging the equity divide.

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APPENDIX A:
EXAMPLES OF POTENTIAL OTL INDICATORS
AND DATA COLLECTION APPROACHES

Level of Data Collection	Potential Indicators	Potential Data-Collection Approaches	Likely Effort Required	Examples
State/District	• Internet availability and capacity • Device availability • Presence and access to, high-quality curriculum • Presence and access to high-quality professional development	• Maps of internet access and bandwidth across the state • Indpendent audit of technology capacity and access • District device and distribution inventory • Independent curriculum reviews • Feedback surveys regarding response, quality, and impact	• Mapping internet service will require cooperation from ISPs • Device inventory should be relatively straightforward • EdReports and other organizations provide independent curriculum reviews, which should be easy to gather • Local data-collection efforts can be difficult to aggregate to the state level because quality collection can be less than ideal. Efforts should focus on professional development that targets the use of high-quality curriculum and the means to deliver it.	1. Maps of internet service, including average bandwidth, produced by census block. 2. A roster of devices by students by schools. 3. Audit report by appropriately credentialed, independent service provider 4. Public reporting of specific curriculum used for ELA and math by school. 5. Rates of reporting for surveys, qualitative statements regarding use of high-quality curriculum, application of devices, or relevant use of internet or infrastructure.

Parent/Caregiver	• Types of available spaces and prevailing conditions for remote learning
	• Parent availability to support learning
		• Parent surveys
		• Student surveys
			• It will be challenging to get a reasonable response rate from parent surveys, especially when asking about potentially sensitive issues.
			• Lack of access to technology could inhibit the data collection for some respondents; multiple modes of feedback should be available as necessary, which can be challenging
			• Questions of students can be included on tests or otherwise surveyed without tests
				1. What type of space does your student have to do school work and take tests?
				  a. A quiet, private space with few distractions.
				  b. A space shared with others and/or one that is not free from distractions
				2. Please describe your availability to support your student's learning and assessment.
				  a. I am often away from home while my student is often at home.
				  b. I am occasionally available to help my student with learning and testing as appropriate.
				  c. I am available almost full-time to assist my student with learning and testing as appropriate.

Level of Data Collection	Potential Indicators	Potential Data-Collection Approaches	Likely Effort Required	Examples

Teacher/ Schools[2]	• Number of "meaningful engagements," including such indicators as the time students spend completing assignments[3]
	
	• Instructional practices, such as the proportion of time spent in syncronous vs. asynchronous instruction, the amount of time the teacher is able to interact directly with students (remote or in-person)
	
	• Curriculum choices, such as prioritized standards
	
	• Teacher professional learning opportunities related to remote/hybrid instruction
		• Teacher logs and attendance records
		
		• School schedules (e.g., in-person, remote, and hybrid days and times)
		
		• Modified surveys of the enacted curriculum[4]
		
		• Curriculum documents
			Many of these indicators would not be difficult to collect in normal times, but because school personnel are so overwhelmed this year just meeting students' needs, state leaders will have to approach such data collection judiciously.	1. Engagement may be operationalized as assignments completed, contact hours with students, or student-to-student interactions, among other things.
				
				2. Instructional practices may include documentation of how "classroom" routines were enacted (e.g., synchronously, asynchronously), the types of assignments provided to students, and how instruction was organized (e.g., whole group, individual work, small group).
				
				A potential survey item in this vein could be like the following:
				
				3. Please examine each test question in turn and indicate in the way described below, whether, in your opinion:
				
				  a. All or most of this group of students have had an opportunity to learn this type of problem.
				
				  b. Some of this group of students has had an opportunity to learn this type of problem.
				
				  c. Few or none of this group of students has had an opportunity to learn this type of problem.

[2] See: Nathan Dadey & Damian Betebenner's recent blog for many examples at student and teacher levels.

[3] While this is really a student-level indicator, it makes sense to collect the information from teachers.

[4] The Survey of the Enacted Curriculum is very time consuming to complete. Therefore, the only practical way to use such data collection approaches this year would be to either shorten the instrument considerable and/or to employ some type of matrix-sampling approach.

Level of Data Collection	Potential Indicators	Potential Data-Collection Approaches	Likely Effort Required	Examples
Students	• Enacted/ experienced curriculum • Level of engagement • Effort on test • Remote spaces for school work	• Stand-alone student surveys, or appended to assessments	If assessments are administered, it should be relatively easy to include short student surveys on the tests (perhaps matrix-sampled). But if assessments are not administered, it will more challenging to collect these data and it would not make sense to ask questions about the testing experience. Rather the focus of such surveys would be on classroom or remote learning experiences.	Examples of the types of questions that need to be collected with testing (Sessoms & Finney, 2015): 1. Did you learn these concepts in class? 2. How regularly did you see problems like this in class? 3. Doing well on this test was important to me. 4. I tried as hard on this test that I do on tests in my class. 5. I gave my best effort on this test. 6. I felt more distracted when taking this test compared to tests I take in school. Examples of questions not reliant on a a testing situation: 1. How often were you able to access online lessons? 2. How well were your teachers able to meet your learning needs? 3. What kind of space do you have for doing your remote school work?

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