

Recommended Use

This guide highlights the capabilities of each digital learning platform for external researchers interested in conducting experimental studies. The below table highlights the similarities and differences between the DLPs at varying stages of the research process - more detailed information on each platform, as well as other possibilities for non-experimental studies or alternate collaborations can be obtained from the platforms themselves. As network lead, SEERNet welcomes questions and feedback from interested partners - stay tuned for more content and future opportunities!

	E-Trials (Assistments)	UpGrade (Mathia)	Terracotta (Canvas)	Kinetic (OpenStax)	Learning at Scale (ASU)
User Population	K-12 math students using OER math curriculum	6-12 math students using Mathia, teachers using MATHia	Grades 6-16 students using Canvas	Post-secondary adult formal and informal learners in the US; majority using OpenStax textbooks	Post-secondary online ASU students
Research Questions	Effectiveness of student supports for math learning	Improvements to student learning based on alternative presentations of material. Also motivational and related improvements due to design, messaging, etc.	Students' behavior in learning activities, and the effects of learning activities on student performance (or any outcome score in Canvas, or manually added by the teacher).	Learner characteristics and their influence on behavior, performance, and psychosocial constructs. 3 key guiding questions: who is the learner? (individual differences), what are they learning? (contextual information), how are they learning? (context - learning strategies).	ASU L@S affords a wide range of questions regarding learning in credit-bearing courses that utilize long-term and short-term student performance data and various student demographics.



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Pre-Registration /Vetting	Pre-register on OSF.io	Verify feasibility of intervention with Carnegie Learning design team and interested district, including completing pre-registration form	No formal vetting process. Teachers are in control.	Pre-register on OSF.io recommended (Work in progress)	ASU Provost's Office
IRB requirements	Normal educational practice covered by existing ASSISTments IRB, external researchers get an IRB to receive data.	Researchers use own IRB (if needed)	Researchers use own IRB protocol	Researchers submit to Rice IRB	ASU IRB, researchers use own IRB
Recruitment	No recruitment necessary - all users eligible. The timing of the study will depend on when the teachers assign the problems as determined by the curriculum order/time of year.	Carnegie Learning will assist researchers in recruiting school(s)/district(s) using Mathia's customer base, and will assist with data-sharing agreements with these districts.	Teachers (at institutions where Terracotta has been integrated) recruit students to participate in study. In the event that the researcher is not a teacher, the researcher recruits teachers to participate.	Students opt-in, incentivized, institutional partnerships	Recruitment depends on existing data or implementing interventions/surveys.
Randomization	Student-level random assignment	Individual or group random assignment (class, teacher, school, district)	Student-level random assignment AND student/assignment-level randomization (within-subject crossovers)	Student-level random assignment	Affords randomization at individual or group level depending on research question.
Intervention	Set of student supports for one or more problems	Alternate unit of instruction/activity in Mathia. Messaging, hints, presentation and design features.	Assignments	Open-ended based on capabilities of Qualtrics	Affords randomization at individual or group level depending on research question.

Prior achievement/ demographic data	Class/group membership, school/class-level contextual data, prior ASSISTments achievement	Class/group membership, prior Mathia achievement	Existing data within Canvas course site (gradebook, activity, assignments), and any student-level data added by the Teacher	Learner characteristics collected by Kinetic across studies	Demographic, achievement, activity data
Outcome Measures	performance on Similar-but-Not-the-Same (SNS) problems	Mathia process measures, performance, and survey measures	Canvas gradebook, activity, assignments, data added by teacher	Researcher-administered measures in Qualtrics In future versions, connections to institutional data (course grades, etc)	Course activity, grades, persistence/graduation
Analysis	Data export, posted to OSF.io	Data export	Data export, possible analysis tools	Secure data enclave allows researchers to run analysis with full dataset without access to PII	Data warehouse