Paper Logic Model

Study Type: ESSA Evidence Level IV

Prepared for:
Paper

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EXECUTIVE SUMMARY

Paper engaged LearnPlatform, a third-party edtech research company, to develop a logic model for the online tutoring platform that goes by the same name, Paper. LearnPlatform designed the logic model to satisfy Level IV requirements (*Demonstrates a Rationale*) according to the Every Student Succeeds Act (ESSA).[1]

Logic Model

A logic model provides a program roadmap, detailing program inputs, participants reached, program activities, outputs, and outcomes. LearnPlatform collaborated with Paper to develop and revise the logic model (Figure 1).

Study Design for Paper Evaluation

LearnPlatform is currently developing a study design for a study to meet ESSA Level III, as informed by the Paper logic model. The proposed study will draw on data from participating districts.

Conclusions

This study provides results to satisfy ESSA evidence requirements for Level IV (Demonstrates a Rationale).

[1] Level IV indicates that an intervention should include a "well-specified logic model that is informed by research or an evaluation that suggests how the intervention is likely to improve relevant outcomes; and an effort to study the effects of the intervention, that will happen as part of the intervention or is underway elsewhere…" (p. 9, U.S. Department of Education, 2016).

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Introduction

Paper engaged LearnPlatform, a third-party edtech research company, to develop a logic model for their online tutoring platform. LearnPlatform designed the logic model to satisfy Level IV requirements (*Demonstrates a Rationale*) according to the Every Student Succeeds Act (ESSA).[2]

Paper recognizes that many academic support options–especially in-person, high-dosage tutoring–have equity, cost, and scalability limitations. However, high-dosage tutoring can be a powerful tool for narrowing learning gaps exacerbated by the pandemic. Paper offers schools a cost-effective, 24/7 online tutoring option via their educational support system.

The study had the following objectives:

1. Define foundational research base for Paper.
1. Document the Paper program logic model.

Previous Research. The design of this logic model was guided by previous research examining the effects of high-dosage tutoring on student outcomes. High-dosage tutoring (HDT) is defined as having more than three days per week or at least 50 hours over 36 weeks of tutoring sessions (Robinson, Kraft, Loeb, & Schueler, 2021). Prior research suggests that tutoring can result in sizable learning gains[3] for a wide range of students, including those students with unfinished learning , with students advancing from the 50th to 66th percentile (J-PAL Evidence Review, 2020), making it a highly cost-effective option given learning gains (Harris, 2009). In addition to its large positive impacts, researchers have found HDT to be most effective for elementary and middle school students from low socioeconomic backgrounds when compared to several other interventions (e.g. feedback and progress monitoring, cooperative learning, computer-assisted instruction, and mentoring; Dietrichson, Bøg, Filges, & Klint Jørgensen, 2017).

Effective tutoring programs follow several key principles (outlined below in Table 2; (J-PAL Evidence Review, 2020; Robinson, et al., 2021; Robinson and Loeb, 2021). The table documents each principle and how Paper incorporates each into their learning solution:

[2] Level IV indicates that an intervention should include a "well-specified logic model that is informed by research or an evaluation that suggests how the intervention is likely to improve relevant outcomes; and an effort to study the effects of the intervention, that will happen as part of the intervention or is underway elsewhere…" (p. 9, U.S. Department of Education, 2016).

[3] Meta-analyses of 96 randomized controlled trials of tutoring programs in K-12 settings, wherein the tutors were not classmates or schoolmates of the tutees, and all the studies estimated the impact of tutoring programs on academic learning outcomes.

Table 1. Key principles of effective tutoring programs

Component	More information
1. Tutoring is most likely to be effective when delivered in high doses.	Paper offers unlimited sessions that are accessible any time of day.
2. One-on-one tutoring is most effective but costly.	Both one-on-one is available to all students on Paper, with no variable costs as districts pay a predictable fixed rate.
3. A wide variety of tutors can successfully improve student outcomes if they receive relevant, adequate training.	Paper's tutors are high-performing expert professionals who are carefully vetted and trained.
4. Researchers have found tutoring to be effective at all grade levels.	Paper tutors support K-12 students in all subject areas.
5. Effective tutoring programs support data use and ongoing informal assessments to tailor instruction for individual students.	Paper tutors are trained in inquiry-based practices to assess students' understanding and tailor instruction accordingly. Data from tutoring sessions are passed on to teachers to inform their in class approach.
6. HDT that is aligned to classroom content and reinforces and supports teachers' classroom instruction has the strongest evidence of effectiveness.	Paper tutors are trained to support students without disrupting their teachers' classroom content and instructions.
7. Students that have a consistent tutor over time translates to positive tutor-student relationships and a stronger understanding of students' learning needs.	Paper aims to preserve the highest standards of digital safety and therefore ensure students have consistent support from tutors but intentionally do not build tutor-student relationships, rather the relationship is with Paper's platform and the consistency that it provides.
8. Tutoring interventions that are conducted during the school day tend to be more effective than after school or summer tutoring programs.	Paper is accessible during and after the school day and teacher -facing resources enable the implementation of Paper into classroom instruction.
9. Online tutoring can help lower costs and provide students with suitably matched tutors that emerge from a large tutor supply.	Paper has a large team of virtual tutors, therefore students can always get academic support that matches their needs, language preference, and other attributes.
10. Targeting by grade level or school can help show that tutoring is for everyone and not stigmatized if it is offered only to low performing students.	Paper makes extra help cost-effective for districts so that they can provide tutoring support for all instead of stigmatizing students from traditionally underserved populations.

Given the urgent need to address learning gaps that have been exacerbated by the COVID-19 pandemic, school districts are looking to HDT as a potential learning solution. Early studies suggest that online tutoring solutions, emerging over the course of the pandemic, that help students find a method for studying and doing regular homework[4] have substantially increased students' academic performance (Carlana & La Ferrara, 2021).

Logic Model

A logic model is a program or product roadmap. It identifies how a program aims to impact learners, translating inputs into measurable activities that lead to expected results. A logic model has five core components: inputs, participants, activities, outputs, and outcomes (see Table 2).

Table 2. Logic model core components

Component	Description	More information
Inputs	What we invest	What resources are invested and/or required for your product to function effectively in real schools?
Participants	Who we reach	Who receives the product or intervention? Who are the key users?
Activities	What we do	What do you do with the resources identified in Inputs? What are the core/essential components of your program? What are you delivering to help students/teachers achieve the program outcomes you identify?
Outputs	Products of activities	What are numeric indicators of activities? (e.g., key performance indicators; allows for examining program implementation)
Outcomes	Short-term, intermediate, long-term	Short-term outcomes are changes in awareness, knowledge, skills, attitudes and aspirations. Intermediate outcomes are changes in behaviors or actions. Long-term outcomes are ultimate impacts or changes in social, economic, civil or environmental conditions.

LearnPlatform reviewed Paper resources, artifacts, and program materials to develop a draft logic model. Paper reviewed the draft and provided revisions during virtual meetings. The final logic model depicted below (Figure 1) reflects these conversations and revisions.

[4] Students in the treatment group had significantly increased the time devoted to homework and their teachers reported that the regularity of homework completion was significantly higher than students who did not participate in the online tutoring program.

Paper Logic Model Components. Paper invests several resources into their program, including qualified, vetted, and trained tutors with subject-matter expertise; 24/7 tutoring platform including school's course list; teacher & administrator dashboards; training for school site leads, department heads, and teachers; parent support sessions; single sign on (SSO) and tech support for district IT department; student data privacy; and support for navigating federal funding. Ultimately, the Paper program aims to reach K-12 students, teachers, and administrators.

Using these program resources, students, teachers, and administrators can engage with the Paper platform in the following activities:

- Students:
    - connect for "live help" chat with a tutor for immediate academic assistance receiving high-quality learning moments;
    - bookmark sessions (learning moments) for later reference; and
    - upload written work for "writing review".
- Teachers:
    - access dashboard for data on student engagement with Paper and
    - review monthly reports including student highlights.
- Administrators review the admin dashboard for school-level insights about instructional programs.

Paper can examine the extent to which core activities were delivered and participants were reached by examining the following quantifiable outputs:

- number, nature, duration, timing (in- or out of school), and frequency of chat sessions
- quality of tutor delivery of learning moments
- number of essays submitted for review
- number of reviewed essays downloaded
- number of times the dashboard is accessed by teachers
- number of times chat transcripts are reviewed by teachers
- number of times the monthly report is accessed by teachers
- number of times the dashboard is accessed by administrators

PAPER

Problem Statement: Many options for academic support, especially in-person high-dosage tutoring, have limitations relative to equity, cost, and scalability. However, providing high-dosage tutoring is seen by school districts as one way of narrowing learning gaps exacerbated by the pandemic. Paper offers schools a cost-effective, 24/7 online tutoring option via their educational support system.

Inputs
What we invest:

Paper provides:
Qualified, vetted, and trained tutors with subject-matter expertise

24/7 tutoring platform incl. school's course list

Teacher & admin dashboards

Training for school site leads, department heads, and teachers

Parent support sessions

SSO and tech support for district IT department

Student data privacy

Support for navigating federal funding

Districts provide:
Paper Subscription

Rostering

Internet-enabled devices

Participants
Who we reach:

K-12 Students

Teachers

Administrators

Activities
What we do:

Students connect for "live help" chat with a tutor for immediate academic assistance receiving high-quality learning moments

Students bookmark sessions (learning moments) for later reference

Students upload written work for "essay review"

Teachers access dashboard for data on student engagement with Paper

Teachers review monthly reports including student highlights

Administrators review admin dashboard for school-level insights about instructional programs*

Outputs
Products of activities:

Number, nature, duration, timing (in- or out of school), and frequency of tutor chat sessions

Quality of tutor delivery of learning moments

Number of essays submitted for review

Number of reviewed essays downloaded

Number of times the dashboard is accessed by teachers

Number of times chat transcripts are reviewed by teachers

Number of times the monthly report is accessed by teachers

Number of times the dashboard is accessed by administrators

Outcomes
What changes or benefits result...

Short-term

Interest & Motivation
Students have increased interest and motivation in their learning and academic success

Achievement of Short-term Academic Goals
Students' learning is unlocked and accelerated

Confidence
Students gain confidence to participate in class and homework activities

Increased Teacher Time
Teachers spend more time focusing on individual student needs (as opposed to managing assignment queries)

Awareness of Discrepancies in Engagement with Support
Administrators become aware of gaps in resource usage

Awareness of Gaps in Instructional Implementation
Administrators become aware of gaps in instructional implementation

Intermediate

Metacognition & Agency
Students develop increased agency, self -efficacy, -awareness, and -management in learning

School Engagement
Students overall participation in school increases

Personalization
Teachers personalize instruction to meet students' needs

Targeted Teacher Support
Administrators provide targeted support to teachers based on Paper data

Long-term

Students' scores on standardized assessments improve in content areas that were targets for Paper tutoring

Students have improved academic performance and achievement

Student equity gaps are reduced

Students' graduation rates and scores on standardized assessments are distributed uniformly across equity markers

Reduced Teacher Turnover
Improved quality of teachers' professional lives results in less teacher turnover

*District administrators can request breakdown of admin reports by course but breakdown by teachers is more commonly used. Administrators can view data on any individual student in the district.

Prepared for Paper, June 2022

Figure 1. Paper logic model

If implementation is successful, based on a review of program outputs, Paper can expect the following short-term outcomes: students' learning will be unlocked and accelerated and they will realize short-term academic goals. Subsequently, students will gain confidence to participate in class and homework activities and have increased interest and motivation in their learning and academic success. Teachers will spend more time focusing on individual student needs (as opposed to management assignment queries from students). Finally, administrators will become aware of discrepancies in resource usage (degree to which Paper is being used across the district) and gaps in instructional implementation.

For students, in the intermediate term, students will develop increased agency, self-efficacy, -awareness, and -management in learning and their overall participation in school will increase, resulting in the following long-term outcomes:

- improved academic performance and achievement,
- improved scores on standardized assessment (in content areas targeted by Paper tutoring sessions),
- reduction in student equity gaps, and
- uniform distribution of graduation rate and standardized assessment scores across equity markers in the longer term.

For teachers and schools, in the intermediate term, teachers will have the tools and bandwidth to offer meaningful personalized instruction with targeted support from administrators. In the longer term, Paper aspires to be the educational support system that aids schools in reducing teacher turnover .

Study Design for Paper Evaluation

To continue building evidence of effectiveness and to examine the proposed relationships in the logic model, Paper is collaborating with LearnPlatform to develop a study design to conduct an evaluation determining whether the use of Paper relates to outcomes from the logic model. The proposed study will draw on data from participating districts and data collection is currently underway.

Conclusions

This study satisfies ESSA evidence requirements for Level IV (*Promising Evidence*). Specifically, this study met the following criteria for Level IV:

✅ Detailed logic model informed by previous, high-quality research

✅ Study planning and design is currently underway for an ESSA Level III study

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