Patterns of Usage from Educational Technology Products across America

Daniel S. Stanhope
Lea(R)n, Inc.
310 S. Harrington St.
Raleigh, NC 27603
daniel.stanhope@learntrials.com

Karl T. Rectanus
Lea(R)n, Inc.
310 S. Harrington St.
Raleigh, NC 27603
karl@learntrials.com

ABSTRACT

Educational technology (edtech) products are ubiquitous in schools, yet there is a dearth of research examining their use and efficacy. This leaves schools and districts without evidence to inform important decisions about edtech budgeting, instruction, impact, and implementation. We report results from a study that uncovered startling trends in edtech usage across multiple paid products and dozens of schools. Notably, 36.6% of purchased student licenses were never used. An additional 28.2% of the licenses were used negligibly, failing to meet a quarter of the fidelity goal set by the product companies or districts. Further, anecdotal evidence suggests school- and district-level leaders are unaware of these realities. This suggests a vast amount of resources are being unknowingly squandered or misallocated. Combined with analysis of how product usage impacts student achievement, these results demonstrate how schools and districts can utilize data to understand and manage their edtech ecosystems while improving critical edtech decisions.

Keywords

Educational technology, efficacy, fidelity, evaluation, education

1. INTRODUCTION

Educational technology (edtech) presents both opportunities and challenges for educators and their organizations. Challenges include allocating resources appropriately, implementing products with fidelity, and ensuring product efficacy. Unfortunately, these challenges have been exacerbated because heretofore districts have not had systems or methods for collecting, comparing, and analyzing disparate data sources in a way that informs budgetary or instructional decisions. To address that lack of evidence, schools and districts across the nation have been using LearnTrials—a module on the LearnPlatform—to measure an integrated system of data and variables, enabling them to generate key insights and rapidly make informed decisions. In this paper, we report a specific set of early findings from a synthesis of systematic research focusing on edtech usage patterns, and we discuss the implications for implementation, impact, and budgeting.

More than $8 billion (PreK-12 alone) are spent annually on edtech products in the US with the goal to improve important education outcomes.[1] Both producers and consumers of edtech products worry about using them with fidelity—that is, ensuring students receive the "recommended dosage" to achieve the intended outcomes. Most agree that implementation and its impacts on budget and achievement are interrelated and worthy of treatment as a system; however, limited research has examined fidelity of edtech usage. This has led dozens of schools and districts to use LearnTrials to conduct rapid, cost-effective evaluation of multiple products, analyzing both edtech usage and efficacy.

2. METHODS

2.1 SAMPLE

The sample for this study is 49 K-12 schools in multiple districts and states. Overall, the sample included over 17,000 students from a diverse set of schools. For each school, we examined data on product usage collected during the 2014-2015 academic year. Specifically, we tracked the extent to which students used their licenses for six well-known digital math and literacy tools. Each of these products was well-established in the marketplace, used for primary instruction (rather than supplemental), and ranged in price from $16 to over $100 per student, per year.

2.2 ANALYSIS

The main analysis for this study involved descriptive statistics on the extent to which students used their product licenses. Each of the six products prescribe a specific amount of student usage, often called the recommended dosage. In other words, these products have predetermined metrics for usage goals (e.g., time logged in, progress through syllabus, number of lessons passed) intended to promote marketed outcomes. Based on these measures, we analyzed the extent to which students met certain expectations. Specifically, we examined whether students (a) never used the product, (b) used the product but failed to meet even 25% of the goal, (c) met 25% of the usage goal, (d) met 50% of the usage goal, or (e) fully met the usage goal.

3. RESULTS

We found consistent patterns of usage across the schools and across the products. The main finding: 36.6% of purchased product licenses were never activated. An additional 28.2% of students activated their license, but did not use the product enough to meet even 25% of the established goal. Thus, approximately 64.8% of students exhibited zero or trivial use. Moreover, only 5.2% of students actually received the full recommended dosage (Figure 1; see Figure 2 for a breakdown of

use by product). In summary, schools are paying significant amounts of money for products that students are not using.
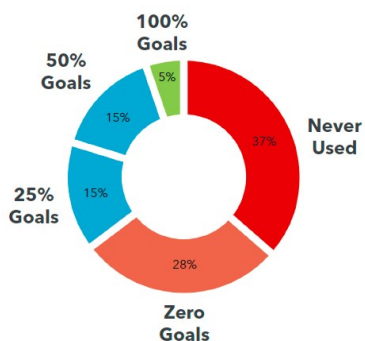

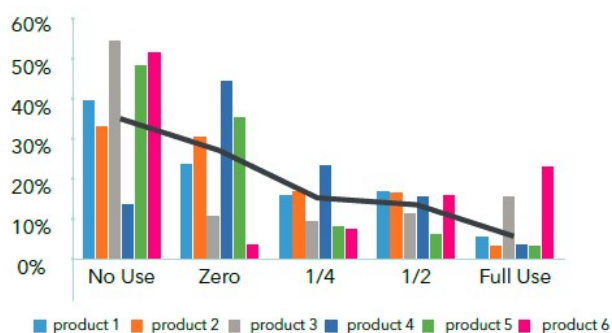*Figure 1.* Percent of paid product licenses meeting dosage goals.

Figure 2. Paid product licenses meeting dosage goals by product. (Product names undisclosed for sake of anonymity.)

4. DISCUSSION

To be clear, the startling lack of product usage across schools is not an indictment of edtech products or the schools that use them—classroom technologies are valuable, and have the potential to amplify learning. While these are early findings, they have numerous implications for schools and districts.

Implementing learning technologies in schools and districts presents opportunities and challenges. One way to maximize the former and minimize the latter is understanding important contextual factors. Recognizing the specific factors that impact use within local contexts can uncover opportunities for growth. Structured pilots, rapid feedback cycles, and scaled roll-outs do not have to be cumbersome. Leveraging data-rich product pilots can address common challenges. By using research-backed, standardized edtech management systems in their local contexts, districts can lower opportunity costs, reduce negative impacts on teaching and learning, and mitigate political consequences of "all-in, all-at-once" implementations.

Understanding product efficacy—the extent to which a product impacts intended educational outcomes—is important. The U.S. Dept. of Education, the Bill and Melinda Gates Foundation, and others have recently invested in rigorous and realistic evaluation of products at every stage. If students do not use a product, they cannot capitalize on its potential benefits. Discovering that edtech products are consistently underused (or never used) is a first step. Providing schools and districts insights into situational variables (e.g., student characteristics, school types, demographics, or

pedagogical styles) would help educators and product companies understand the contexts in which products have positive, negative, or negligible impact. Our research has shown times when minimal (and even significant) usage had deleterious effects on student achievement. In other cases, specific student groups using certain edtech products saw greater gains than did their peers. Delivering context-specific insights that are based on statistical analysis via timely, easy-to-understand dashboards and reports help schools and districts identify the best tools for their situations and instructional needs.

A final implication is the obvious impact on budget. If we extrapolate the findings reported herein, it is likely that last year schools spent nearly $3 billion on product licenses that were never activated (37% of the $8 billion spent across U.S. schools). However, edtech purchasing decisions do not exist in a vacuum; rather, they are richly contextualized and made based on budgetary constraints, merit of competing products, politics, and precedent. Challenges also include current business models, lack of pricing transparency, and unknown usage data. Furthermore, edtech purchasing has decentralized rapidly, meaning individual educators and schools are making more decisions, which creates organizational challenges for district and state leaders.

Educators and their organizations need a systematic approach for gathering evidence,[2] and for rapidly understanding organization-wide product usage and efficacy. Analysis of local data as well as analysis of large-scale databases can greatly enhance our ability to evaluate edtech phenomena.[3] Then, implementing edtech management systems, service level agreements, and performance contracts (based on successful usage or other measurable milestones) are not only possible, but also capable of improving instruction, finances, and educational outcomes.

The consistent patterns of usage—specifically the limited use of paid licenses—across edtech products in education environments offers a massive opportunity to improve a complex system. Until recently, edtech decisions lacked a systematic approach for measuring and collecting evidence on the most important variables. However, dozens of schools and districts are using the edtech management LearnPlatform and its LearnTrials module to analyze their edtech ecosystems in unbiased and rapid ways, so they can make evidence-based decisions that enhance the fidelity of implementation, boost product impact on student achievement, and maximize resources (e.g., time and money).[4]

5. REFERENCES

[1] Richards, J. & Stebbins, L. (2014). 2014 U.S. Education Technology Industry Market: PreK-12. Washington, D.C.: Software & Information Industry Association.

[2] Coburn, C. E., Honig, M. I., & Stein, M. K. (2009). What's the evidence on districts' use of evidence? In J. D. Bransford, D. J. Stipek, N. J. Vye, L. M. Gomez, & D. Lam (Eds.), The role of research in educational improvement (pp. 67-87). Cambridge, MA: Harvard Education Press.

[3] Penuel, W. R., & Means, B. (2011). Using large-scale databases in evaluation: Advances, opportunities, and challenges. *American Journal of Evaluation*, 32, 118-133.

[4] Johnson, K. (2016, March 15). Resources to Help You Choose the Digital Tools Your Classroom Needs. Retrieved from https://www.edsurge.com/news/2016-03-15-resources-to-help-you-choose-the-digital-tools-your-classroom-needs