

INTRODUCTION

Lea(R)n™ offers a grading protocol through which educators can share valuable insights on the classroom education technologies they encounter on a daily basis. The design and research to create and maintain a valid and valuable grading protocol for educators is a critical portion of educators providing feedback in a useful and systematic way. This system must consist of a manageable number of feedback areas, and each of these areas must be important factors that determine the utility of a given technology. Further, the grading protocol must utilize a systematic scoring algorithm that aggregates educators' insights into interpretable and actionable grades. Thus, Lea(R)n™ engaged in a scientific process of identifying, defining, and measuring the initial set of feedback areas, followed by a process of developing a proprietary scoring solution to make scores meaningful. The purpose of this report is to briefly summarize the methods, results, and ultimate implications for the Lea(R)n™ grading protocol.

METHOD & RESULTS

Lea(R)n™ used a scientific approach to develop a set of feedback areas (or factors) that can be used to grade education technologies to best differentiate effective technologies from the ineffective ones. First, Lea(R)n™ identified the initial set of factors based on professional experience, a review of extant rating systems, and interviews and focus groups with education experts, education technology experts, and educators. Lea(R)n™ then formed construct definitions for each factor. To establish the content validity of the initial factors, a set of subject matter experts (SMEs) rated each factor on a scale from 1 (not necessary) to 3 (essential) and also provided qualitative feedback. Based on the results, Lea(R)n™ retained 13 core factors for the next phase.

Using the 13 core factors, Lea(R)n™ generated items to measure each factor and built a survey that also included demographic variables, covariates, controls, and outcomes. Lea(R)n™ sent the survey to a convenience sample of educators (N = 103). Lea(R)n™ first conducted factor analyses to determine whether the measurement model and properties of the items and factors matched the underlying theory.

For instance, items should reliably measure their respective factors. Lea(R)n™ also examined descriptive statistics, the reliability of items and factors, the correlations among items and factors, and the extent to which items and factors related to outcomes. Ultimately, Lea(R)n™ retained psychometrically sound factors and used the items that were the best and most reliable indicators of the core factors for the Lea(R)n™ rating system. Filtering mechanisms were also retained, based on the research, to maximize accuracy, validity, and utility of reported usage by respondents. Then, based on the results, Lea(R)n™ developed a sound proprietary algorithm that normalizes and standardizes the results, while producing the best prediction of important outcomes.

CONCLUSION

Lea(R)n™ used a rigorous scientific approach to develop a set of core feedback areas and a scoring system for the Lea(R)n™ grading protocol that is grounded in and supported by both rational and empirical evidence. With the help of SMEs and educators who will ultimately use the Lea(R)n™ grading protocol, Lea(R)n™ hypothesized factors that should be important for determining the utility of education technologies. Then, Lea(R)n™ empirically validated the core feedback areas using data-driven evidence to substantiate the hypotheses. As educators interact with the Lea(R)n™ grading system, Lea(R)n™ will continue to monitor the reliability and validity evidence for the core feedback areas as well as the proprietary scoring protocol.

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Research-Based Rubric for Grading EdTech

CONTEXT

- 1) Duration:** For how long have you used this tool?
- 2) Frequency:** How often do you use this tool?
- 3) Student Group:** With which student group(s) do you use this tool?
- 4) Purpose:** For what purpose have you used this tool?

CRITERIA*



Ease of Use & Navigation	Difficult to Start; Difficult to Use; Significant PD Required	Difficult to Start; Confusing to Use; Some PD Required	Confusing to Start; Moderately Easy to Use; Light PD is Helpful	Moderately Easy to Start; Easy to Use; No PD Necessary	Easy to Start; Easy to Use; No PD Necessary
Comprehensiveness & Effectiveness of Features	Features Do Not Address Specific Needs	Features Often Do Not Address Specific Needs; Limited Product Utility	Overwhelming of Insufficient Feature Set	Somewhat Cohesive Feature Set that Meets Most Needs	Cohesive, Powerful and Useful Feature Set; Among Top 10%
Comprehensiveness & Accuracy of Content	Inaccurate, Inappropriate or Insufficient Content	Questionable Accuracy; Inappropriate Amount; Differentiation Impossible	Mostly Accurate; Too Much or Too Little; Differentiation Possible	Accurate Content; Basic Differentiation Included	Accurate and Useful Content; Unlimited Differentiation
Technical Merit <i>(i.e. absence of glitches)</i>	Non-Functioning, Completely Unusable or Terminates Productivity	Significant Debilitating Technical Issue(s); Requires Assistance	Occasional Debilitating Technical Issue(s); Requires Assistance	Occasional Minimal Technical Issue(s); No Assistance Required	Zero Technical Issue(s); No Assistance Required
Alignment with Learning Objectives & Standards	No Alignment w/ Intended Objectives; Revisions Impossible	Unclear Alignment w/ Learning Objectives; Many Revisions	Occasionally Aligned w/ Learning Objectives; Some Revisions	Generally Aligned w/ Learning Objectives; Revisions Unnecessary	Clearly Aligned w/ Learning Objectives; Revisions Unnecessary
Impact on Student Learning & Engagement	Zero or Negative Impact on Learning; Students Dislike the Tool	Slight Impact for Some Students; Redirection Required	Moderate Impact on Some Students; Engaged While Monitored	Significant Impact on Some Students; Most Students Engaged	Strong Positive Impact on All Students; Self-Directed and Engaged
Impact on Teaching Efficiency & Effectiveness	Significant Negative Impact on Teaching Efficiency & Effectiveness	Zero Improvement in Teaching Efficiency & Effectiveness	Some Positive Impact on Teaching Efficiency & Effectiveness	Positive Impact on Teaching Efficiency & Effectiveness	Top 10% of Products; Significant Positive Impact on Teaching
Would You Recommend?	No, I would never recommend this product	Probably not	Possibly, depending on multiple factors	Yes, to some educators	Yes, to all educators