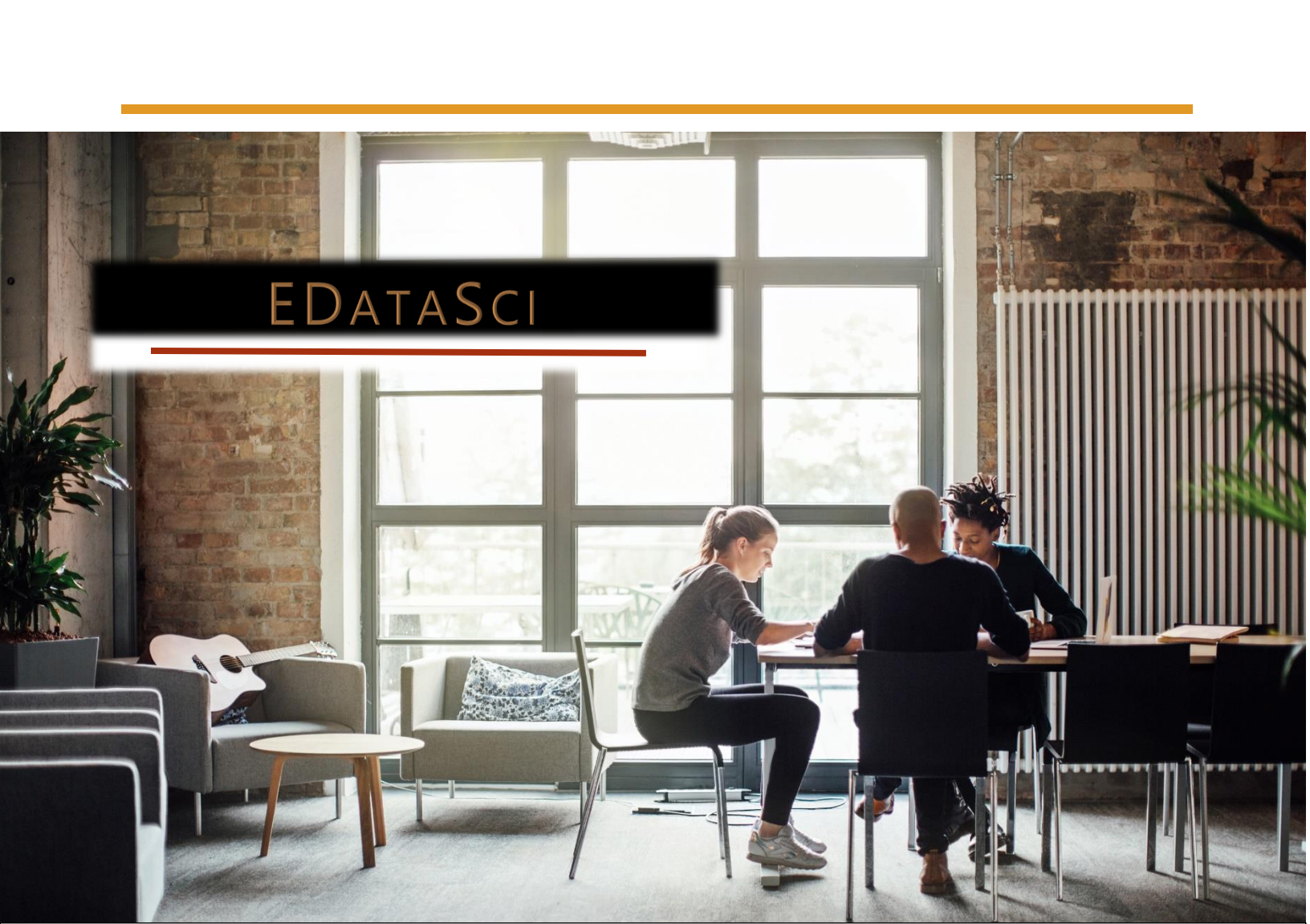

A photograph of a modern, bright interior space, likely a lounge or study area. Three people are seated at a long wooden table, working or studying. The room features large windows, brick walls, and contemporary furniture including armchairs and a small round table. A guitar is visible on the left. The overall atmosphere is professional and collaborative.

EDATASCI

ASU Learning Cloud Effectiveness in Whole Course Mode: ASU Prep Digital 2025

DECEMBER 11, 2025

About EDataSci

EDataSci is a research firm that collaborates with government agencies and nonprofit organizations to design and conduct empirical studies that inform policy and practice in education, psychology, and the social sciences. The firm's research team is composed of educational psychologists with specialized expertise in the cognitive processes underlying academic and professional competencies, as well as in the design of quantitative outcome studies that meet requirements for the standards of evidence used by many government and professional review boards.

The present study was conducted by Jeff McLeod, PhD as part of the organization's ongoing commitment to advancing evidence-based insights that support effective educational policy and practice. He is a certified reviewer for What Works Clearinghouse group design standards as well as advanced group designs and single subject designs. He can be reached at jtmcleod@edatasci.com

Study Overview

The purpose of the study was to test the effectiveness of an iterative redesign of online high school courses in Biology, English, and World History compared to the earlier design iteration. Course grades from students randomly assigned to the newer implementation were compared to course grades of students from an earlier cohort who had been given the prior iteration. Results indicate the iterative redesign was very effective in elevating student outcomes for Biology and World History, while English courses of the two groups were not significantly greater.

Rationale for the Study

Online courses are implemented by the ASU Learning Cloud product, which was developed with a vision to meet the needs of modern educators who teach in a variety of modalities from online to blended mixtures direct instruction with supplemental online lessons. The product has undergone iterative design based on evaluation research to assess its effectiveness and to guide future development.

The product is designed to be immersive, personalized, and rigorous. For example, the platform offers high engagement experiences such as 3D simulations. Students can work at their own pace so that high ability students may work ahead, while struggling students can spend more time to achieve mastery. The curriculum is designed with rigor in course exercises, projects, and knowledge checks.

Research Question

This evaluation study asks whether the recent iterative redesign of online courses in Biology, English, and World History improved student performance compared to the previous iteration.

Methods

Participants

This study was a quasi-experiment of course performance of digital high school students in two consecutive cohorts. The first cohort took courses in Biology, English, and World History during the 2023-24 school year using the prior iteration of the Learning Cloud curriculum. The second cohort took the same courses using the redesigned product during the 2024-25 school year. Table 1 provides enrollment data for the two groups by course name.

Table 1. ASU Prep Digital Course Analysis Sample

Course Name	2023 Comparison Group	2024 Treatment Group
Biology Part A	351	396
Biology Part B	283	348
English 11 Part A	390	224
English 11 Part B	376	218
World History Part A	354	423
World History Part B	296	408
TOTAL ENROLLMENTS	2,050	2,017

Note. Grades 9, 10, 11, 12 were included in the sample. The sample included only records with complete outcome data.

The demographics of 2023/24 and 2024/25 cohorts were similar. There were slight but statistically significant difference in the number of males/females in each cohort and

the number of Hispanics in each cohort, but the effect sizes were not consequential enough to implement statistical corrections. This is discussed below in the section on baseline equivalence.

Measures

Independent Variables.

Group. There were two groups in the quasi-experiment. The treatment group was the cohort of students that used the ASU Learning Cloud in whole course mode during the 2024-25 school year. The comparison group was the prior cohort of students who took the same classes using a variety of legacy course products in the 2023-24 school year.

Course. Course identifier was used as a covariate in the analysis to control for factors that are unique to different subject matters.

Dependent Variables.

The outcome variable was the numeric course grade for each enrollee after grade point conversion. That is, letter grades were converted to numbers using the translation values of A = 4, B = 3, C = 2, D = 1, F = 0.

Analysis

Baseline Equivalence.

The differences in demographics were statistically significant, but the differences do not suggest cause for concern as such differences between in classrooms are to be expected. The 2023/2024 comparison group had 29% Hispanic students, compared to 32% in the 2024/2025 group. This is a significant difference (Chi-squared = 4.46, df = 1, $p = 0.03$).

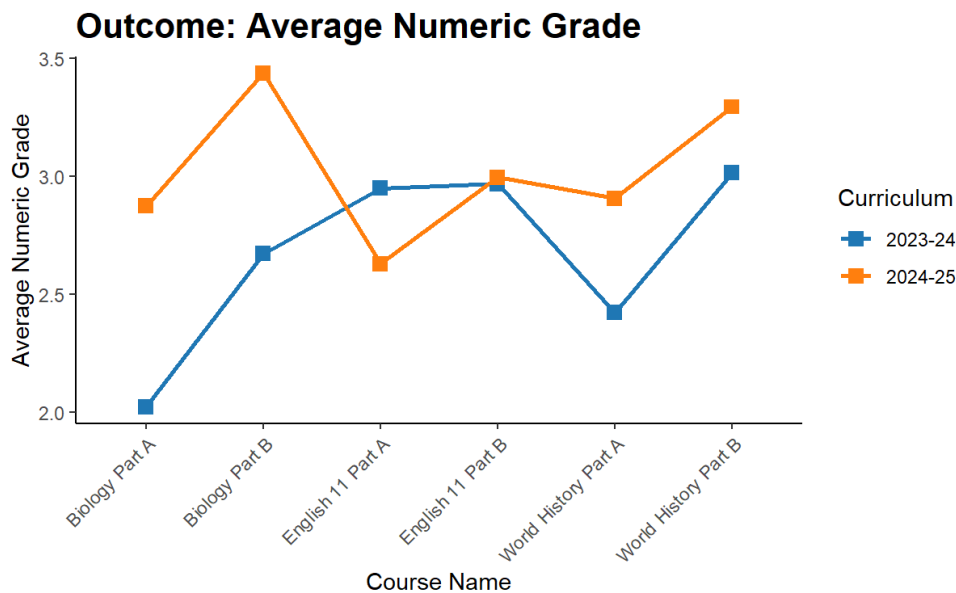
The 2023/2024 group had 52% female students, compared to 55% in 2024/2025. This is a significant difference (Chi-squared = 6.06, df = 1, $p = .01$).

Statistical Analysis

The analysis was a Hierarchical Linear Model (HLM). The benefit of this analysis is that individual differences between students are considered. Rather than assume all students begin at the same ability level, the student component of the model was explicitly included as a random effect. This technique yields comparable results to traditional Analysis of Variance results, but it adds precision because it removes a potentially large source of error variance.

An overview of the analysis data appears in Figure 1 where grades are broken down for each course by treatment (2024/25) and comparison group (2023/24). The general trend of findings is evident. Overall, the new Learning Cloud courses performed quite well compared to the prior iteration of the same courses. Detailed analysis is provided in Table 2.

Figure 1. Difference in Grades for the Treatment and Comparison groups.



Results

Table 2. Adjusted Means and Standard Deviations by Course, Grade and Cohort

School Year	Course	Adjusted Mean	Standard Error	N	d	Effect	Improvement Index
2023/24	Biology Part A	2.20	0.06	351			
2024/25	Biology Part A	2.87	0.05	396	0.51*	Medium	14
2023/24	Biology Part B	2.43	0.06	283			
2024/25	Biology Part B	3.17	0.05	348	0.75*	Large	20
2023/24	English 11 Part A	2.87	0.06	390			
2024/25	English 11 Part A	2.62	0.07	224	-0.20*	Small	-6
2023/24	English 11 Part B	2.79	0.06	376			
2024/25	English 11 Part B	2.82	0.07	218	0.03	None	0
2023/24	World History Part	2.44	0.06	354			
2024/25	World History Part	2.93	0.05	423	0.37*	Medium	11
2023/24	World History Part	2.63	0.06	296			
2024/25	World History Part	3.09	0.05	408	0.43*	Medium	12

Note. Total enrollments = 4,067. Unique students = 1,801

The d column is the Cohen's d effect size. The qualitative interpretation of each effect is shown in the Effect column.

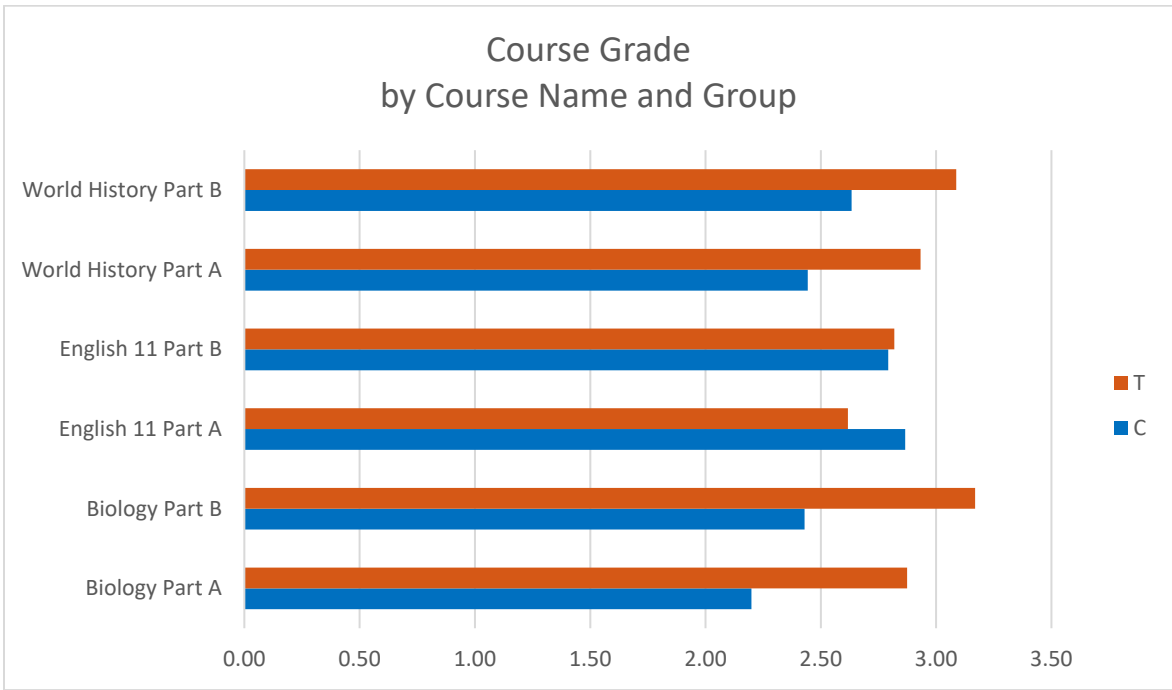
The improvement index is the number of percentiles a member of the treatment group gained compared to the comparison group.

The model indicated that there was a statistically significant treatment effect, with the Learning Cloud group (T) on average exceeding final course grades of the comparison group by .85 grade points ($t = 6.85$, $df = 4055$, $p = .001$).

Table 2 shows that Biology and World History had large gains with the Learning Cloud Course product compared to the comparison group. All effect sizes were statistically significant. Qualitative interpretations of the d coefficients are presented as Large, Medium, Small, and None.

The English courses did not reveal similar gains. and one section of the English course had a slight negative effect. This means that one section showed that the prior course implementation outperformed the newer iteration.

Figure 2. Cluster Bar Chart of Average Grade Points by Course



Note. T = treatment (2024/25), C = comparison (2023/24).

Interpretation and Recommendations

The new Learning Cloud curriculum is significantly more effective than the prior iteration of the same courses, increasing student achievement for World History and Biology. The effects are meaningful and substantial. Table 2 has a column labeled *Improvement Index*. This index is used to translate Cohen’s d effect sizes into measures that have a concrete interpretation.

This index is the number of percentile points that would be gained by students at the mean of the control group by using the new iteration. Table 2 suggests that a student from the control group would have gained 14 percentile points in the first Biology course section, and 20 percentile points in the second course section. We can average the 2 indices, which would give a pooled index of 17. Hence, a hypothetical student from the previous course iteration who scored at the 50th percentile would have been expected to advance to the 67th percentile using the redesigned Biology course.

World History students from the earlier iteration would be expected to gain 11 or 12 percentile points under the new version. Hence, a student in the 50th percentile would be expected to advance to the 61st or 62nd percentile.

English Language Arts did not show the same improvement. However, if one examines Figure 1, it is evident that the English courses both had high baseline grade averages in the previous year. A finding of no difference, or even a slight negative effect, could be interpreted as the redesigned product performed no worse than the previous iteration because the prior version performed quite well.

The last point is strengthened by a qualitative look at the teacher surveys for the new Learning Cloud iteration. The highest favorability ratings, as well as the most positive comments, came from the English teachers.

It seems most fair to conclude that the recent update to the ASU Learning Cloud product was a uniform success. This quasi-experimental study, with its statistically significant results and substantive effect sizes and improvement indices, can be used as Tier-2 or Tier-3 level ESSA evidence for the effectiveness of the Learning Cloud curriculum for these courses.

This evaluation study should inform the ASU Prep Product Review Cycle by confirming that the new product did indeed meet the design goals of improved student performance.