

AECT @ Las Vegas, NV: October 23, 2025

Theory-Informed Design and Evaluation of Online Instruction and Learning



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Panel Discussion



If we design learning experiences with First Principles of Instruction, are they effective?

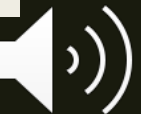
How we empirically answered this question:

- 1) Applied FPI to develop Indiana University Plagiarism Tutorials and Tests (IUPTAT)
- 2) Evaluated IUPTAT with Teaching and Learning Process Analytics (TALPA)
- 3) Reached conclusions about student learning achievement via FPI



INSTRUCTIONAL DESIGN

Indiana University Plagiarism Tutorials and Tests





How to Recognize Plagiarism: Tutorials and Tests

Welcome to the Indiana University Plagiarism Tutorials and Tests

Learn how to recognize plagiarism, test your understanding, and earn a certificate.

To begin, watch this brief video of a teacher meeting with a student who has committed plagiarism. Click on the one-minute video below.



Why is it important to avoid plagiarism?

The academic community highly values the acknowledgment of contributions to knowledge. When you properly acknowledge the contributions to knowledge made by other people, you are showing respect for their work. You are giving credit where credit is due. You are not misleading the reader to believe that your ideas and words are solely your own.

Start Here:
Welcome

Read Overview

Learn through
Instruction

Register for
Certification Tests

Take Certification
Tests

Validate and View
Certificates

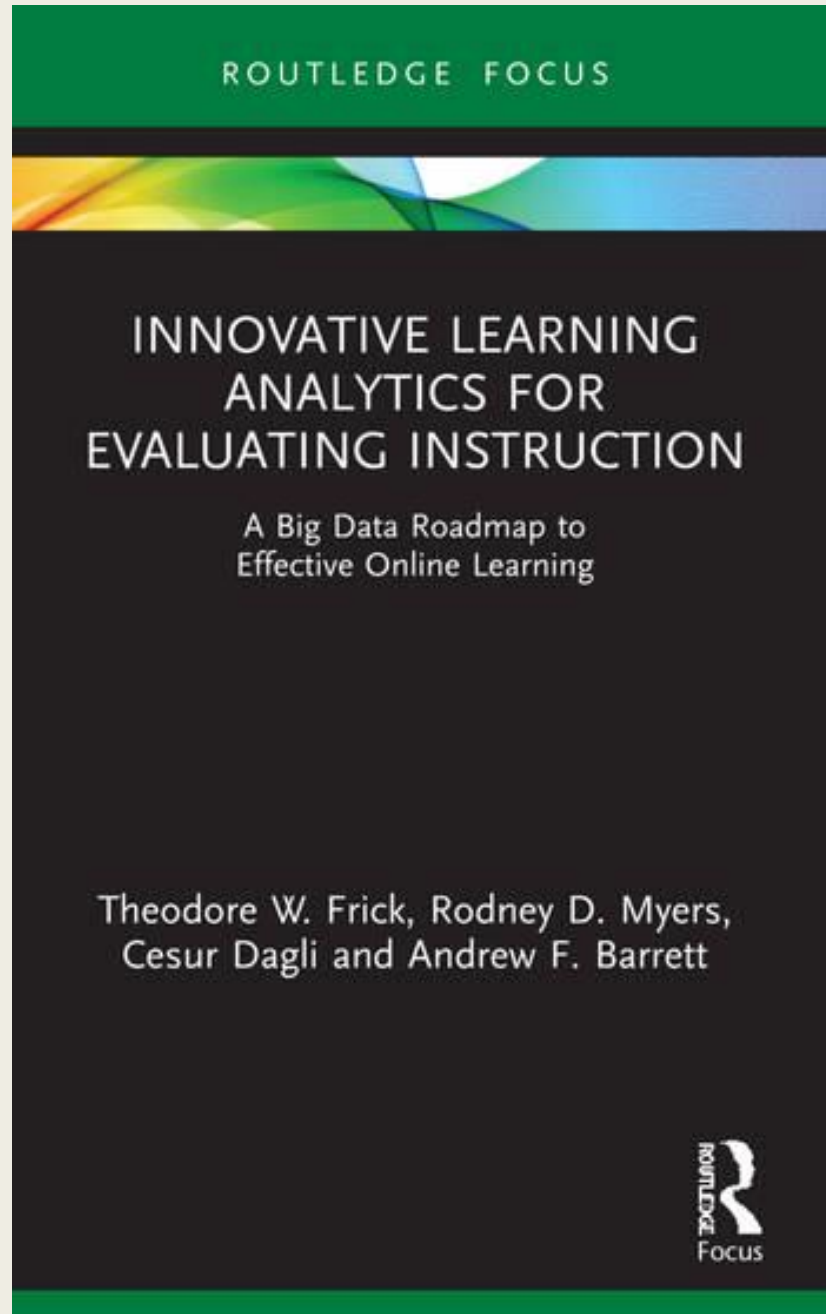
See FAQs

View Resources

View Site Map

Acknowledge Site



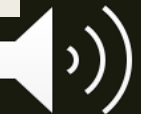


Chapter 3 describes in detail how we redesigned the IU Plagiarism Tutorials and Tests using First Principles of Instruction

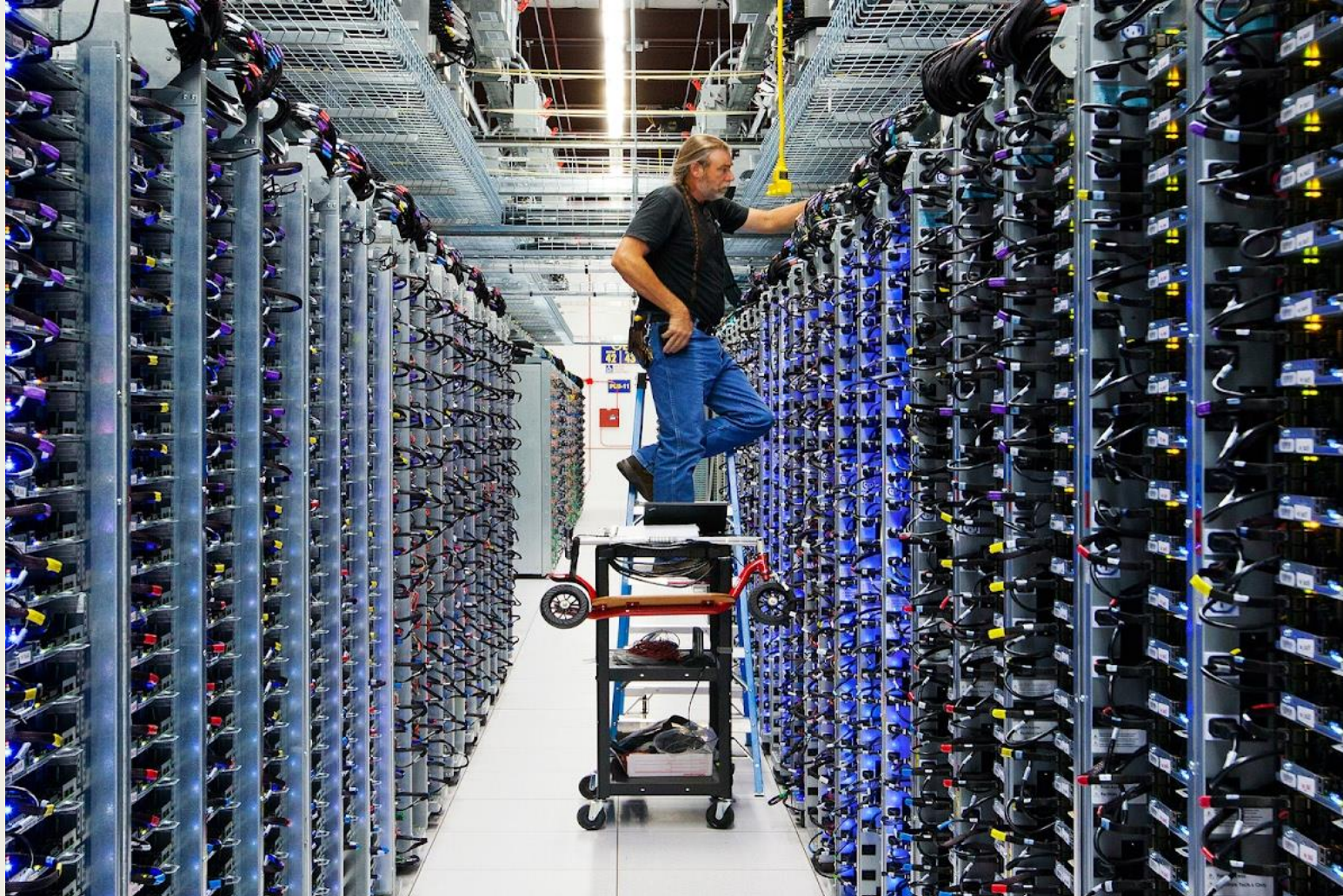


INSTRUCTIONAL EVALUATION

Teaching and Learning Process Analytics



Millions of Temporal Maps of Student Learning Journeys are Stored at Google Data Centers



In the past year,

367,121 IUPTAT
Active Users

from

190 Countries

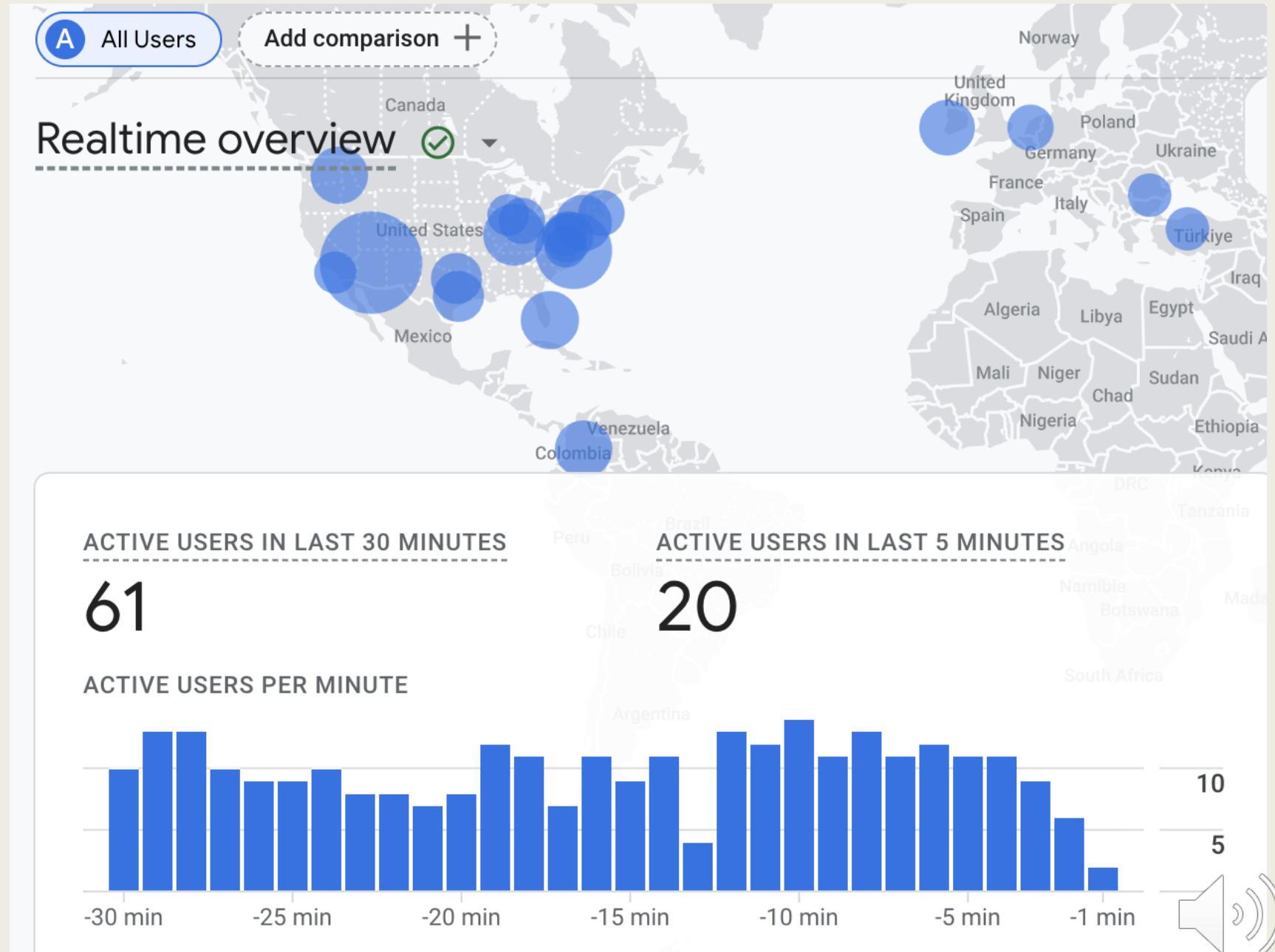
Oct. 1, 2024
thru
Sept. 30, 2025

Demographic details: Country  		
1	United States	286,272 (77.98%)
2	China	17,949 (4.89%)
3	Philippines	17,930 (4.88%)
4	Canada	8,110 (2.21%)
5	Netherlands	3,184 (0.87%)
6	Türkiye	2,773 (0.76%)
7	India	2,234 (0.61%)
8	Germany	1,744 (0.48%)
9	Hong Kong	1,735 (0.47%)
10	Nigeria	1,686 (0.46%)
11	Japan	1,666 (0.45%)
12	South Korea	1,587 (0.43%)
13	United Kingdom	1,387 (0.38%)
14	Belgium	1,269 (0.35%)
15	Colombia	1,217 (0.33%)
16	Belize	1,173 (0.32%)
17	Ireland	1,161 (0.32%)
18	Australia	1,105 (0.3%)



Screen grab of realtime overview in Google Analytics

Oct. 6, 2025,
2 pm EDT



TALPA Queries: Teaching and Learning Process Analytics*

- 1) When *active users* had Tried Any FPI,
how many were Achievers?
- 2) When *active users* had ***not*** Tried Any FPI,
how many were Achievers?

*TALPA is a recent adaptation of Analysis of Patterns in Time in an online learning setting (Frick, 1990).



TALPA Query Results

Based on random sample: 27% of event data, Oct. 1, 2024 – Sept. 30, 2025

1) When *active users* had Tried Any FPI,
how many were Achievers?

Observed in 59,779 learning journeys

2) When *active users* had ***not*** Tried Any FPI,
how many were Achievers?

Observed in 8,170 learning journeys

Odds Ratio: $59,779 / 8,170 = 7.3$ to 1



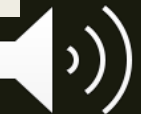
Conclusion: TALPA Findings over 1 Year

- Adult students who tried any part of the IUPTAT online tutorials designed with First Principles of Instruction (FPI) were about 7.3 times more likely to master the learning objective, when compared with adults who had NOT tried any part of the FPI-designed instruction.
- “Goldilocks Effect” –students choose what is “just right” for them to pass a CT.
- Observations of 68,008 learning journeys experienced by achievers from 190 countries illustrate the effectiveness of FPI-designed online instruction.
- TALPA methodology empirically verifies that instruction designed with First Principles is highly likely to be effective.



REFERENCES

And Credits



References

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Photo Credits

- Google Data Center: <https://www.google.com/about/datacenters/gallery/>
 - Screenshots from IUPTAT (cropped): <https://plagiarism.tedfrick.me/>
 - Screenshots from Google Analytics 4 output via IUPTAT registration ID=G-0234HE7Y3S (cropped)
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Credits for IUPTAT Design and Development:
<https://plagiarism.tedfrick.me/credits.html>

Link to this presentation: <https://tedfrick.me/TALPA/TIDE-TALPA-AECT.pdf>