Use of e-Assessment in Mathematics Courses for Engineering Students

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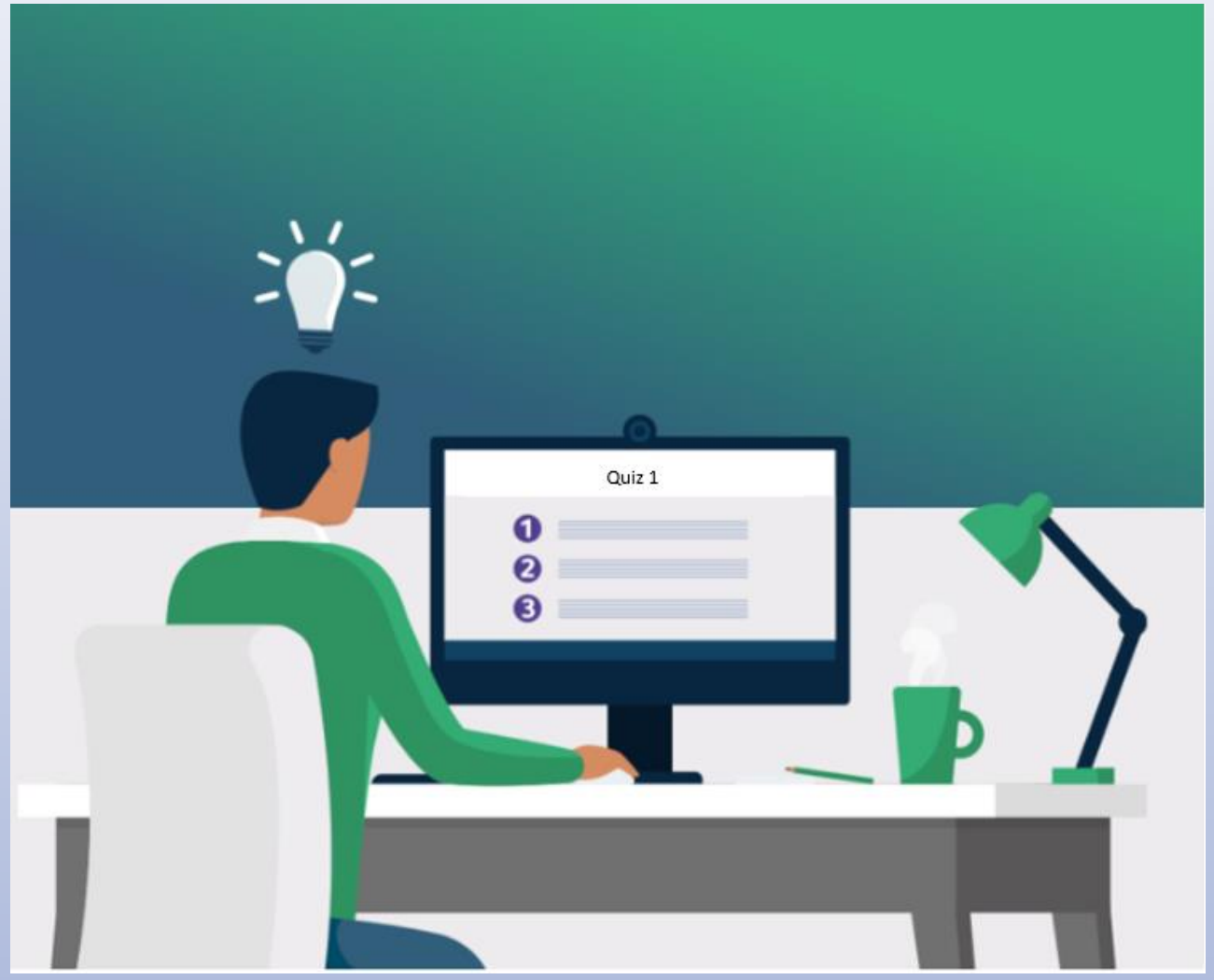
Introduction

What is e-assessment?

- Online assessment
- Computer based testing
- Uses technology
- Evaluation of students' knowledge and skills



Use of e-Assessment in Mathematics Courses for Engineering Students

The study documents how e-assessment, applied in two courses with different modalities and subjects, varied under distinct instructional conditions.

Use of e-Assessment in Mathematics Courses for Engineering Students

Two Enginering Courses:

- Statistical Analysis: Regression and Time Series
- Linear Algebra: Vector Spaces, linear transformations and eigenvalues

The Statistical Analysis Course

- 3rd semester (common core)
- 20 hours, 5 weeks
- Format: ELITE flexible digital (Zoom)
- 100 students (5 campuses)
- 1 head professor and 3 tutor professors

The Linear Algebra Course

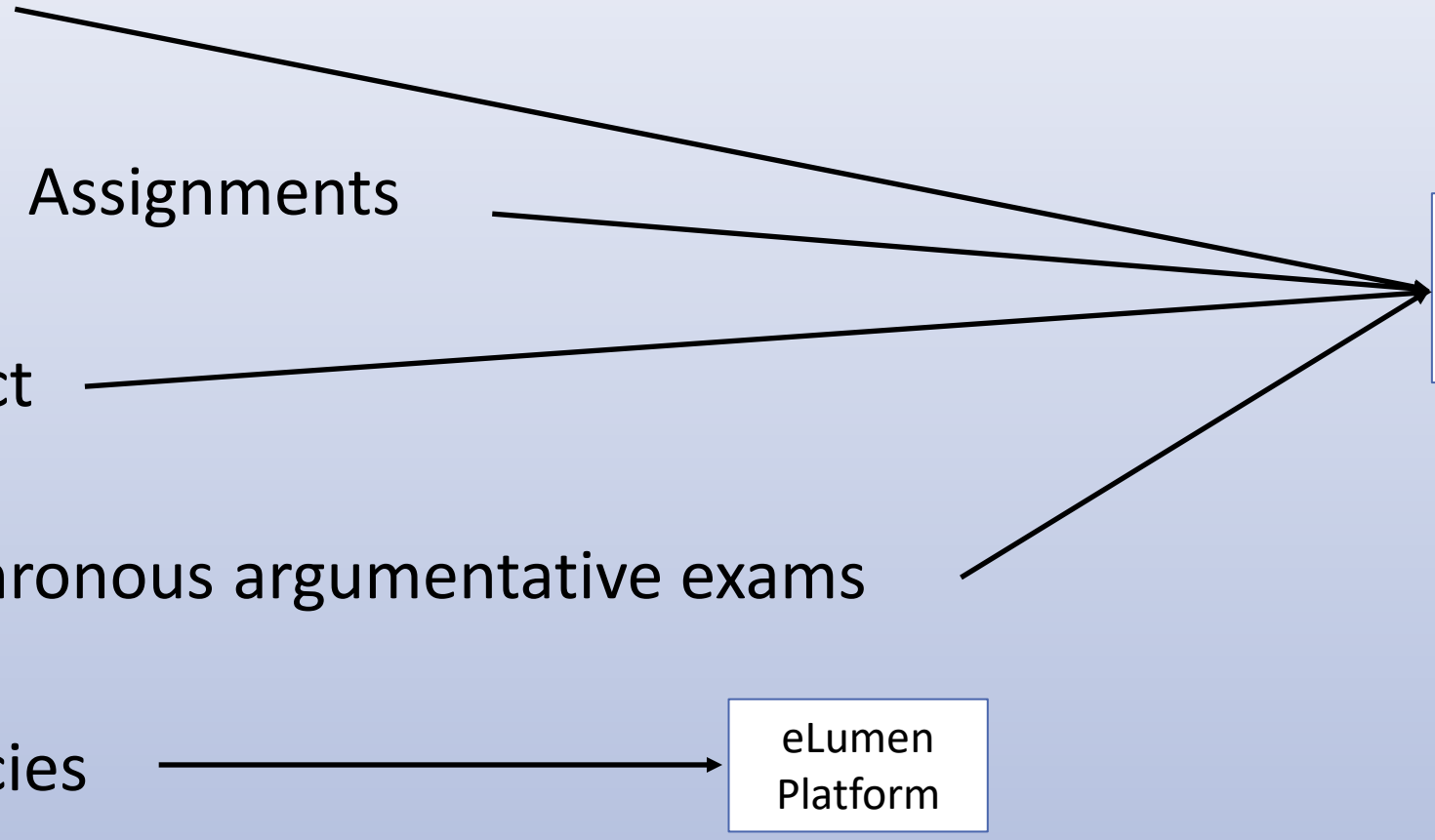
- 2nd semester (common core)
- 20 hours, 5 weeks
- Format: In-person course
- 30 students
- 1 professor

Tools used for the e-Assessment

- Canvas LMS platform
- Respondus Lockdown Browser
- Webassign (designed for STEM courses)

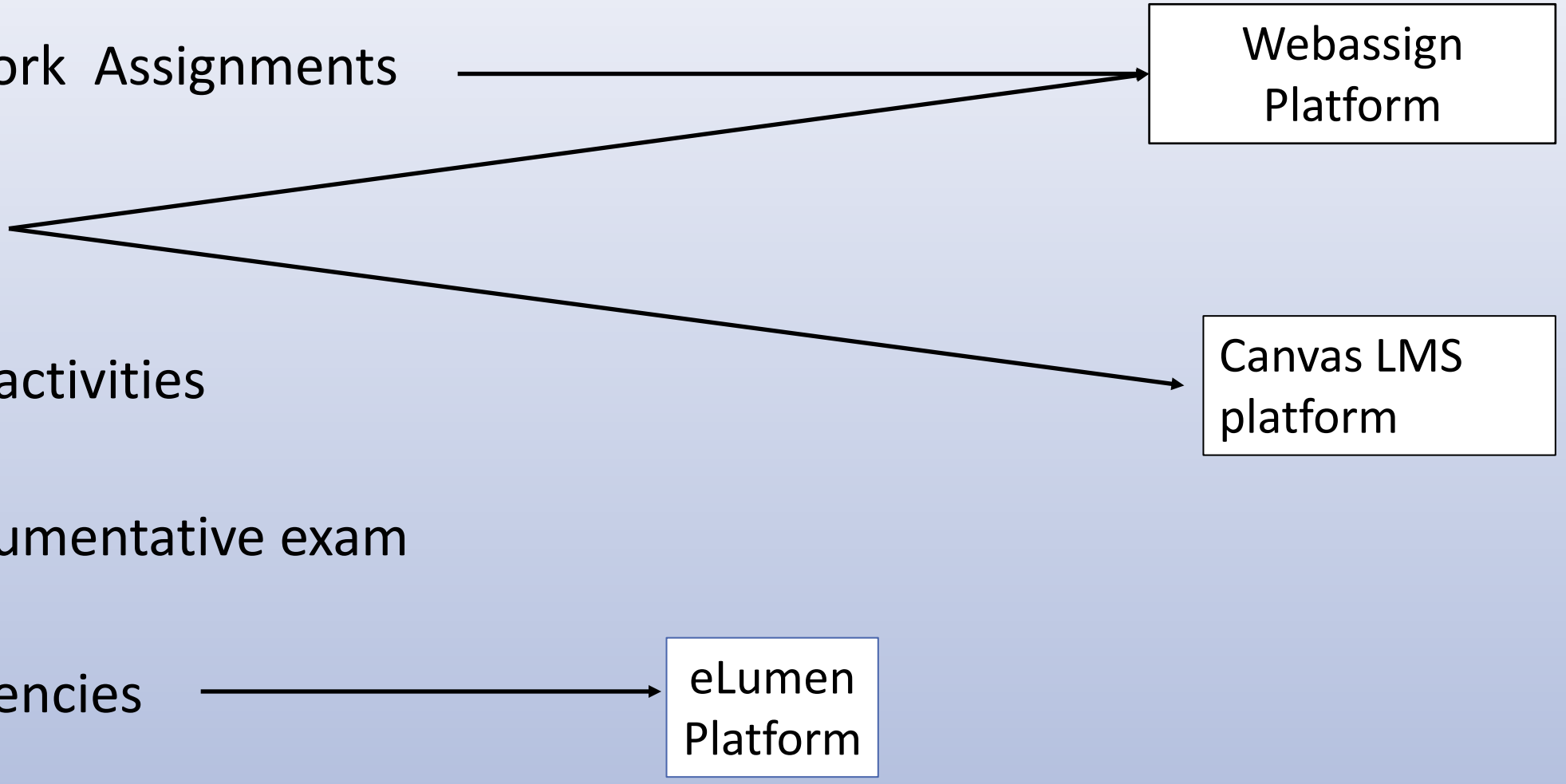
Evaluation of the Statistical Analysis Course

- Quizzes
- Homework Assignments
- Final Project
- Two asynchronous argumentative exams
- Competencies



Evaluation of the Linear Algebra Course

- Homework Assignments
- Quizzes
- In-class activities
- One argumentative exam
- Competencies



Results

Statistics course:

- Every activity was digitized
- Not graded activities (formative assessment)
- HW assignments vs exams (summative assessment):

Activity	Average
HW Assignments	80
Exams	88

(Statistically significant difference)

Results

Linear Algebra course:

- Digital and nondigital activities
- e-Assessment: HW assignments vs Quizzes

Activity	Average
HW assignments	89
Quizzes	91

(Not Statistically Significant difference)

Conclusions

- Feasible use of e-assessment
- Online course: formative and summative performance
- In-person course: Diagnostic and monitoring function
- Competency-oriented evaluation
- Future work: Emerging digital tools

Thank you!