

**PEER-REVIEW OF
ASSESSMENT REPORTS
REINFORCES THE
IMPORTANCE OF
METACOGNITION TO STUDENT
LEARNING**

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This investigation is

- Based on an adaptation of processes from the instructor's experience as a peer-reviewer of assessment reports to the student experience.

Peer & self evaluation assignments

- Show potential as effective metacognitive strategies that encourage students to think about their knowledge gaps and effectiveness of their learning skills.

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Metacognitive assignments have the potential to improve students learning outcomes, similar to how peer-review of assessment reports can improve development of own department assessment reports

BACKGROUND

Course Context

- Undergraduate courses (EEC205, 352G, 440)
- Graduate Course (EEC514)
- Two mid-term exams worth 40% of final grade
- Sampling period: Fall(2020) & Spring(2021)

• Challenge

- Topics tested in mid-term exams are critical to successful completion of a final project

• Issue

- Students tend to focus mainly on mid-term exams grades rather than potential knowledge gaps, improper learning methods or misunderstood concepts

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Implementation of peer and self evaluation for two midterm exams

CHANGE

Implemented Peer & Self Exam Evaluation (P&SE)

- Students receive detailed exam answer key
- Students then complete three main steps in set order

- **Step 1: Peer exam evaluation**
 - In groups based on exam performance (e.g. score of 80-90%)
 - Each group receives a different peer exam selected to maximize learning potential
- **Step 2: Self exam evaluation**
 - Instructed to be done only after the peer exam evaluation
- **Step 3: Reflection of the evaluation process**
 - Complete reflection forms with grades and feedback for both evaluations
 - Answer two Likert scale questions (5-point scale) eliciting perception of the application's usefulness to their learning process

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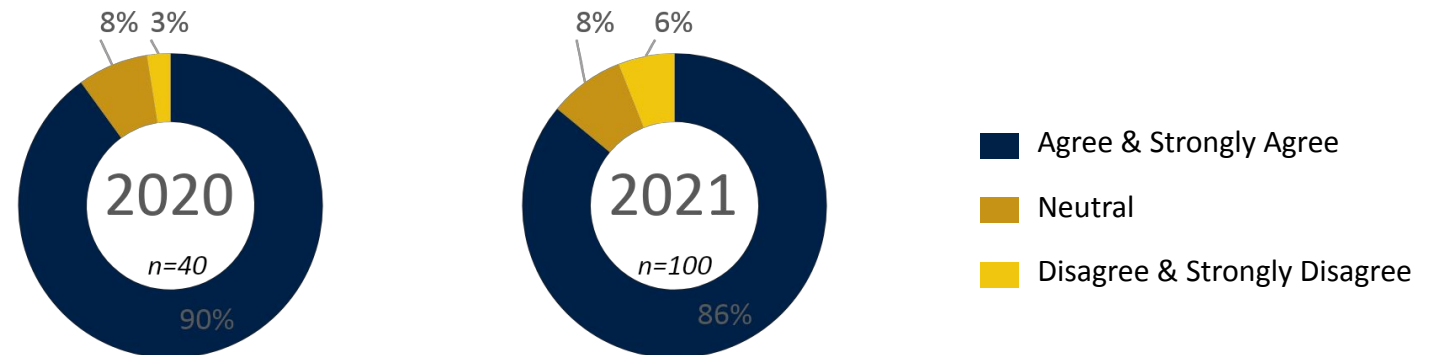
Students perceive the P&S evaluation as beneficial to class material internalization

IMPACT

More than 86% of all students (n=140) agreed or strongly agreed that the **self** grading and evaluation assignment helped their learning process.

About 80% of students agree or strongly agree that the **peer** grading and evaluation was helpful.

Students' perceived usefulness of **self** exam evaluation



- “Being able to go back and see what I did wrong, and then fix it helped me understand the content so much better”
- “I want to stress how helpful it was to grade our own and classmates [exams]”
- “I definitely solidified my understanding of some of the concepts because of my peer’s answers.”
- “[This assignment] added some clarity and additional perspective on thinking about these problems.”
- “I won’t lie, at first I felt a little annoyed having to grade two exams, but you’ve got to trust the plan ;)”

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Metacognitive strategies allow students to improve their learning process & develop critical thinking

DISCUSSION

Recommendations and next steps based on preliminary findings from the online delivery of these courses over the past two semesters

- **Benefits of metacognitive strategies**
 - Students internalize their learning process
 - Instructors track student understanding of class material, correct overconfidence bias & intervene with targeted help
- **Self exam evaluation feedback**
 - Perceived as more useful than peer evaluation
- **Next steps**
 - Collect more data & use statistical inference
 - Observe possible differences between online and F2F delivery of courses

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THANK YOU