

Exam CSI: How Test Autopsies Impact Student Performance

Zach Frank Michael J. McGuire
Allied Health Department Psychology Department
Washburn University
Topeka, KS

Lilly Conference – San Diego 2020

Overview

- What is an exam autopsy?
- Our study and findings
- Analyze autopsy
- Develop your own autopsy

What is an Exam Autopsy?

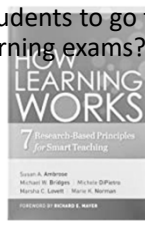
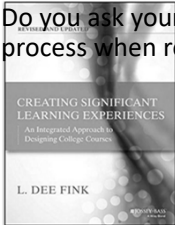
- Reflective post-exam assessment (Owen, 2019)
- Post test analysis (Nilson, 2013)
- For us – section of Exam Wrapper
- Our critical components included
 - Academic Mistakes
 - Test-taking Mistakes
 - Other Mistakes

Goals of Exam Autopsy

- Improve metacognitive awareness/skills
- Decrease errors
- Provide feedback to instructor for consideration

Our Study

- Our stories – motivation for the study
- Do you ask your students to go through a similar process when returning exams?



Do you ask your students to go through a similar process when returning exams?

Previous Research on Post Exam Assessment

Pros

- Increased metacognitive skills (Achacoso, 2004; Lovett, 2013)
- Nurtured student-instructor rapport (Achacoso, 2004, McGuire, 2018)
- Students perceived activity as useful (Geezer-Templeton et al., 2017; McGuire, 2018)

Cons

- No difference on exam performance (McGuire & Frank, 2019; Soicher & Gurung, 2016; Thompson, 2012)
- No increase in Metacognitive skills (McGuire & Frank, 2019; Soicher & Gurung, 2016; Thompson, 2012)

Research Questions

1. What category of mistakes (Academic, Test-Taking, & Other) do students most often report out?
2. Do reported mistakes decrease over the semester? If so, which category of mistakes decreases the most (gains)?
3. Does course (AL101 vs. PY100) matter?

Study Design: 3 x 3 x 2 Mixed Factorial

- Factor 1: Exam (RM Factor)
- Factor 2: Mistake Category (RM Factor)
- Factor 3: Course (BG Factor)

Methods

•Participants

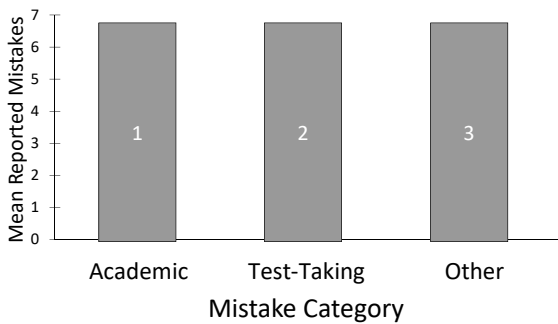
- AL101 = 19
- PY100 = 26

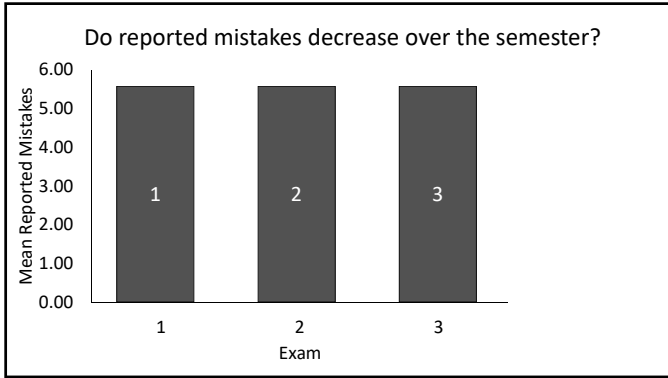
•Procedure

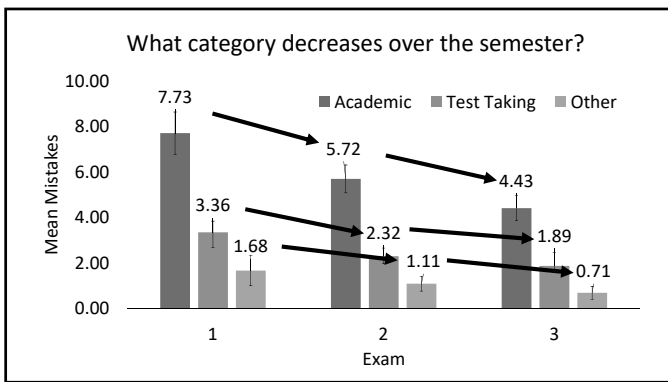
- Completed in class
- Day of exam return
- About 10 minutes

Results

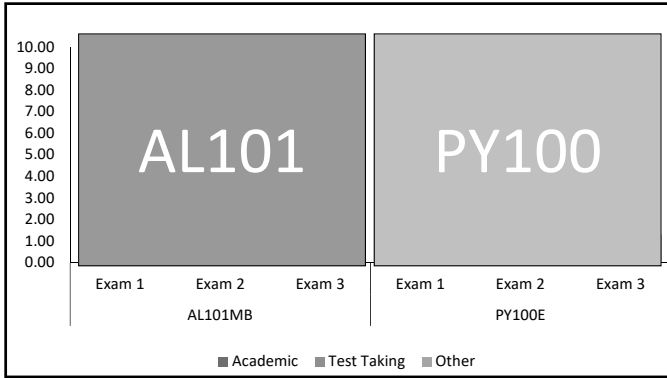
Poll Time: Which category of mistakes is selected most?







Does course matter?
AL101 vs PY100



Limitations

- Faculty's familiarity with exam wrappers
- Limited exposure
- Lack of follow through

Your Turn (modified jigsaw)!

1. Pair up with someone who has the same colored circle (on index card) as you but different number.
2. Next, we're splitting you up – 1s on one side and 2s on the other side.
3. After relocating pair up with someone who has a different colored circle than you.

Group 1	Group 2
Focus on Adjustments	What would you do?
G1 Instruction	G2 Instruction

Group 1	Group 2
Focus on Adjustments	What would you do?
<ul style="list-style-type: none">•Academic > Test Taking•Test Taking > Academic•Other > Academic	<ul style="list-style-type: none">•What changes would you make?•Why – is content important?•Are there questions you ask regardless of content?•Are there certain questions that fit into more than one category?

Return to your original partner from Step 1, which was...

Pair up with someone who has the same colored circle (on index card) as you but different number.

First...	Second...
Focus on Adjustments	What would you do?
<ul style="list-style-type: none"> • What changes would you make? • Why – is content important? • Are there questions you ask regardless of content? • Are there certain questions that fit into more than one category? 	<ul style="list-style-type: none"> • Academic > Test Taking • Test Taking > Academic • Other > Academic

<p>Future Research</p> <ul style="list-style-type: none"> • Control for exam ‘curving’ • Counterbalance type of mistake • Control for difficulty of exams <ul style="list-style-type: none"> • Difficulty levels • Type of Question (i.e., factual, applied, conceptual)

<h1>Questions</h1> <p>zach.frank@washburn.edu michael.mcguire@washburn.edu</p>
--

Selected References

- Achacoso, M. V. (2004). Post-test analysis: A tool for developing students' metacognitive awareness and self-regulation. *New Directions for Teaching and Learning*, 2004(100), 115–119. <https://doi.org/10.1002/tl.179>
- Ambrose, A. A., Bridges, M. W., DiPietro, M., Lovett, M. C., & Norman, M. K. (2010). How do students become self-directed learners? In *How learning works: Seven research-based principles for smart teaching* (pp. 188–216). San Francisco: Jossey-Bass.
- Gezer-Templeton, P. G., Mayhew, E. J., Korte, D. S., & Schmidt, S. J. (2017). Use of exam wrappers to enhance students' metacognitive skills in a large introductory food science and human nutrition course. *Journal of Food Science Education*, 16(1), 28–36. <https://doi.org/10.1111/1541-4329.12103>
- Lovett, M. C. (2013). Make exams worth more than the grade: Using exam wrappers to promote metacognition. In M. Kaplan, N. Silver, & D. Lavaque-manty (Eds.), *Using reflection and metacognition to improve student learning: Across the disciplines, across the academy* (pp. 18–52). Sterling, VA: Stylus.
- Soicher, R. N., & Gurung, R. A. R. (2017). Do exam wrappers increase metacognition and performance? A single course intervention. *Psychology Learning & Teaching*, 16(1), 64–73. <https://doi.org/10.1177/1475725716661872>
- Thompson, D. R. (2012). Promoting metacognitive skills in intermediate spanish: Report of a classroom research project. *Foreign Language Annals*, 45(3), 447–462. <https://doi.org/10.1111/j.1944-9720.2012.01199.x>
