

Promoting a Growth Mindset: Using Generative-AI to Uncover Themes in Student-Identified Areas of Growth

Luther Copeland, C. Boscardin PhD, W. Stevens, K. Hauer MD

BACKGROUND

- The traditional block clerkship education structure doesn't facilitate longitudinal assessment and feedback across the clerkship year to foster students' development of a growth mindset.
- Our institution grouped clerkships into Thematic Clinical Blocks (TCBs) based on their potential for similarity in acquisition of, and continuity in, medical knowledge and practice.
- Students had dedicated curricular time to review their numerical and narrative evaluations from individual clerkships within a TCB and write reflections identifying which clinical competencies they deemed areas of individual strength and growth.
- This study seeks to use the reflections to elucidate common themes between TCBs, so that the institution can better support students in achieving competency goals.

METHODS

- Thematic analysis of 130 clerkship student reflections was conducted using *Versa chat*, a generative-AI web application akin to ChatGPT 3.5, designed by the UCSF AI Tiger Team.
- Reflection prompts invited students to reflect on strengths and growth areas in 2 of the school's 7 ACGME-aligned competencies. We asked *Versa* to identify similarities and differences between themes in the reflections according to TCB, with emphasis on areas of growth.
- Investigators coded level of reflection using a validated rubric, with discrepancies reconciled by *Versa*.

RESULTS

- Medical Knowledge and Patient Care most commonly cited competencies
- Versa* also derived specific methods used by students to improve competency

DISCUSSION

- Student-identified growth areas are consistent across clerkships, with similar underlying themes. Furthermore, Generative-AI serves as a promising tool for qualitative data analysis, yielding insight for institutions to provide targeted assistance to students.

Regardless of clerkship grouping, students most commonly cite **Medical Knowledge** and **Patient Care** as self-identified areas of growth.

Life Stages

Clerkships: Pediatrics, OB/GYN

Overall themes include:

- Cultivating rapport with patients
- Tailoring care to patients' unique medical and social needs
- Developing professional identity

MK: Prepare summaries and teaching material for teams and patients
PC: Advocate for patients' needs

Medical Core

Clerkships: Medicine, Neurology, Psychiatry

Overall themes include:

- Building a broad base of medical knowledge
- Locating and applying evidence in clinical decision-making
- Navigating healthcare systems

MK: Use educational resources such as Anki, rely less on notes to deliver fluent presentations, read primary literature more consistently
PC: Improve documentation skills

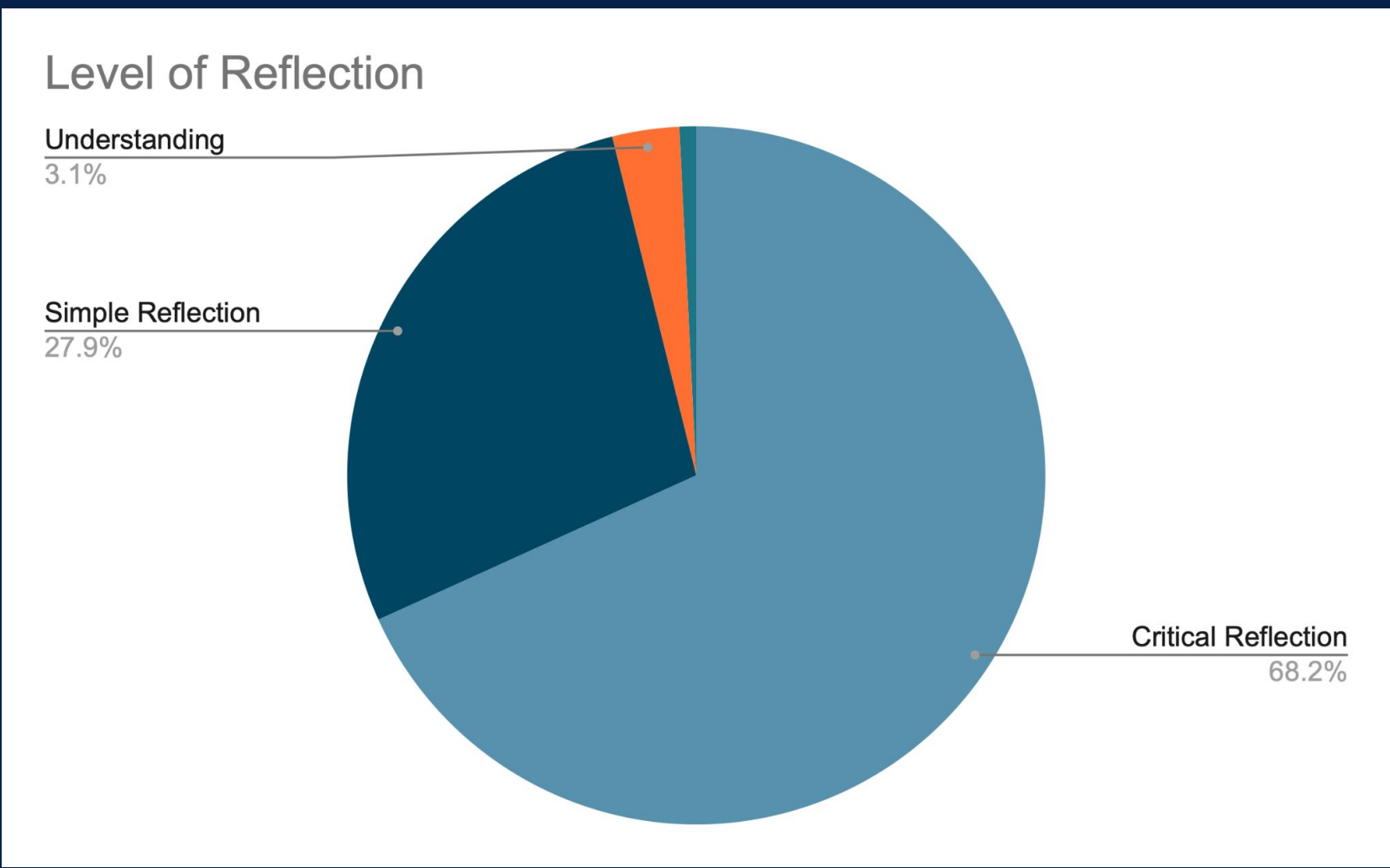
Surgical Core

Clerkships: Surgery, Anesthesiology

Overall themes include:

- Gaining technical proficiency
- Developing and presenting concise assessment & plans

MK: Take on acting-intern-level responsibilities, anticipate team's resource needs during rounds, participate in procedures
PC: Emphasis on improving patient comfort, developing quick presentations



Life Stages	Medical Core	Surgical Core
Patient Care	Medical Knowledge	Patient Care
Medical Knowledge	Patient Care	Medical Knowledge
Interpersonal and Communication Skills	Interpersonal and Communication Skills	Interpersonal and Communication Skills
Professionalism	Practice-Based Learning and Improvement	Practice-Based Learning and Improvement
Practice-Based Learning and Improvement	Professionalism	Professionalism
Systems-Based Practice	Systems-Based Practice	Systems-Based Practice
Interprofessional Collaboration	Interprofessional Collaboration	Interprofessional Collaboration

Most commonly cited themes by frequency, according to *Versa*



University of California San Francisco

Levels (Score)	Definition
No reflection (0)	No comments related to the feedback or future actions
Understanding (1)	Acknowledgment of feedback but no future actions stated
Simple reflection (2)	Acknowledgment of feedback or reflection on the feedback with vague future actions
Critical reflection (3)	Critical reflections of the feedback and specific, actionable or measurable future actions aligned with the feedback

To improve in the Medical Knowledge competency... Here are some examples of the future actions they plan to take:

- Completing Question Banks:
 - By the end of F1, one student plans to have completed the UWorld question bank for all core clerkships with shelf exams.
 - A goal was set to complete at least 80% of the UWorld questions by doing 10 questions a day during the last major clerkship (surgery).
- Reading and Utilizing Primary Literature:
 - One student aims to practice looking up and reading one primary piece of literature weekly for the rest of the year.
 - Another student will look up one piece of literature for each patient for the rest of the rotations to support diagnostics or guide proposals.
 - A plan was made to ask residents about landmark studies relevant to patients approximately once a week and develop a system of using the PICO format to extract information.
- Watching Educational Videos:
 - A student plans to watch one sketchy video every day after their surgery rotation...