

"Star of the Day": A Gamified Formative Assessment Approach for Revealing Student Understanding in Health Professions Education

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Why Rethink EBL Session 2?

Key Problems

20–30 min

Sessions often end early
(scheduled: 90 min)

**Low
engagement**

Uneven participation across
students

**Passive
learning**

Reliance on notes and devices

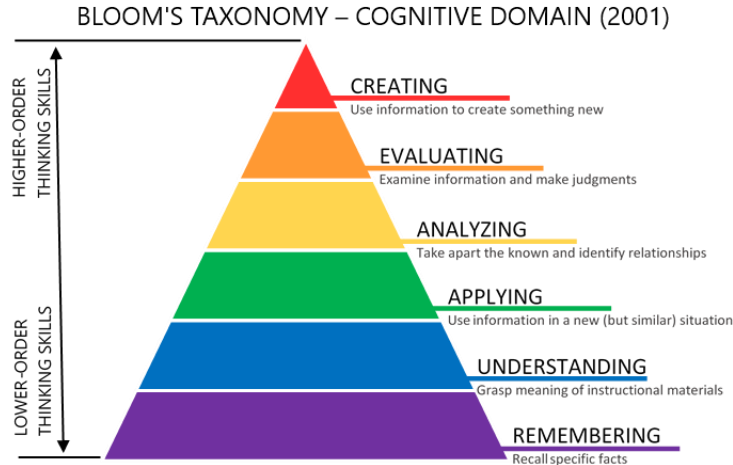


‘Star of the Day’

Pedagogical Foundations

Cognitive Alignment (Bloom's Taxonomy)

- EBL session 2 often operates at Low cognitive level.
 - Krathwohl (2002).



Peer Assessment and Feedback Literacy

- Peer assessment develops evaluative judgement and feedback literacy.
 - Carless and Boud (2018); Topping (2009)

Gamification with Purpose

- Gamification enhances engagement when aligned with learning outcomes.
 - Deterding et al. (2011); Gironella (2023)

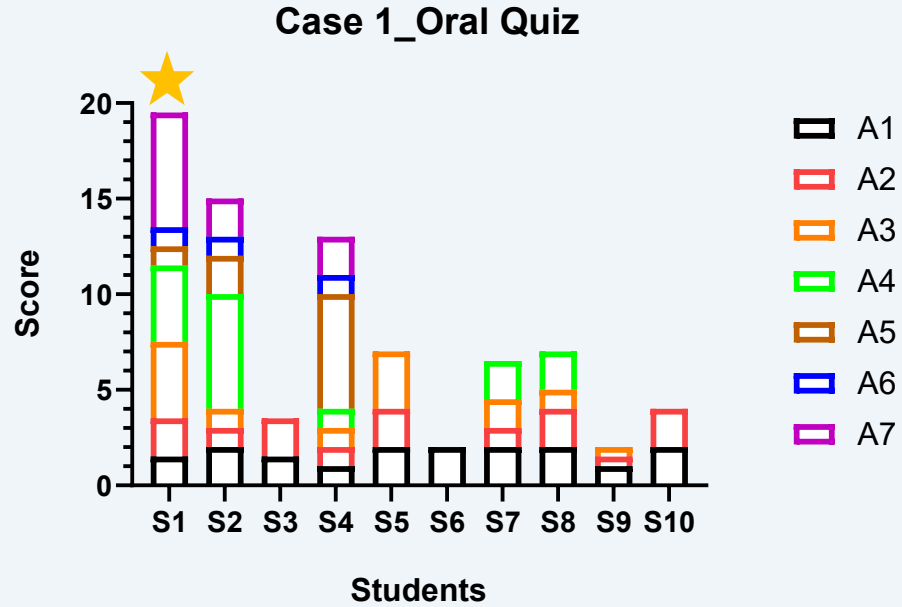
Methodology

- Ethical approval was obtained from The University of Manchester Proportionate University Research Ethics Committee (UREC; Ref: 2026-25975-46959).
- Involving 27 undergraduate students from Year 2 Dentistry enquiry-based learning (EBL) sessions (n=10) and Year 2 Biomedical Sciences tutorials (n=17).

- For EBL Dentistry, a series of iterative “Star of the Day” activities was designed, including:
 1. Case 1: Verbal “Star of the Day” activity
 2. Case 2: ILOs-First Structure and Emerging Issues
 3. Case 3: MCQ-Based “Star of the Day”
 4. Case 4: Crossword Puzzle Activity
 5. Case 5: Presentation-Based “Star of the Day”



Results



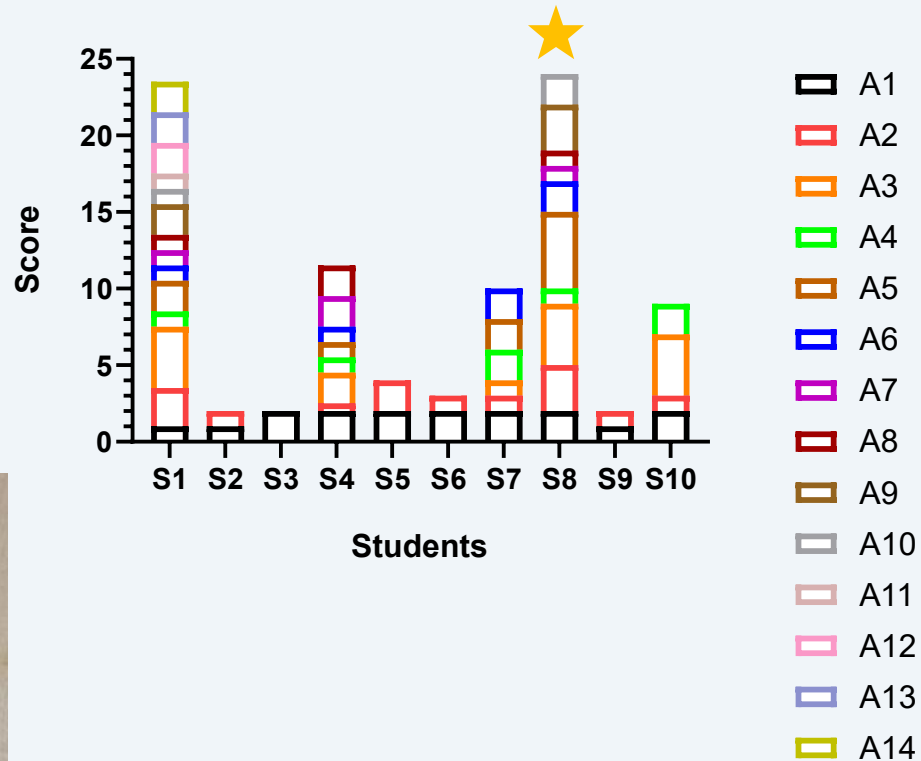
Case 2: Refinement of Star of the Day

➤ **Modification**

- ☐ Students discussed all ILOs first, then completed star of the day activity
- ☐ Verbal format and question types remained unchanged
- ☐ Aim: strengthen conceptual understanding before competition

Results

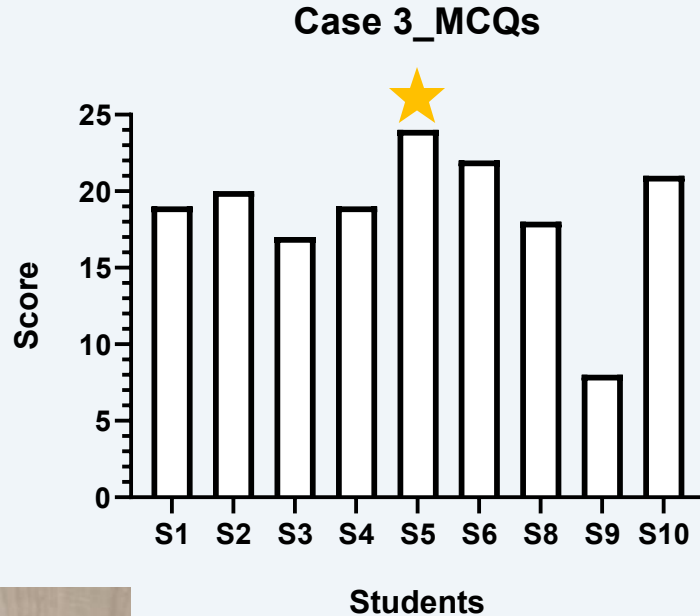
Case 2_Oral Quiz



1:1 Meetings

- Student Feedback (1:1 Meetings)
 - ☐ Some students felt shy/anxious answering publicly
 - ☐ Concerns about speed over understanding
 - ☐ Perceived peer-scoring bias (fairness issues)
- Findings informed further refinement in subsequent cases

Results



- **Key Improvements**
- ❑ Reduced reliance on verbal confidence
 - ❑ Eliminated peer-scoring bias
 - ❑ Increased fairness and objectivity
 - ❑ More even student participation



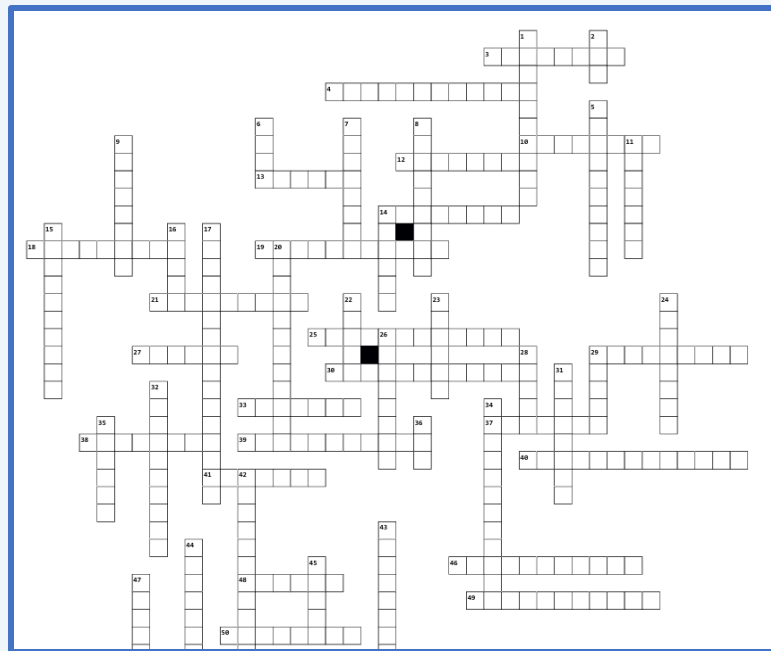
Case 4: Crossword-Based Star of the Day

➤ Activity Design

- ☐ Individual crossword puzzle based on ILOs
- ☐ Completed after ILO discussion
- ☐ No devices or notes allowed
- ☐ 1 point per correct answer

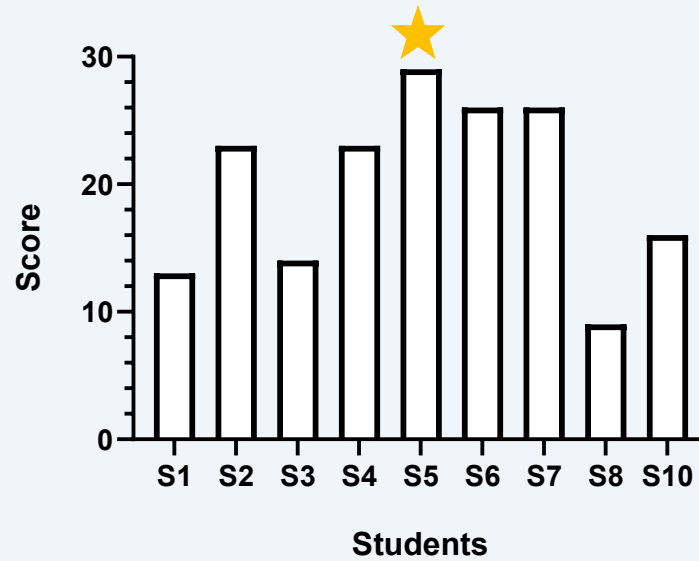
➤ Educational Impact

- ☐ Higher cognitive demand vs MCQs (no answer cues)
- ☐ Required active recall + correct terminology/spelling
- ☐ Reduced guessing → deeper conceptual understanding



Results

Case 4_Crossword

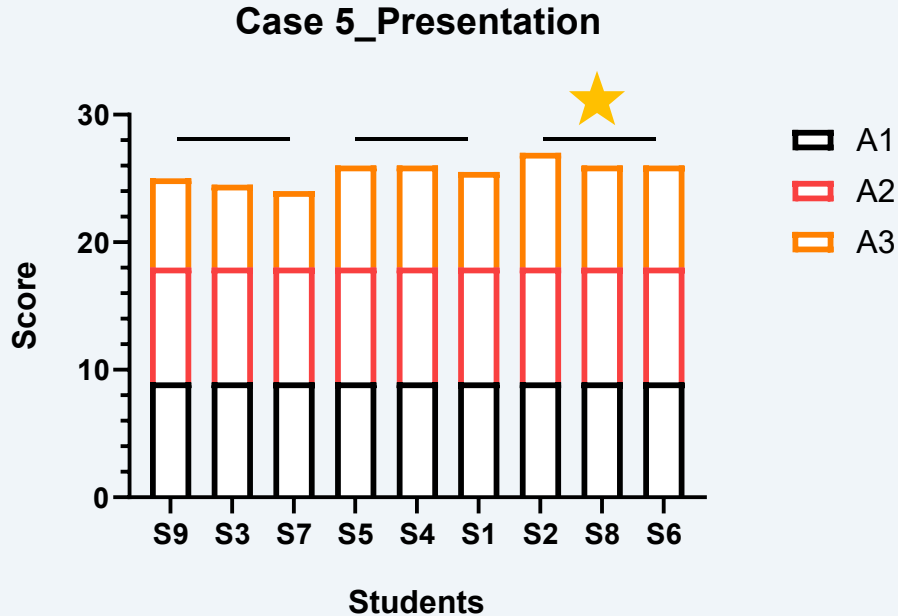


Case 5: Presentation-Based Star of the Day

➤ Activity Design

- ☐ Group-based oral presentations aligned with ILOs
- ☐ 3 topics → slides shared 1 day in advance
- ☐ Random slide allocation during Session 2
- ☐ Each student presents 3 slides (3 minutes)
- ☐ 10-minute preparation time
- ☐ Marked (0–10) by peers + tutor
- ☐ Group with highest average score → ★ Star of the Day

Results

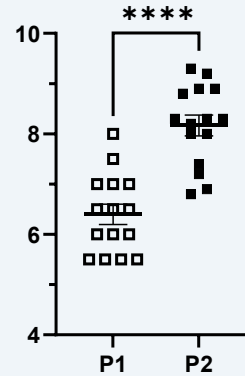
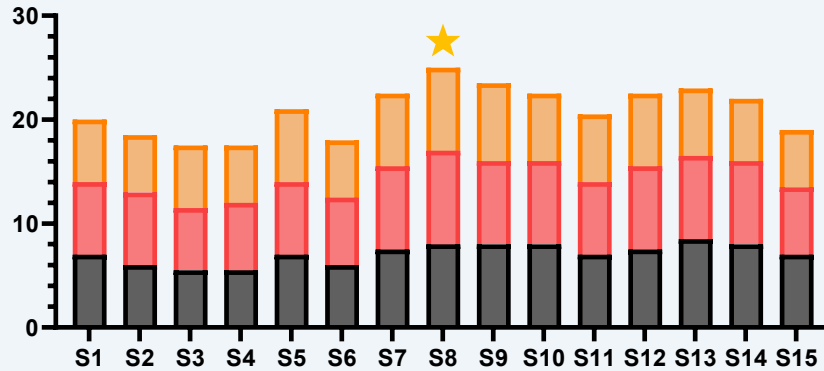


➤ Educational Impact

- ☐ Supported assessment preparation & feedback literacy
- ☐ Developed communication and presentation skills



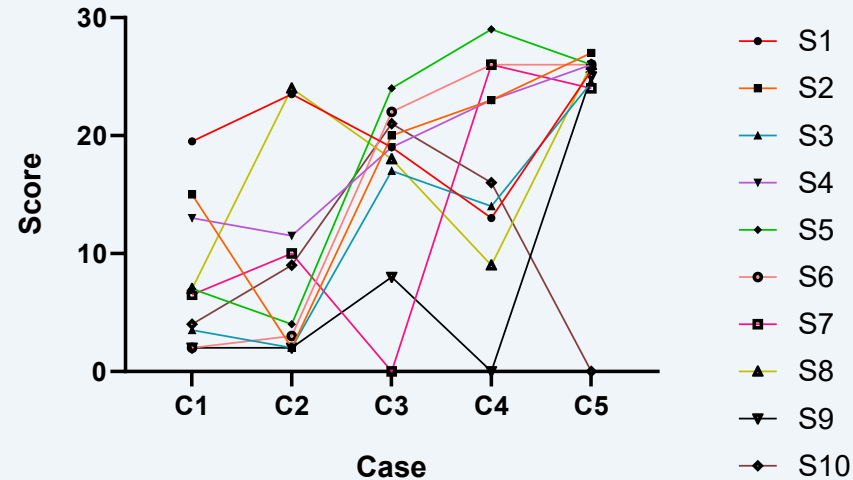
Biomedical Sciences Tutorial



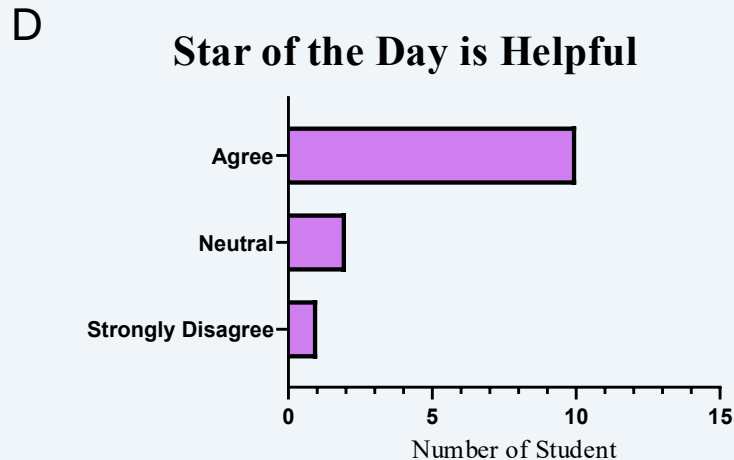
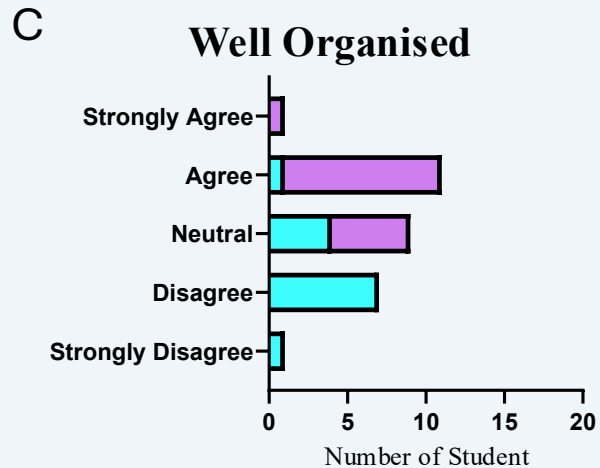
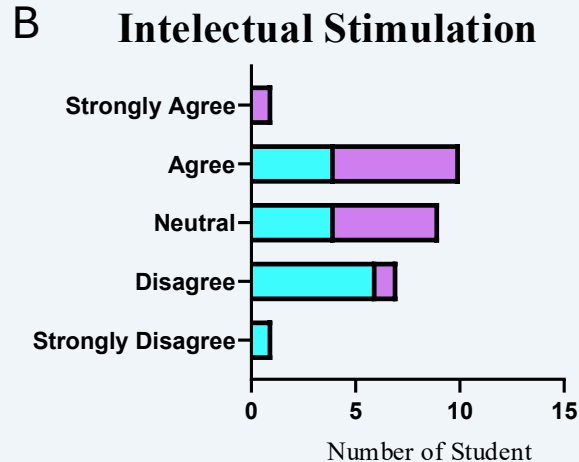
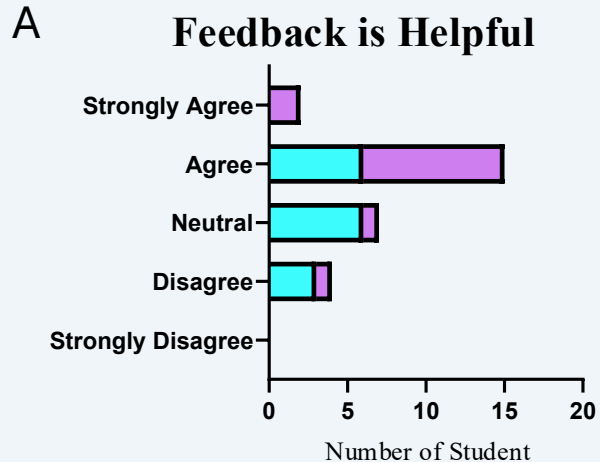
- Presentation scores obtained during the “Star of the Day” presentation activity. Black and red bars represent scores awarded by peer assessors, whereas orange bars represent tutor-assigned scores.
- Comparison between tutor-awarded presentation scores during the formative “Star of the Day” presentation activity (P1) and scores achieved in the subsequent summative presentation assessment (P2).

Impact of “Star of the Day” on EBL Dentistry

- Assessment format influenced performance
- Inclusivity improved with reduced verbal pressure
- Validity and fairness increased in structured formats



Impact of “Star of the Day” on Student Survey



Conclusion

- The “Star of the Day” may support more inclusive visibility of student understanding in health professions education.
- Different formative assessment modalities reveal different dimensions of student understanding and participation that were not consistently visible through verbal discussion alone.
- Structured retrieval-based formative activities may provide a practical approach for enhancing engagement, inclusivity, and formative feedback processes in undergraduate health professions education.
- Implementation requires institutional support.



References

- Krathwohl, D. R. (2002). "A revision of Bloom's taxonomy: An overview." Theory into practice **41**(4): 212-218.
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- Topping, K. J. (2009). "Peer assessment." Theory into practice **48**(1): 20-27.
- Deterding, S., et al. (2011). From game design elements to gamefulness: defining "gamification". Proceedings of the 15th international academic MindTrek conference: Envisioning future media environments.
- Gironella, F. (2023). "Gamification pedagogy: A motivational approach to student-centric course design in higher education." Journal of University Teaching and Learning Practice **20**(3): 1-28.

Application Beyond Dentistry

- Implemented in Year 2 Biomedical Sciences tutorials
- Driven by feedback highlighting limited engagement

Any Questions??

Gamification and Sustainability

- “Star of the Day” aligns with Education for Sustainable Development (ESD)
- Promotes inclusive, reflective, and participatory learning
- Gamified formative assessment supports:
 - ☐ Active engagement
 - ☐ Reflection on understanding
 - ☐ More balanced participation

