Adapting Moodle for teaching EBM
using Team-Based Learning in a large classroom:
a Design and Development Research case study

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Introduction

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- The workhorse of teaching EBM is **small group PBL**
- An ancient university (1240) with **traditional** faculty and students

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- The workhorse of teaching EBM is **small group PBL**
- An ancient university (1240) with **traditional** faculty and students
- Therefore I always had few students interested in EBM, and **PBL wasn't a problem**

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Challenge

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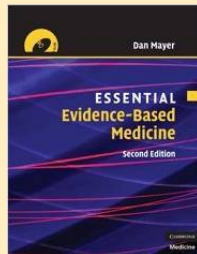- Luckily, I have been a regular attender of the **EBHC conference** for the last 6 editions
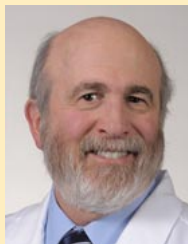
Conference Workshop:
How to...teaching EBHC with Team Based Learning

Dan Mayer, 3rd EBHC, 2005

Team-Based Learning

- A way of having several PBL groups (teams) in a classroom
- Students are divided in stable Teams (5-6 students)

Out of class Usu. 30-50 pages	In class Usu. 1 to 1.5 hours	In class Usu. 3 to 5 class meetings
Readings for preparation	Readiness Assurance Process: Individual test → Same test completed as a team → Appeals → Mini-lecture	Application activities Teams work on a significant problem that requires them to make a significant choice. All teams work on the same problem and report simultaneously.

Structure of a team-based learning module

- Teaching and explanations mostly occur **during discussions**
- Grading is obtained by a mixture of individual RATs, Team scores, and peer evaluation

Group Readiness Assessment Test

Application exercises

Problems with TBL

- It requires a reverse way of thinking the course
- Required readings and application activities must be carefully paired
- A huge amount of grade keeping/accounting (individual, team, peer)
- Tons of paper

My solution: use Moodle

- Use Moodle for:

- Blended course
- Live attendance
- Computer room with 50 seats
- 7-8 teams at the time (out of 30)

- Organization
- Reading material
- RATs
- Application exercises
- Grade keeping
- Feedback questionnaire

Local adaptation to TBL

- Competition = cheating
- Students didn't like peer evaluation
- Students who could not follow the course

- Changes:
  - RATs only used to record attendance
  - Grade given on a final Critical Reading Question (CRQ), randomized over 12.
    - An essay about the usefulness of an article in a specific clinical vignette
    - Structured grading for summarizing the problem, validity, results, application, further needs
  - Peer evaluation performed but not used in grades
  - Still possible to gain extra points with appeals

Technical details

Moodle modules

Reading materials: Resources
Individual RATs: Quiz module
Team answers: additional team accounts
Team RATs: Quiz with adaptive responses
Application exercises: Quiz module
CRQ: Assignment module
Feedback: Questionnaire module
Peer evaluation: custom PHP script

Topics

9 meetings

- Introduction (plenary)
- Anatomy/Physiology/Pathology of the medical literature
- Literature search (Pubmed, Scholar - Background and foreground questions)
- Scientific frauds
- Diagnosis and Screening (very different!)
- Therapy
- Risk
- Systematic Reviews
- Clinical Practice Guidelines, decision aids, SBAR, other written documents

Program evaluation

Program indicators

- Attendance
- Peer evauation (quality of participation)
- RATs/exercises
- CRQ results
- Feedback questionnaire
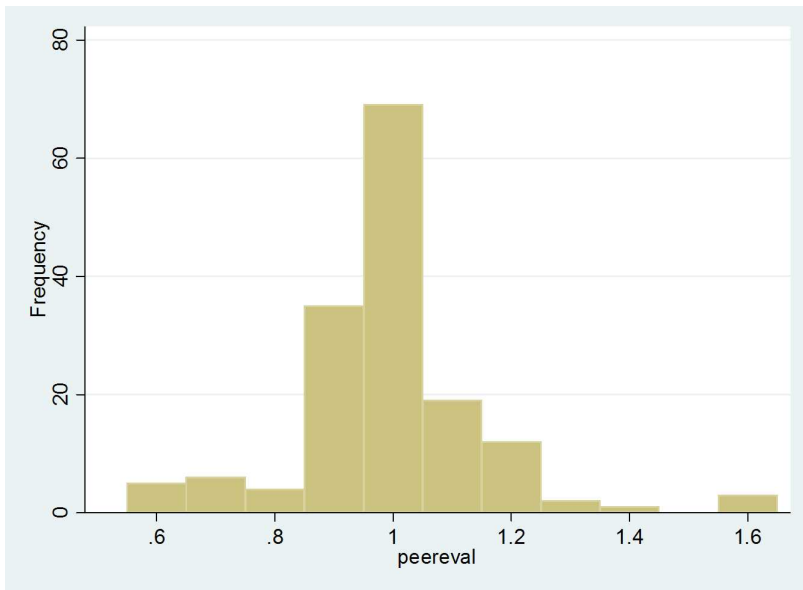 - Closed questions (score 1-5)
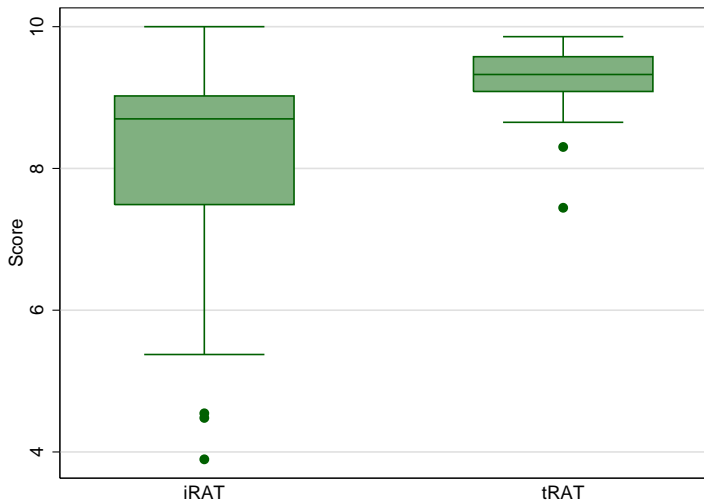 - Open comments

Results

Process indicators

- **Attended** 156
- **Average** 8.1 times (4-9)
- **Took the test**: 158
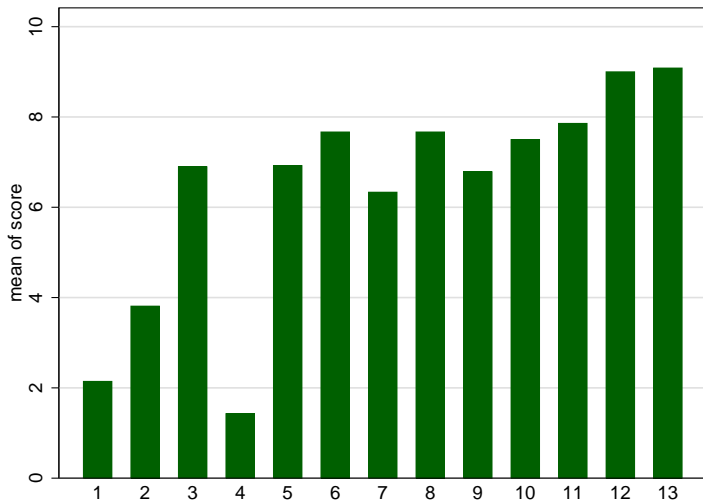- **Never showed-up** 9
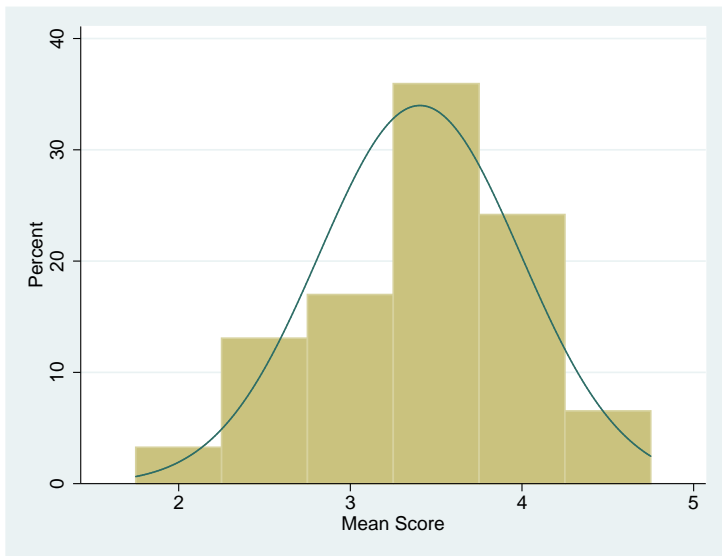- **Feedback questionnaires**: 153

Peer Evaluation

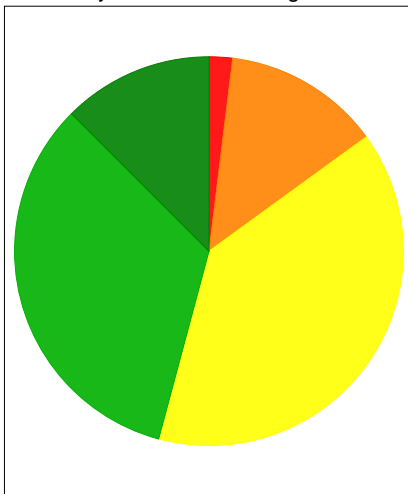# Individual and team RATs

Application exercises

Feedback Questionnaire

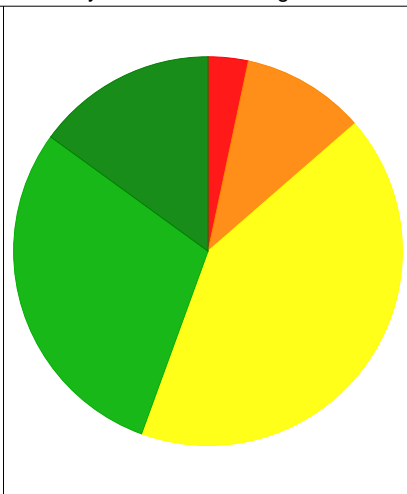# Perceived learning

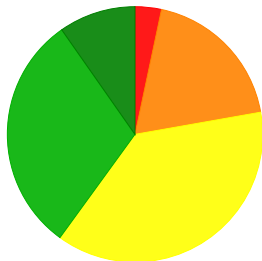Did you learn something new?   Did you learn something useful?

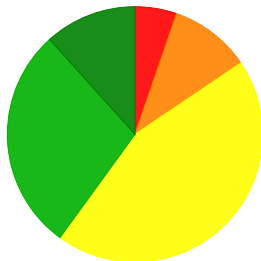Not at all Little Enough Much Very much | Not at all Little Enough Much Very much

Learning preferences

How much did you like the way of teaching?

How much TBL is suitable for these matters?

ow much would you like to use TBL for other disciplin
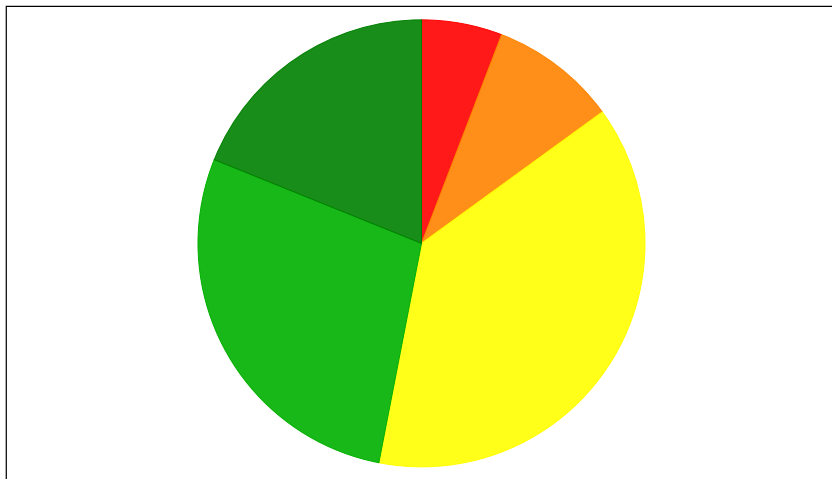
How much would you rather prefer lectures?

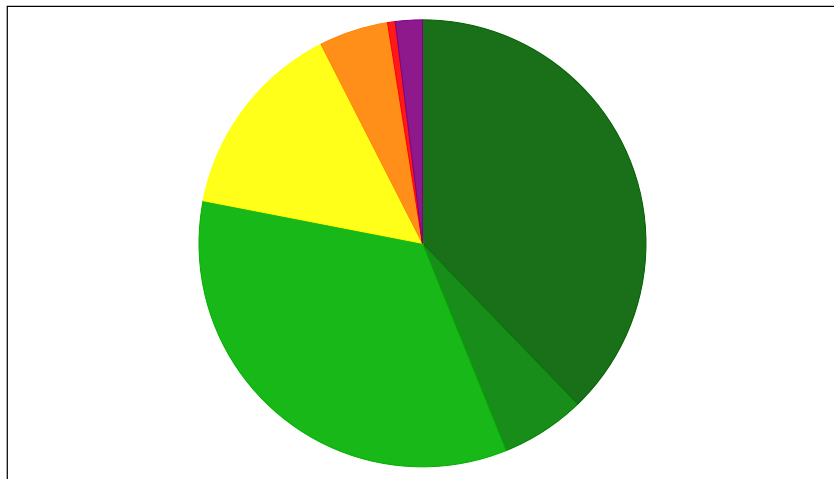Not at all   Little   Enough   Much   Very much

Fun?

Was it fun?

CRQ

CRQ Penalties

Open comments

Positive aspects

- 63% mentioned interactivity, hands-on or TBL
- 10% mentioned Pubmed or literature
- 6% couldn't find anything good

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Negative aspects

- 41% confusion, noise, organization
- 27% logistic aspects (timetable, location)
- 12% Nothing
- 1% Everything

Conclusions

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- *Questions?*