TRIPLE JUMP EXERCISE
WHERE/HOW IT BEGAN

- Developed at McMaster University in 1974
- The undergraduate M.D. Program emphasized problem based learning in a small group tutorial setting
- Difficult to isolate a particular student’s contributions independent of the group
- Need for a measure of an individual’s critical thinking and problem solving abilities
TRIPLE JUMP
3-STEP STRUCTURED EXERCISE

- Step 1 – initial analysis of a problem (30 minutes)
  - Student receives a written case protocol
  - In the presence of the assessor the student reads through the case and presents an oral review and analysis of the case including:
    - Hypothesis generation
    - Acquisition and interpretation of the clinical evidence presented in the case
    - Initial exploration of underlying mechanisms

- Step 2 – Independent research (2 hours)

- Step 3 – Synthesis (30 minutes)
  - In the presence of the assessor the student:
    - Describes the information search
    - Explains how research priorities were set
    - Identifies the resources used
    - Presents a final analysis of the problem
    - Relates new knowledge obtained
    - Explains how this new knowledge relates to the student’s understanding of the problem
    - Presents a self-assessment of TJE performance
TRIPLE JUMP EXAM
INDIANA UNIVERSITY SCHOOL OF DENTISTRY

- Problem-based learning program began in 1997 for the DDS Class of 2001
- TJE chosen as one tool to assess student progress and performance in the PBL program
- Follows same basic structure as the Triple Jump Exercise at McMaster
- “Grade” is Satisfactory/Unsatisfactory

- Administered (initially) four times each year to 1st year students (twice each semester)
- Administered (for several years) twice in the Fall semester, with the spring semester reserved for remediating students with Unsatisfactory scores
- Currently the TJE is administered three times per year – twice in the Fall semester and once in the Spring semester.
Exam is conducted over two consecutive mornings

Examiners are faculty, many of whom are also PBL tutors and 4th year DDS students, all of whom are PBL tutors

About 36 examiners needed for each TJE (100 students in each class of the DDS program)

Each examiner scores 2, 3, or 4 students

TRIPLE JUMP EXAM

IUSD FORMAT

Stage 1 – 20 minutes with an examiner and a written patient case

- Identify the health care problems
- Propose hypotheses
- Explore existing knowledge
- Develop learning issues to extend existing knowledge
TRIPLE JUMP EXAM

IUSD

FORMAT

- Stage 2 – Independent research – 2 hours
- Stage 3 – 20 minutes with an examiner
  - Present research findings
  - Relate findings to the health care problem
  - Identify new limits of knowledge
  - Design new learning issues
  - Perform a brief self-assessment

RATIONALE FOR ITS USE

- PBL places responsibility for learning on the student
- PBL encourages development of problem-solving and critical thinking skills along with knowledge acquisition
- Assessment needs to match the curriculum
### TRIPLE JUMP EXAM

#### RATIONALE FOR ITS USE

- Skills and abilities the students are expected to develop in PBL must be assessed.
- Can be difficult to identify an individual’s growth and development in PBL skills in the group setting.
- Like it or not - student performance is driven by assessment.

### MINUTE PAPER EXERCISE

_Spend one minute . . ._

List three reasons why your DDS program should implement the Triple Jump Exam as an assessment tool _AND/OR_ List three reasons why your DDS program should NOT implement the Triple Jump Exam as an assessment tool.
TRIPLE JUMP EXAM

REMEDICATION

- If a student receives an Unsatisfactory score . . .

  - Student meets with the TJE examiner to review the student’s performance and the examiner’s comments

  - At the conclusion of this meeting, the examiner and student may agree that the student is ready to be re-tested

  - If the examiner and the student feel additional remediation is needed, the Office of Dental Education will assign a different examiner to work with the student

- When the examiner and the student agree that the student is ready to be re-tested, the Office of Dental Education will schedule another TJE with yet a different examiner and a different case

  - Students must pass three TJE
TRIPLE JUMP EXAM

EXAMINERS

- Many of the examiners are IUSD faculty – most also serve as PBL tutors

- Several 4th year DDS students (those who also serve as PBL tutors) serve as examiners for the TJE

- PBL tutors do not serve as examiners for members of their own PBL group(s)

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TRIPLE JUMP EXAM

EXAMINERS

- Problems encountered when TJE was first implemented at IUSD
  - Examiners were non-calibrated
  - Variable interpretation of process skills
  - Highly subjective assessment and scoring
  - Poor documentation to support scores
TRIPLE JUMP EXAM EXAMINERS

- Strategy to resolve these problems . . .
  - Consensus training of examiners:
    - Based on calibration strategy for clinical examiners
    - Acquaint prospective examiners with TJE assessment criteria
    - Allow prospective examiners to model assessment of a student in a “mock TJE” exercise
    - Enable sharing/reflection of assessment criteria within a facilitated group of prospective examiners
    - Required for prospective examiners

TRIPLE JUMP EXAM EXAMINERS

- 2001 – Consensus Training
  - Students recruited and videotaped for mock TJE
  - Initial meeting of experienced examiners to view/score student and examiner performance (consensus score)
  - Facilitated meeting of examiners to reflect on evaluation categories and score mock exercise
  - Independent scoring by each examiner with narrative supporting comments
  - Facilitated discussion to bring examiners to consensus with consensus score developed earlier
TRIPLE JUMP EXAM EXAMINERS

○ Consensus Training – Effect on Student Scores
  
  • No clear statistical picture
  
  • Reduction in the number of student appeals of TJE scoring
  
  • Less student concern about perceived subjective nature of exam
  
  • Positive examiner feedback about proficiency in administering exam

TRIPLE JUMP EXAM EXAMINERS

○ Participate in an initial training session

○ Participate in an annual calibration session

○ Year-end gathering of examiners to discuss problems, issues, and concerns
  
  • This last has led to changes in both the case content and the evaluation form – more on this later . . .
VIDEO CLIP - EVALUATION EXERCISE

- You will see a short video clip of a student performing a Triple Jump Exam

- Review the criteria for scoring:
  - Hypothesis - generation, revision, and ranking
  - Knowledge - exploration and use of existing knowledge

- Indicate with a +, –, or blank the student’s performance in each of the criteria

- Make comments in box supporting your score

TRIPLE JUMP EXAM

CONCERNS

- Requires significant amount of faculty time to conduct and score

- Student performance may be case-dependent

- Evaluator errors may be present

- Student performance on TJE may not reflect or be indicative of behavior in practice
TRIPLE JUMP EXAM
A WORK IN PROGRESS

- Minimize the variance of scoring based on the examiner’s interpretation of the assessment criteria
  - Examiner calibration
  - Re-design the evaluation form

- Minimize the impact the written case itself has on the student’s performance
  - Standardize the length and content of the case
    - The cases varied in length and complexity

TRIPLE JUMP EXAM
A WORK IN PROGRESS

- Pre-2007 TJE Evaluation Form
  - 13 categories for evaluation
  - Some categories duplicative for Stages 1 and 3
  - Some categories not well-defined
  - Little guidance for the examiner on how to grade/score a given student’s performance
1. Approach to the case
   a. the student approached the case in a disorganized fashion
   b. The student approached the case in a systematic fashion

   Student performed more like “a”  3  4  5
   Student performed more like “b”  1  2  3

   Comments:

EXCERPT FROM PREVIOUS EVALUATION FORM

TRIPLE JUMP EXAM

A WORK IN PROGRESS

- TJ Working Group was formed in summer of 2007 – led by Professor Melinda Meadows
  - Condensed the form from thirteen to eight categories
  - Added specific performance criteria for each category
  - Kept the Likert scale and the Comments boxes

- NB: Problem with the Likert scale is that students tend to add up the numbers divide by 8 and think they should have scored a “Satisfactory” if the ‘average’ is 3.
TRIPLE JUMP EXAM
A WORK IN PROGRESS

- Case Writing Panel revision of TJE cases

  - Cases were standardized to the extent possible
    - Same length (# of words/number of pages)
    - Chief complaint/concern/reason for dental visit was similar – eg.:
      - all patients come in for routine visit
      - dentist recognizes symptoms of a systemic disease
    - Same format – eg.:
      - page one introduces patient and chief complaint
      - page two introduces medications and medical/social history
      - page three reveals diagnosis

MINUTE PAPER EXERCISE

Spend one minute . . .

List just one barrier to implementation of the Triple Jump Exam as an assessment tool at your institution –

then create a solution to overcome this barrier . . . .
TRIPLE JUMP EXAM

FURTHER READING