




THE TRIPLE JUMP EXAM AT INDIANA UNIVERSITY SCHOOL OF DENTISTRY


Workshop presented
by
Barbara A. Gushrowski

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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
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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
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TRIPLE JUMP 3-STEP STRUCTURED EXERCISE

- 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
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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
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- 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.
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- 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
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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
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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
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TRIPLE JUMP EXAM

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
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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
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TRIPLE JUMP EXAM

REMEDICATION

- 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
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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
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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
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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
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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
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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 . . .
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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
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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
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EXCERPT FROM PREVIOUS EVALUATION FORM

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"

1

2

3

Student performed more like "b"

4

5

Comments:



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

- Feleti, G., & Ryan, G. (1994). The triple jump exercise in inquiry-based learning: A case study. *Assessment & Evaluation in Higher Education*, 19(3).
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- Painvin, C., Neufeld, V., Norman, G., Walker, I., & Whelan, G. (1979). The "triple jump" exercise--a structured measure of problem solving and self directed learning. *Annual Conference on Research in Medical Education*, 18, 73-77.
- Powles, A. C., Wintrip, N., Neufeld, V. R., Wakefield, J. G., Coates, G., & Burrows, J. (1981). The "triple-jump" exercise--further studies of an evaluative technique. *Annual Conference on Research in Medical Education*, 20, 74-79.
- Smith, R. M. (1993). The triple-jump examination as an assessment tool in the problem-based medical curriculum at the University of Hawaii. *Academic Medicine*, 68(5), 366-372.

