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TEACHING FEEDBACK TECHNIQUES TO MEDICAL STUDENTS: USING PEER EVALUATION AT IUSM-SB

Indiana University School of Medicine Campus Wide System

IUSM is second largest medical school in country (322 student).

Students are distributed between Indianapolis (~150) and a statewide network of 8 branch campuses.

The South Bend campus has 24 students in each of the 1st and 2nd year classes.
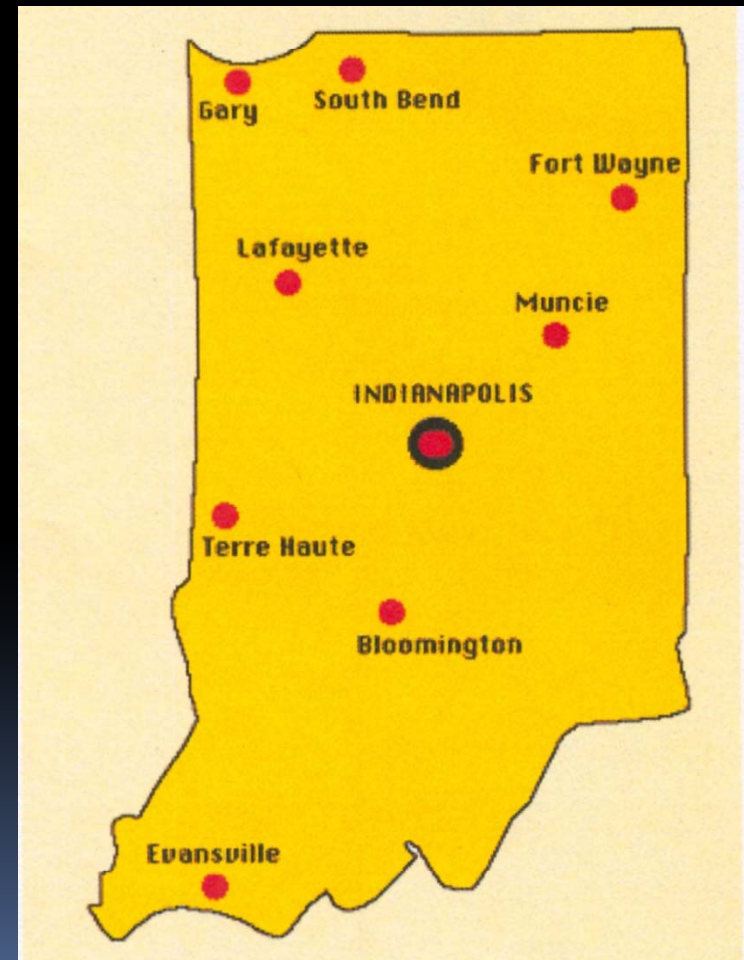
1st Year Teaching Program

- 1st Semester:
    - Embryology - 1 week
    - Gross Anatomy – 7 weeks
    - Biochemistry and Molecular Biology 5.5 weeks
    - Histology and Cell biology – 4 weeks
- 2nd Semester:
    - Neuroscience – 5 weeks
    - Physiology – 5 weeks
    - Immunology and Microbiology 6 weeks
- Introduction to Clinical Medicine – Both Semesters

IUSM Competencies

1. Communicates effectively with patients, colleagues and/or faculty
2. Clinical skills are appropriate to educational level
3. Effectively uses science in diagnosis, management, therapeutics and prevention
4. Demonstrates skills needed for lifelong learning
5. Demonstrates self-awareness
6. Understands and utilizes social and community context in patient care
7. Demonstrates moral and ethical judgment
8. Demonstrates problem solving ability
9. Displays proper professional attitude and behavior toward colleagues and patients

Team Selection

- 24 medical students were purposefully assigned at the beginning of the year to one of 4 teams using defined criteria:
  - Balancing gender
  - Distributing special talent - e.g., Ph.D, EMT, RN
  - Distributing undergraduate experience with regard to institution, major, and MCAT scores
- Teams were maintained over the entire year.

Student Team-Based Training

- During orientation of first year, students were trained in the principles of team-based learning by completing IRAT and GRAT exercises on assigned TBL readings:

  - TBL on TBL (Michaelsen, L Three Keys to Using Learning Groups Effectively, Adapted from the Professional and Organizational Development Network Essay Series *Teaching Excellence: Toward the Best in the Academy*, Vol. 9, 1997-1998. POD Network, Ames, IA,)

  - Ende, J. Feedback in clinical medical education. JAMA. 1983;250:777-781).

Now you try it…

Student Team-Based Peer Evaluation Training

- In the application portion of the TBL, each team is assigned a scenario to write 2 feedback statements (1 constructive and 1 improvement) using Ende's* 7 guidelines.

- Written feedback statements are posted in the classroom and each team is asked to select the best written response to the scenario (gallery walk)— they can not vote for their own response.

*J. Ende, JAMA 1983;250:777-781

7 Feedback Guidelines

- Ende's article on Feedback in Clinical Medical Education*
  - A common goal between teacher/learner
  - Well defined and expected
  - Based on empirical data
  - Defined by behaviors that are remediable
  - Phrased in non-evaluative language
  - Focuses on specific performance; not generalizations
  - Deals with decisions and actions and not assumptions

Inter-team Discussion

- Upon completion of the written scenario application, each team discusses and defends their own response.

- Each team will also discuss and defend the response they thought was best.

- Discussion framework is based on Ende's guidelines.

Now you try it…

Implementation

- A formative peer feedback was administered online after students completed at least 3 TBL sessions in assigned teams in Medical Biochemistry.

- A summative peer feedback evaluation was conducted that counted toward the final grade (12 TBLs) at the end of the course.

- A self assessment was issued both times.

Student Evaluation Instruments
Pre-designed Instrument

TEAM-BASED LEARNING - PEER FEEDBACK

Team: _____

Colleague you are evaluating:_____

PART ONE: QUANTITATIVE ASSESSMENT (80%) *(CHECK ONE BOX FOR EACH OF THESE 16 AREAS)* The column *often* is associated with an *average* team member.

COOPERATIVE LEARNING SKILLS Points	NEVER (0)	RARELY (0.50)	SOMETIMES (0.70)	OFTEN (0.85)	ALWAYS (1.0)
1. Arrives on time and remains with team during activities					
2. Demonstrates a good balance of active listening & participation					
3. Asks useful or probing questions					
4. Shares information and personal understanding					
5. Identifies references with relevant information.					
6. Helps Team stay focused and on track					

SELF-DIRECTED LEARNING:	NEVER	RARELY	SOMETIMES	OFTEN	ALWAYS
7. Is well prepared for team activities					
8. Shows appropriate depth of knowledge					
9. Identifies limits of knowledge					
10. Shows confidence in areas of understanding					
11. Demonstrates critical thinking in problem solving					
12. Recognizes & analyzes ethical issues & defends ethical choices					

INTERPERSONAL SKILLS:	NEVER	RARELY	SOMETIMES	OFTEN	ALWAYS
12. Gives instructive feedback					
13. Accepts instructive feedback					
14. Shows care and concern for others					
15. Behaves professionally					
16. Interacts effectively with team members					

PART TWO: QUALITATIVE ASSESSMENT (20%) *(WRITE AT LEAST ONE SENTENCE FOR EACH ITEM)*

1. **What is the single most valuable contribution this person makes to your team?**
2. **What is the single most important thing this person could do to more effectively help your team?**

Example: If you are on a 5 member team, then 4 members will evaluate you. In the quantitative part there are 17 items times 4 team members = 68 items. Your quantitative score will be totaled and divided by 68 to get a percentile times 0.8 to get your quantitative score. In the qualitative part we will score your assessment, with 1 point for each "good" assessment, two per member times 4 members = 8 points maximum. Your qualitative total will be divided by 8 and multiplied by 0.2 to get your qualitative score. So for a member who received 57 points in the quantitative section and 7.5 points in the qualitative section would get:

Quantitative: (57/64) = 89% X 0.8 = 71.2

Qualitative: (7.5/8) = 93.8% X .2 = 18.75

Peer evaluation score   Total = 90.2%

Grading

- Graders evaluated both the formative and summative feedback comments and applied a grading schema based on Ende's principles.

1 = the feedback met all of the criteria noted in training; no revisions to student comment needed; feedback used appropriate, behaviorally based language.

0.8 = the feedback met most of the criteria noted in training; minor revisions to student comment would be necessary.

0.5 = the feedback met 1 or 2 of the criteria noted in training; the student comment needed significant revisions.

0 = the feedback was inappropriate; the feedback did not meet any of the criteria noted in training.

Feedback Reports

- Individual data reports were compiled for each student .

- Reports were de-identified and the order of the data submitted was randomized when reported.

- Students were given written feedback within the report on specific statements that could have been phrased more appropriately, or to acknowledge comments especially well-written.

Sample Report

	Timely	balanced	Asks	Shares	IDs refer	team	prepared	knowledge	IDs limits o	confidence	critical	ethical	gives	accepts	shows	Prof	effective		
Self	1	0.85	0.85	0.85	0.85	0.85	0.85	0.7	0.85	0.85	0.7	0.85	0.7	0.85	1	1	0.85	0.85 self
	1	0.85	1	1	0.85	0.85	1	1	0.85	1	1	0.85	0.85	0.85	1	1	1	0.94
	1	1	1	1	1	0.85	1	1	1	1	1	1	1	1	1	1	1	0.99
	1	0.85	0.85	0.85	0.85	0.85	1	1	1	0.85	1	0.85	0.85	0.85	1	1	0.85	0.91
	1	0.85	0.85	1	1	1	1	1	1	1	0.85	1	1	1	1	1	0.85	0.96
	1	0.7	0.85	1	0.7	0.85	1	1	0.7	1	0.85	0.85	0.85	0.7	0.85	0.85	0.85	0.86

Your Comments

Self I try hard to prepare well for discussion. In addition, I make a point of listening to my team's responses and questions.   0.93 Mean quatitative

1 XXX always has his notes well organized and easily accessible. This (makes) tackling question easier for our team because XXX has his information   0.91 Mean comments

0.8 XXX contributes well to our team and is not afraid to express her opinion.   92.84 Overall score

The comment above may be a bit vague. Contributes well in what way? Do you mean Jessica contributes well to our team because she is not afraid to express her opinion?

1 XXX is always well prepared for discussion and rarely does not know the answer to a question.

0.5 XXX usually has the correct answers and provides useful information when he chooses to participate.

This is a bit negative for a positive comment, in that it implies that participation could be improved. Softer would be to say when he participates.

1 XXX maintains the positive attitude of the group and always offers encouraging words.

Self I could find more of a balance between participating during discussion and listening to my team members.

1 Our team would function better if XXX vocalized his opinion more. It is obvious that he is well-prepared and well organized, and our team would certainly benefit from his insight.

0.8 XXX could prepare more effectively for discussion so that her contribution would have more of an impact than it already does. She could do this by reviewing lectures before participating in TBL.

Consider: XXX input would have more impact if she were more thouroughly prepared.

1 XXX is extremely smart, but he could let other team members contribute more to the conversation. This would help other members of our team work through the material for themselves.

1 XXX could participate and express his opinion more during our discussion. Our team understands the material better and usually gets questions correct when he contributes his knowledge.

1 XXX is a smart person who needs to realize that she should be confident in her abilities. XXX should not be afraid to share her opinions during

With the comments noted above, your ability to provide both positive and constructive feedback to your teammates seems reasonable.

Comments to you

XXX comes well prepared to every TBL and has a solid grasp of the material.

XXX is great at explaining things succinctly if I have trouble understanding something.

XXX is one of the best problem solvers and is able to apply his knowledge extremely well to the discussion questions.

XXX has a good understanding of the material and is a very good teacher. He is able to articulate his understandings to the rest of the team and help all of us to understand the material.

XXX is always well prepared and shows a great understanding of the material in team based learning sessions.

XXX always has good input but sometimes needs to make sure the whole team hears it.

At times XXX sits back and doesn't say much unless he thinks he needs to. XXX is very knowledgeable and increased input would be valuable to the group.

While XXX has an excellent understanding of the material and is great at solving problems, XXX could be more vocal during team discussions and class discussions so that everyone could benefit from his ideas.

XXX could be more effective by increasing his verbal contributions to the team. Often times XXX understands things but lets others take the lead. I

XXX's focus on success of the team may sometimes lead him to rush in pursuit of solutions. I believe that XXX would improve his contribution to

Results

- Average scores for the written comments for the formative session ranged from 0.40-1.0 with a mean of 0.90.

- Average scores for the summative session ranged from 0.84-1.0, with a mean of 0.98.

- Significant improvements occurred in breadth and depth of comments, i.e., using non-evaluative language, focusing on specific performance issues, and offering actionable items for improvement and not generalizations.

Comments

- How have you implemented peer evaluation at your institution?

- How can we make this process better?

- Future research?