

Appendix 1. Harvard Faculty of Medicine IRB approval



Harvard Faculty of Medicine
Office of Human Research Administration
90 Smith Street, 3rd Floor
Boston, MA 02120
Federalwide Assurance FWA00007071

Notification of Initial Study Exemption Determination

June 26, 2017

Felipe Piza
felipe.piza@einstein.br

Protocol Title: Assessing metacognition awareness of learning strategies among medical students and medical faculty
Principal Investigator: Felipe Piza
Protocol #: IRB17-1005
Funding Source: None
IRB Review Date: 6/26/2017
IRB Effective Date: 6/26/2017
IRB Review Action: Exempt

This Initial Study submission meets the criteria for exemption per the regulations found at 45 CFR 46.101(b)(2). As such, additional IRB review is not required. For international research, the Principal Investigator is required to comply with any applicable local laws, legislation, regulations, and/or policies. Additionally, if local IRB/ethics review is required, it must be obtained before any human subjects research activities are conducted in the field. If assistance with applicable local requirements is needed, please contact the Harvard Faculty of Medicine IRB office.

The determination that your research is exempt does not expire, and you will not file annual renewals. If changes to the research are proposed that would alter the IRB's original exemption determination, they should be submitted in ESTR by using the Modify Study button. If unsure, contact the Harvard Faculty of Medicine IRB office.

The IRB made the following determinations:

- Research Information Security Level: The research is classified, using Harvard's Data Security Policy, as Level 2 Data.

Please contact me at 617.432.5132 or kninsala@hsph.harvard.edu with any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Keren-Nicole Insalaco'.

Keren-Nicole Insalaco
Sr. IRB Review Specialist

University Area IRB <http://cuhs.harvard.edu>
Longwood Medical Area IRB <http://www.hsph.harvard.edu/ohra/>

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3 **Appendix 2. Harvard Medical School Academy approval**
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11 **Harvard Medical School Academy**
12 260 Longwood Avenue • TMEC 384 • Boston, MA 02115
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16 Dear Dr. Piza, MD,

17
18 Your study, *“Assessing study strategies awareness among medical students and faculty”* has
19 been approved by the HMS Academy.

20 We are sending a copy of the approval notice and to the HMS IRB. They will assist you with next
21 steps in the HMS IRB review process.
22

23 Thank you and please let us know if you have questions.

24 The Academy

25
26 **The Academy | Harvard Medical School**
27 260 Longwood Ave | TMEC 384 | Boston MA 02115
28 T: 617-432-5401 | F: 617-432-7850 | E: Academy@hms.harvard.edu
29 [The Academy at Harvard Medical School](#)

30 Cc: Kimberley Serpico, HMS IRB
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View Only

Appendix 3. Student's survey questionnaire

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1. Would you say that you study the way you do because a teacher (teachers) taught you to study that way?

Yes

No

2. How do you decide what to study next?

Whatever's due soonest/overdue

Whatever I haven't studied for the longest time

Whatever I find interesting

Whatever I feel I'm doing the worst in

I plan my study schedule ahead of time and I study whatever I've scheduled

3. Do you usually return to course material to review it after a course has ended?

Yes

No

4. When you study do you typically read a text book/article/other source material more than once?

Yes, I reread whole chapters/articles

Yes, I reread sections that I underlined/highlighted/marked

Not usually

5. If you quiz yourself while you study (either using a quiz at the end of a chapter or a practice quiz or flashcards or something else) why do you do so?

I learn more that way than I would through rereading

To figure out how well I have learned the information I'm studying

I find quizzing more enjoyable than reading

I usually do not quiz myself

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3 6. Imagine that in the course of studying you become convinced that you know the answer to a
4 certain question (e.g., the definition of a medical term). What would you do?
5

- 6 Make sure to study (or test yourself on) it again later
7
8 Put it aside and focus on other material
9

10
11
12 7. Which of the following best describes your pattern of study?
13

- 14 I most often space out my study sessions over multiple days/weeks
15
16 I most often do my studying in one session before the test
17

18
19 8. Which of the following study strategies do you **use** regularly? (Please check off all that apply.)
20

- 21 test yourself with questions or practice problems
22
23 use flashcards
24
25 recopy your notes
26
27 reread chapters, articles, notes, etc.
28
29 make outlines while reading
30
31 underline or highlight while reading
32
33 make diagrams, charts, or pictures
34
35 study with friends
36
37 "cram" lots of information the night before the test
38
39 ask questions or verbally participate during class
40
41 other (Please describe) _____
42
43
44

45 9. Do you believe you have a specific learning style (e.g., are you visual or verbal learner)?
46

- 47 Yes
48
49 No
50
51 No, I learn best through multiple methods
52

53
54 10. The next section will present pairs of course or study scenarios. You will be asked to rate
55 each scenario. Two assignments ask students to learn the list of cranial nerves using a
56 mnemonic device. **Assignment A** includes a commonly used mnemonic device provided by
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3 the instructor to assist students in their learning. **Assignment B** asks students to create their
4 own mnemonic device to assist their learning. After two weeks, all students are asked to list the
5 cranial nerves in order. Please give your rating for **assignment A** for learning cranial nerves
6

- 7 Very ineffective
8
9 Ineffective
10
11 Somewhat ineffective
12
13 Neither effective nor ineffective
14
15 Somewhat effective
16
17 Effective
18
19 Very effective
20
21

22 11. Please give your rating for **assignment B** for learning cranial nerves
23

- 24 Very ineffective
25
26 Ineffective
27
28 Somewhat ineffective
29
30 Neither effective nor ineffective
31
32 Somewhat effective
33
34 Effective
35
36 Very effective
37

38 12. In two different classes, a 275-word prose passage about pathophysiology is presented. In
39 **Class A**, students first study the passage for seven minutes, and then are asked to write down
40 from memory as much of the material from the passage as they can. In **Class B**, students first
41 study the passage for seven minutes, and then are asked to study the passage again for another
42 seven minutes. After one week, all students are asked to recall as much of the passage as they
43 can remember. Please give your rating for **class A** for recalling the passage after 1 week.
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- 46 Very ineffective
47
48 Ineffective
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50 Somewhat ineffective
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52 Neither effective nor ineffective
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54 Somewhat effective
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4 Effective
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6 Very effective
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10 13. Please give your rating for **class B** for recalling the passage after 1 week.

- 11 Very ineffective
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13 Ineffective
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15 Somewhat ineffective
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17 Neither effective nor ineffective
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19 Somewhat effective
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21 Effective
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23 Very effective
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3 14. Two professors present 6 slides showing each of 12 tissue types (72 slides total).

4 **Professor A** presents all six slides of a single tissue (i.e., grouped), and then moves on to the
5 next set of tissues' six slides, and so on, until all slides have been presented.

6 **Professor B** presents the various tissues' slides in an intermingled fashion (i.e., mixed), such that
7 a single slide of a particular tissue would be followed by a different tissue. Please give your
8 rating for **professor A's** teaching technique
9

- 10
11 Very ineffective
12
13 Ineffective
14
15 Somewhat ineffective
16
17 Neither effective nor ineffective
18
19 Somewhat effective
20
21 Effective
22
23 Very effective
24

25 15. Please give your rating for **professor B's** teaching technique
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- 27 Very ineffective
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29 Ineffective
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31 Somewhat ineffective
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33 Neither effective nor ineffective
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35 Somewhat effective
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37 Effective
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39 Very effective
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4 16. Two students are studying for an exam. **Student A** studies the two days leading up to the
5 exam. **Student B** starts studying two weeks before the exam, studying a little bit everyday.
6 Both students study the same number of hours. Please give your rating for **Student A's** study
7 strategy
8

- 9
10 Very ineffective
11
12 Ineffective
13
14 Somewhat ineffective
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16 Neither effective nor ineffective
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18 Somewhat effective
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20 Effective
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22 Very effective
23

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25 17. Please give your rating for **Student B's** study strategy
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- 27 Very ineffective
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29 Ineffective
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31 Somewhat ineffective
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33 Neither effective nor ineffective
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35 Somewhat effective
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37 Effective
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39 Very effective
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18. Which of the study strategies do you think is **most effective** for longer term retention? Please click to drag and drop for **ranking** from 1-11. 1 as the most effective and 11 as the least effective.

- _____ test yourself with questions or practice problems
 _____ use flashcards
 _____ recopy your notes
 _____ reread chapters, articles, notes, etc.
 _____ make outlines while reading
 _____ underline or highlight while reading
 _____ make diagrams, charts, or pictures
 _____ study with friends
 _____ “cram” lots of information the night before the test
 _____ ask questions or verbally participate during class
 _____ other (Please describe)

19. What is your current USMLE Step 1 score? - note this is anonymous and survey software does not retain any information about you as an individual

- USMLE_score _____
 I haven't taken Step 1
 Prefer not to answer

Display This Question:

If What is your current USMLE Step 1 score? = I haven't taken Step 1

20. What is your MCAT score? - note this is anonymous and survey software does not retain any information about you as an individual

- Score _____
 Prefer not to answer

21. What is your affirmed gender?

- Man
 Woman
 Other _____
 Prefer not to answer

22. How old are you?

- Age in years _____

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6 23. What year of Medical School are you?

- 7 First year
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9 Second year
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11 Third year
12
13 Fourth year
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15 Fifth year - schools outside the US
16
17 Sixth year -schools outside the US
18
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21 24. What specialty are you pursuing?

- 22 Internal Medicine
23
24 Pediatrics
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26 OBGYN
27
28 General Surgery
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30 Neurology
31
32 Psychiatry
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34 Family Medicine
35
36 Other _____
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38
39 Not decided
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44 25. What is the most common teaching method used in your School?

- 45 Lecture
46
47 PBL - Problem Based Learning
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49 TBL - Team Based Learning
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51 CBCL - Case-Based Collaborative Learning
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53 Other _____
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3 **Appendix 4.** Faculty survey questionnaire
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5 1. Do you discuss study techniques in class?
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7 Yes
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9 No
10

11 *Display This Question:*

12 *If Do you discuss study techniques in class? = Yes*
13
14

15 2. How often do you discuss study techniques?
16

17 A few times a week
18

19 About once a week
20

21 Before tests/major assignments
22

23 About once every semester
24

25 Other _____
26

27
28 3. How do you think your students **choose** to study?
29

30 Whatever's due soonest/overdue
31

32 Whatever they haven't studied for the longest time
33

34 Whatever they find interesting
35

36 Whatever they feel they're doing the worst in
37

38 They plan their study schedule ahead of time and they study whatever they have scheduled
39

40 4. How do you think your students **should** choose to study?
41

42 Whatever's due soonest/overdue
43

44 Whatever they haven't studied for the longest time
45

46 Whatever they find interesting
47

48 Whatever they feel they're doing the worst in
49

50 They plan their study schedule ahead of time and they study whatever they have scheduled
51

52 5. Do you return to earlier material in later sections? (e.g., reviewing week 1 material near the
53 middle of the semester)
54

55 Yes
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4 No
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6 6. Do you recommend study techniques to students, either in class or during out of class
7 meetings?
8

9 Yes

10
11 No
12
13
14

15 7. If yes, which of the following study techniques do **you recommend** students use regularly?
16 (please check off all that apply)
17

18 test yourself with questions or practice problems

19 use flashcards

20 recopy your notes

21 reread chapters, articles, notes, etc.

22 make outlines while reading

23 underline or highlight while reading

24 make diagrams, charts, or pictures

25 study with friends

26 "cram" lots of information the night before the test

27 ask questions or verbally participate during class

28 other (Please describe) _____
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41 8. If you do discuss study techniques in class, do you think students use those techniques?
42

43 Yes

44 Yes for my class, but not necessarily for others

45 No

46 Some do, some do not
47
48
49
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51 9. If you think students should quiz themselves (either using a quiz at the end of a chapter, a
52 practice quiz, flashcards or something else), why should they do so?
53

54 They will learn more that way than through rereading
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4 To figure out how well they have learned the information they're studying
5
6 I do not think quizzing will necessarily benefit students
7

8
9 10. Do you use/encourage spacing techniques in class? (e.g., leaving days/weeks for students to
10 study for the next exam or returning to information after discussing it)

- 11 Yes
12
13 No
14

15
16 11. Do you believe students have different learning styles (e.g., visual vs. auditory learners)?

- 17 Yes (1)
18
19 No (2)
20
21

22 *Display This Question:*

23 *If Do you believe students have different learning styles (e.g., visual vs. auditory learners)? =*
24 *Yes*

25
26 12. Do you teach to accommodate those differences?

- 27 Yes
28
29 No
30
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32 13. The next section will present pairs of course or study scenarios. You will be asked to rate
33 each scenario. Two assignments ask students to learn the list of cranial nerves using a
34 mnemonic device. **Assignment A** includes a commonly used mnemonic device provided by
35 the instructor to assist students in their learning. **Assignment B** asks students to create their
36 own mnemonic device to assist their learning. After two weeks, all students are asked to list the
37 cranial nerves in order. Please give your rating for **assignment A** for learning cranial nerves

- 38
39 Very ineffective
40
41 Ineffective
42
43 Somewhat ineffective
44
45 Neither effective nor ineffective
46
47 Somewhat effective
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49 Effective
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51 Very effective
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55 14. Please give your rating for **assignment B** for learning cranial nerves
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- Very ineffective
- Ineffective
- Somewhat ineffective
- Neither effective nor ineffective
- Somewhat effective
- Effective
- Very effective

For Peer-Review Only

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15. In two different classes, a 275-word prose passage about pathophysiology is presented. In **Class A**, students first study the passage for seven minutes, and then are asked to write down from memory as much of the material from the passage as they can. In **Class B**, students first study the passage for seven minutes, and then are asked to study the passage again for another seven minutes. After one week, all students are asked to recall as much of the passage as they can remember. Please give your rating for **class A** for recalling the passage after 1 week.

- Very ineffective
- Ineffective
- Somewhat ineffective
- Neither effective nor ineffective
- Somewhat effective
- Effective
- Very effective

16. Please give your rating for **class B** for recalling the passage after 1 week.

- Very ineffective
- Ineffective
- Somewhat ineffective
- Neither effective nor ineffective
- Somewhat effective
- Effective
- Very effective

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4 17. Two professors present 6 slides showing each of 12 tissue types (72 slides total).

5 **Professor A** presents all six slides of a single tissue (i.e., grouped), and then moves on to the
6 next set of tissues' six slides, and so on, until all slides have been presented.

7 **Professor B** presents the various tissues' slides in an intermingled fashion (i.e., mixed), such that
8 a single slide of a particular tissue would be followed by a different tissue. Please give your
9 rating for **professor A's** teaching technique
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- 12 Very ineffective
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14 Ineffective
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16 Somewhat ineffective
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18 Neither effective nor ineffective
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20 Somewhat effective
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22 Effective
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24 Very effective
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28 18. Please give your rating for **professor B's** teaching technique

- 29 Very ineffective
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31 Ineffective
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33 Somewhat ineffective
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35 Neither effective nor ineffective
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37 Somewhat effective
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39 Effective
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41 Very effective
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3 19. Two students are studying for an exam. **Student A** studies the two days leading up to the
4 exam. **Student B** starts studying two weeks before the exam, studying a little bit everyday. Both
5 students study the same number of hours. Please give your rating for **Student A's** study strategy
6

- 7 Very ineffective
8
9 Ineffective
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11 Somewhat ineffective
12
13 Neither effective nor ineffective
14
15 Somewhat effective
16
17 Effective
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19 Very effective
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22

23 20. Please give your rating for **Student B's** study strategy
24

- 25 Very ineffective
26
27 Ineffective
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29 Somewhat ineffective
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31 Neither effective nor ineffective
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33 Somewhat effective
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35 Effective
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37 Very effective
38
39
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21. Which of the study strategies do you think is **most effective** for learning? Please click to move and **rank** from 1-11. 1 as the most effective and 11 as the least effective.

- _____ test yourself with questions or practice problems
- _____ use flashcards
- _____ recopy your notes
- _____ reread chapters, articles, notes, etc.
- _____ make outlines while reading
- _____ underline or highlight while reading
- _____ make diagrams, charts, or pictures
- _____ study with friends
- _____ “cram” lots of information the night before the test
- _____ ask questions or verbally participate during class
- _____ other (Please describe)

22. How many years have you been teaching?

- Number of years _____

23. What subject/area do you teach? If more than one, choose the subject/area you teach in the most

- Pre clinical medical students
- Clinical medical students
- Residency

24. On average how many students do you teach on a regular basis in a classroom or clinical setting each year?

- Number of students _____

25. What is your academic rank?

- Professor
- Associate Professor
- Assistant Professor
- Adjunct Professor
- Graduate Teaching Assistant
- Academic Adviser

1
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4 Instructor

5
6 Other _____

7
8
9
10 26. Please sum to 100% how do you distribute your working time

11 patient care : _____

12 administrative : _____

13 clinical research : _____

14 laboratorial research : _____

15 teaching : _____

16 other : _____

17 Total : _____

18
19
20 27. What is the **most** common teaching method used in your School?

21 Lecture

22 PBL - Problem Based Learning

23 TBL - Team Based Learning

24 CBCL - Case-Based Collaborative Learning

25 Other _____

26
27
28
29
30
31
32
33 28. What is your affirmed gender?

34 Man

35 Woman

36 Other _____

37 Prefer not to answer