

Why Does *Your* Learner Score Poorly on Tests?

Using Self-Regulated Learning Theory to Diagnose the Problem and Implement Solutions

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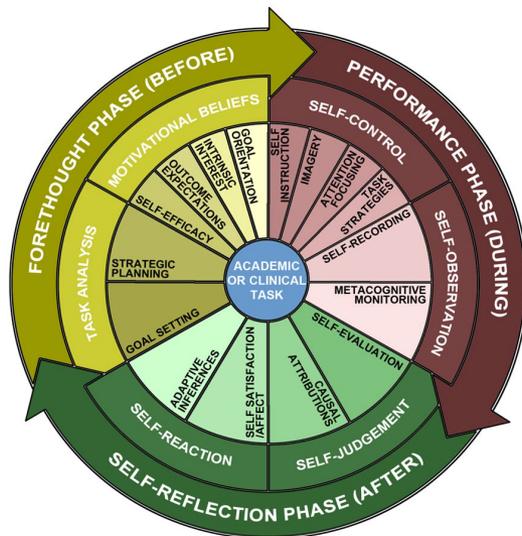
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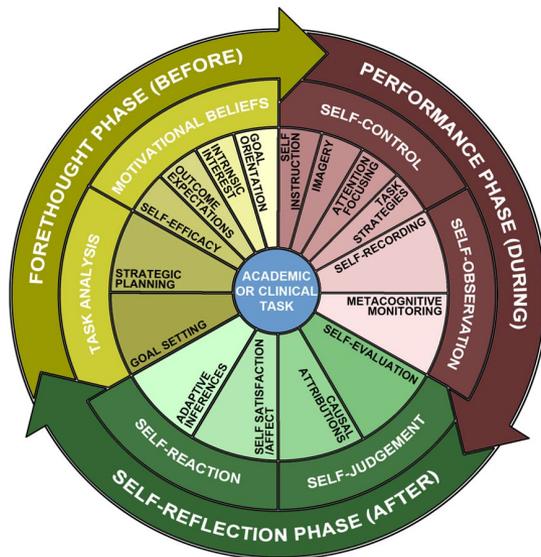


[opening clip.]

SRL



SRL + MAT



Question Review Form

Cover up the answers and the actual question being asked. Then read through the stem and answer #1-6.

1. What is the most likely diagnosis for this patient?

2. What is the specific clinical scenario and/or severity of this disease?

For example, if the disease was depression, the specific clinical scenario could be: uncomplicated depression, depression in the elderly, depression with history of mania, depression with suicidal ideation, etc..

3. What factor(s) support your diagnosis?

4. What factor(s), if any, are inconsistent with your diagnosis?

5. How confident are you that the patient has the diagnosis you listed in #1?

Not at all confident	Slightly confident	Moderately confident	Quite confident	Extremely confident
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6. How confident are you in your assessment of the specific clinical scenario/level of severity you listed in #2?

Not at all confident	Slightly confident	Moderately confident	Quite confident	Extremely confident
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Uncover the question (e.g., "What is the next best step in management?") but keep the answers covered.

7. What is the learning objective for this question? (E.g., "Manage an acute COPD exacerbation.")

Objectives

- List why a trainee may underperform on tests
- Introduce Self-Regulated Learning (SRL) theory and script theory
- Demonstrate a standardized method using SRL theory to determine test-taking deficiencies and suggest individualized solutions
- Describe common test-taking deficiencies
- Audience practice using Question Review Form (QRF)

The views expressed here are those of the authors and do not necessarily represent the official policy of the United States, Department of Defense, the United States Army, the United States Navy, or the Uniformed Services University.

No conflicts of interest.

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A 25-year-old woman is brought to the emergency department 1 hour after she fainted. She has had mild intermittent vaginal bleeding, sometimes associated with lower abdominal pain, during the past 3 days. She has had severe cramping pain in the right lower abdomen for 12 hours. She has not had a menstrual period for 3 months; previously, menses occurred at regular 28-day intervals. Abdominal examination shows mild tenderness to palpation in the right lower quadrant. Bimanual pelvic examination shows a tender walnut-sized mass in the right parametrium. Which of the following is the most likely diagnosis?

- (A) Appendicitis
- (B) Cancer of the ovary
- (C) Ectopic pregnancy
- (D) Endometriosis
- (E) Ovarian cyst
- (F) Placenta previa

Scope of the problem

Licensing exam FAILURE rates 2017-18, % (#)

- NBME Medicine shelf exam: 5% (956)
- USMLE
 - Step 1: 4% (1,003)*
 - Step 2CK: 4% (933)
 - Step 3: 2% (388)
- ABIM Medicine Certification: 9% (783)
 - Nephrology: 17% (622)
- ABS Certification exam: 21% (302)

***33% of repeat takers**

Scope of the problem

- Between 7-28% of residents require formal remediation at some point during training [1]
- 94% of internal medicine residency programs have at least one struggling learner [2]
- Remediating a single struggling learner at one institution required a median of **18 hours** of faculty time [1]

...

[1] Guerrasio J. J Gen Intern Med. 2014 Dec;29(12):1607-14

[2] Yao DC. JAMA. 2000 Sep 6;284(9):1099-104



test taking tips



All

Images

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Tools

About 116,000,000 results (0.43 seconds)

Top 10 Test-Taking Tips for Students - TeacherVision

<https://www.teachervision.com/study-skills-test-prep/top-10-test-taking-tips-students> ▼

Be sure to plan extra time to study the most challenging topics. Cramming doesn't work. If you've followed a study plan, the night before the **test** you should do a quick review and get to bed early. Remember, your brain and body need sleep to function well, so don't stay up late!

Test Taking Tips - Study skills

<https://www.testtakingtips.com/> ▼

The best free resource for **test taking tips** and strategies along with advice on note taking, studying, cramming, reducing test anxiety, and more.

Test-Taking Tips - KidsHealth

kidshealth.org/en/teens/testing-tips.html ▼

Here are some **tips** for **taking tests**: First, be sure you've studied properly. Get enough sleep the night before the **test**. Listen closely to any instructions. Read the **test** through first. Focus on addressing each question individually. Relax. Finished already? ●●●

[PDF] Test Taking Tips

<https://www.usu.edu/asc/studysmart/pdf/TestTakingTips.pdf> ▼

Before the **Test Tips**. 1. Get a good night's sleep and eat a high protein breakfast. Drink plenty of water. 2. Practice guided imagery, visualizations of succeeding ...

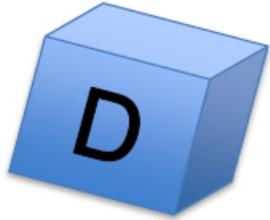
Remediation Strategies

31 studies of remediation

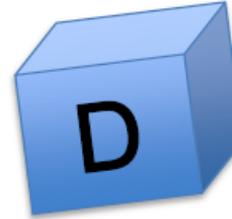
- 16 (52%) targeted medical knowledge
- Small studies (median 23 learners), mostly of students
- Usually short-term outcomes (e.g., passing next exam)
- 8 (26%) referred to educational theory
- Only 1 explicitly linked theory to educational intervention

The Seven D's

Underlying issues to consider



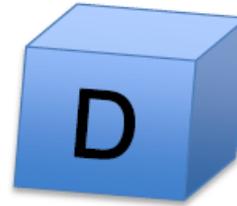
Distraction
(family, social, financial)



Drugs
(alcohol, narcotics, amphetamines)



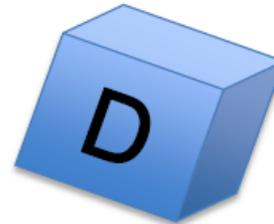
Deprivation
(sleep-OSA, relational)



Disability
(learning disability, ADHD)



Disease
(thyroid, etc.)



Disorders
(personality disorders)

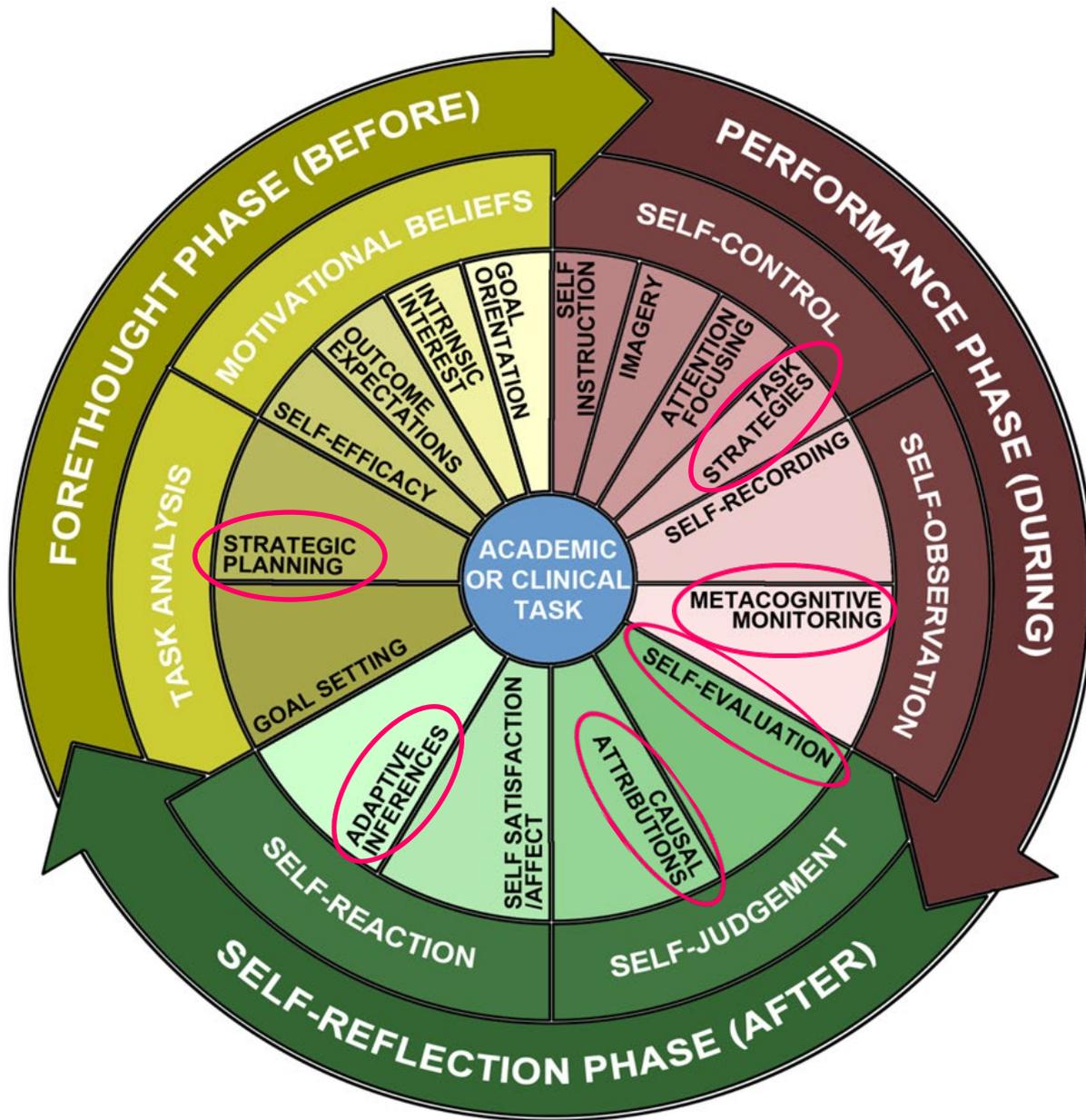


Depression
(affective disorders)

Lucey CR, Boote R. Working with problem residents: A systematic approach. In Holmboe E and Hawkins R, eds. Practical Guide to the Evaluation of Clinical Competence. Philadelphia, PA: Mosby Elsevier; 2008: 201 - 215

What is Self-Regulated Learning (SRL)?

- “Self-generated thoughts, feelings, and actions that are planned and cyclically adapted to the attainment of personal goals”
- Three phases:
 - Forethought: task analysis & motivational beliefs
 - Performance: self-control & self-observation
 - Afterthought: self-judgment & self-reaction



Adapted, with permission, from Artino, A. R., & Jones, K. D. (2013). Last Page: Self-regulated learning: A dynamic, cyclical perspective. *Academic Medicine*, 88, 1048.

Forethought Phase

- Task Analysis: Goal Setting and Strategic Planning
- Strategy choices...
 - Guess
 - Minimize time spent
 - Identify the disease script in the clinical vignette
- Self-efficacy
 - How confident is the learner in their ability to implement the selected strategy, accomplish the goal?

Performance Phase

- Self control
 - Ignore/tune out distractions
 - Implement the selected strategy
- Metacognitive monitoring
 - How am I doing? Does this seem to be working?
 - Am I making appropriate progress to the goal?

Reflection Phase

- Self evaluation
 - Did I meet the goal?
- Casual attribution
 - Why was I successful or not successful?
- Adaptive inferences
 - What should I do differently (or the same) next time in order to succeed?

Scripts

- Scripts (Schema)
 - Organized cluster of prior knowledge that can be applied to the situation at hand
 - Useful for organizing large amounts of information for ease of storage/retrieval

Script Theory and Clinical Problem-Solving

- Disease scripts
 - Interior knowledge structure containing the relationships between the symptoms, signs and different illnesses
 - Gives order/meaning to new clinical information
 - Allows quick generation of hypotheses (“script triggering”)

Measuring Self-Regulated Learning (SRL)

- Questionnaires
 - Retrospective responses to closed-ended, Likert type items
 - Many assess SRL as global, fixed entity
 - Decontextualized, recall bias
- Microanalytic protocols
 - Structured interview targeting SRL subprocesses
 - Open-ended responses
 - Conducted in the context of an authentic task

SRL Microanalysis: Prior Studies

- Athletic performance
 - Volleyball serving – Kitsantis et al., 2002
 - Free throw shooting - Cleary et al., 2006
- Studying – DiBenedetto and Zimmerman, 2010
- Procedural skill – Cleary and Sanders, 2011
- Clinical reasoning – Artino et al., 2014
- Neuroscience learning - Gandomkar et al., 2016

Self-Regulated Learning Microanalytic Assessment and Training (SRL-MAT)

- A semi-structured, think-aloud, direct observation protocol to assess the learner's use of regulatory behaviors during a specific educational activity (answering a test question)
- Designed for one-on-one use between learner and teacher, as well as learner self-assessment and practice

Applying SRL-MAT: Using the Question Review Form (QRF)

- (Uninterrupted think-aloud exercise)
- Present test question (with answers covered)
- Learner reads through stem
 - Answers QRF #1-6 (What is the disease script?)
- Uncover the stem question (= learning objective)
 - Answers QRF #7-10 (What is the objective? Predict the answer)
- Uncover the answer choices
 - Answers QRF# 11-17 (Were you right? Why/not? What's next?)
- Confidence assessments throughout
 - Assesses self-monitoring, calibration accuracy

Struggling Test-taker: “Amy”

<http://youtu.be/PiEsywpmDCg>

What went wrong?

- Inefficient use of time (essentially read the question twice)
- No interior commentary/interpretation
- No prioritization of clinical information
- Uses answer choices to get ideas about what disease is present in the clinical stem

Struggling Test-taker Subtypes

1. Lack of script recognition

2.

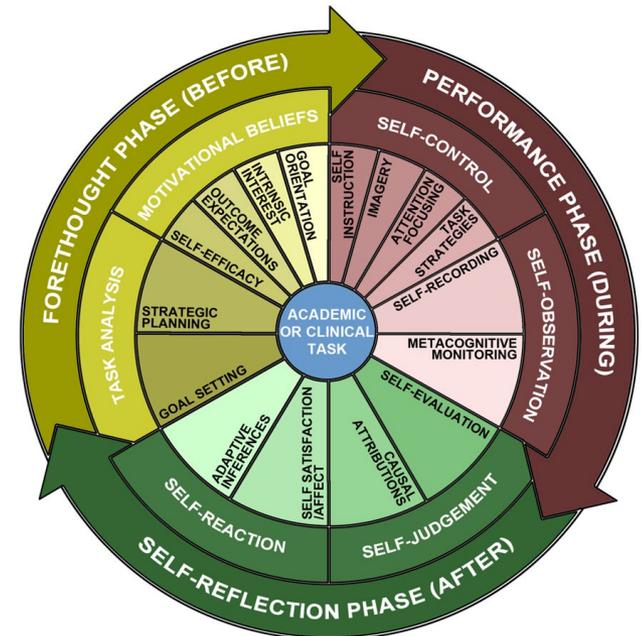
3.

4.

5.

6.

7.



Struggling Learner Type #1: Lack of script recognition

- Struggles to identify diagnosis presented in clinical stem
- Reads/rereads without prioritizing and interpreting information in terms of the most likely script
- May use the answers to get a sense of what the case is about.
- Can't answer # 1-4 on the QRF

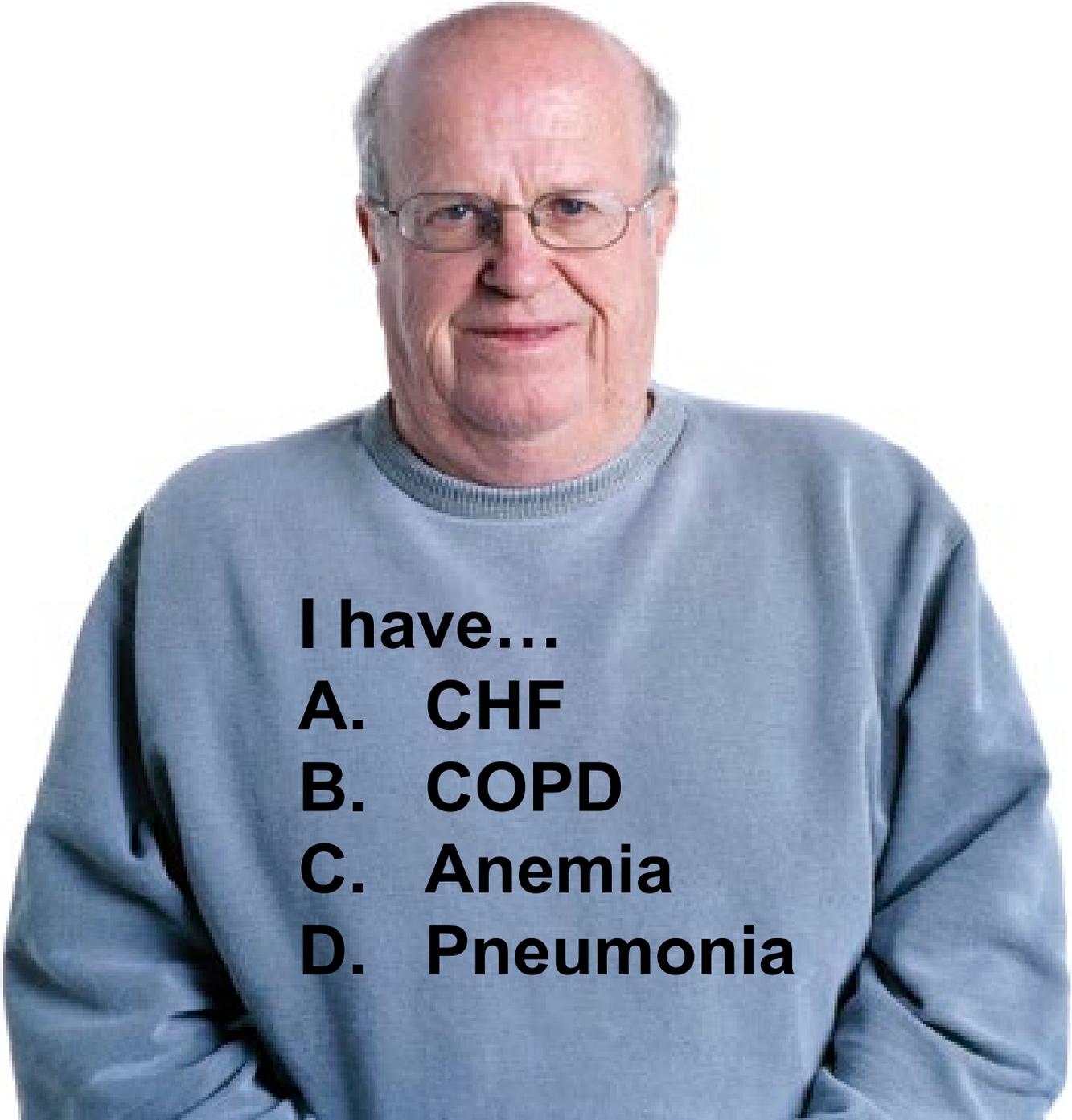
1. What is the most likely diagnosis for this patient?

2. What is the specific clinical scenario and/or severity of this disease?

For example, if the disease was depression, the specific clinical scenario could be: uncomplicated depression, depression in the elderly, depression with history of mania, depression with suicidal ideation, etc.).

3. What factor(s) support your diagnosis?

4. What factor(s), if any, are inconsistent with your diagnosis?

A middle-aged man with thinning hair, wearing glasses and a light blue crew-neck sweater, is looking directly at the camera with a neutral expression. The background is plain white.

I have...

A. CHF

B. COPD

C. Anemia

D. Pneumonia

Solution = Strategic Planning

- Engage the test question in terms of disease script from the START
- Sort clinical information based on the script and change scripts if needed to accommodate new information
- Study disease in context of clinical presentation
 - Practice questions
 - Clinical exposure

Struggling Test-taker: “Julie”

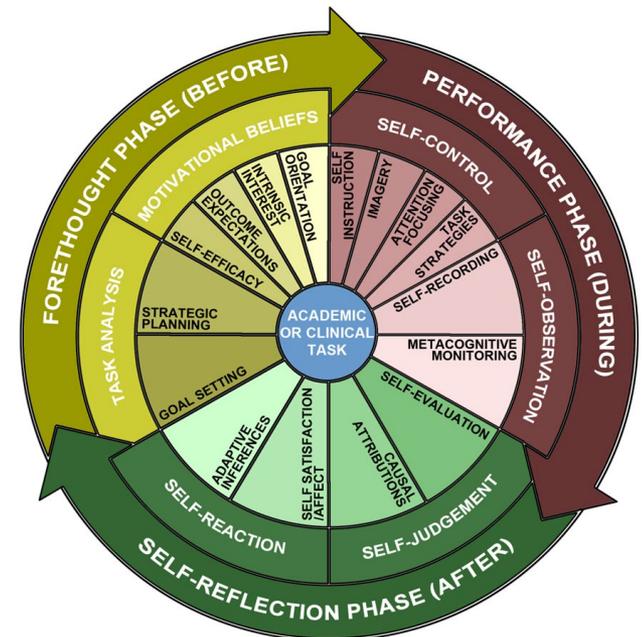
<https://youtu.be/nGzeO3pzXPg>

Struggling Test-taker: “Julie”

- Can identify correctly the diagnosis of community-acquired pneumonia
- Can't stratify by disease severity
- Narrows down answer choices to two but then has to guess

Struggling Test-taker Subtypes

1. Lack of script recognition
- 2. Lack of script specificity**
- 3.
- 4.
- 5.
- 6.
- 7.



Struggling Learner Type #2: Lack of script specificity

- Learner recognizes the general disease script but not the severity or specific subtype presented in the clinical stem
- Narrows down the answers to two (both of which are treatments for the disease) and then has to guess
- Often, the diagnostic, therapeutic, and prognostic considerations differ based on the specific subtype of disease... Can't answer QRF items #2-4

2. What is the specific clinical scenario and/or severity of this disease?

For example, if the disease was depression, the specific clinical scenario could be: uncomplicated depression, depression in the elderly, depression with history of mania, depression with suicidal ideation, etc.).

3. What factor(s) support your diagnosis?

4. What factor(s), if any, are inconsistent with your diagnosis?

Solution

- Engage the test question in terms of disease script and specific clinical scenario from the start
- Refine disease script using the clinical information to deduce the severity and/or subtype of disease
- Study the different diagnostic, therapeutic, and prognostic implications of disease subtypes
- Increase clinical exposure for richer scripts

Next learner subtype...

Question scenario:

82 year old with pleuritic chest pain for one week after a prolonged car ride with family. Temperature is 103, heart rate 110, blood pressure 90/50. Patient has a purulent cough with scant hemoptysis and bilateral infiltrates on chest x-ray. Serum WBC 19000. ECG shows sinus tachycardia. What is next best step?

- A. CT pulmonary angiogram
- B. Thrombolytics
- C. Ceftriaxone and Azithromycin
- D. Inhaled bronchodilators and IV steroids

Next learner subtype...

Question scenario:

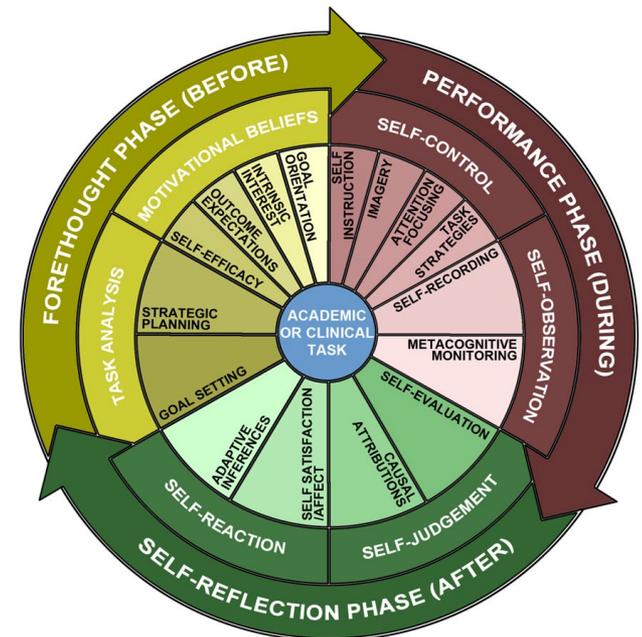
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- A. CT pulmonary angiogram
- B. Thrombolytics
- C. Ceftriaxone and Azithromycin
- D. Inhaled bronchodilators and IV steroids

Learner guesses between A and B to address his diagnosis of pulmonary embolism

Struggling Test-taker Subtypes

1. Lack of script recognition
2. Lack of script specificity
3. Premature closure (anchoring)
- 4.
- 5.
- 6.
- 7.



Struggling Learner Type #3: Premature closure/anchoring

- Learner makes an early decision on diagnosis and ignores/downplays **incongruent** information
- Incomplete/ superficial answers to #3-4 on QRF

3. What factor(s) support your diagnosis?

4. What factor(s), if any, are inconsistent with your diagnosis?

Solution

- **STOP** after reading the question stem!
- Note...
 - features supportive of the diagnosis
 - features **inconsistent** with the diagnosis
 - **ALL markedly abnormal findings must be addressed**
 - Can circle these when reading the question
- *Prove* diagnosis selected is the right one

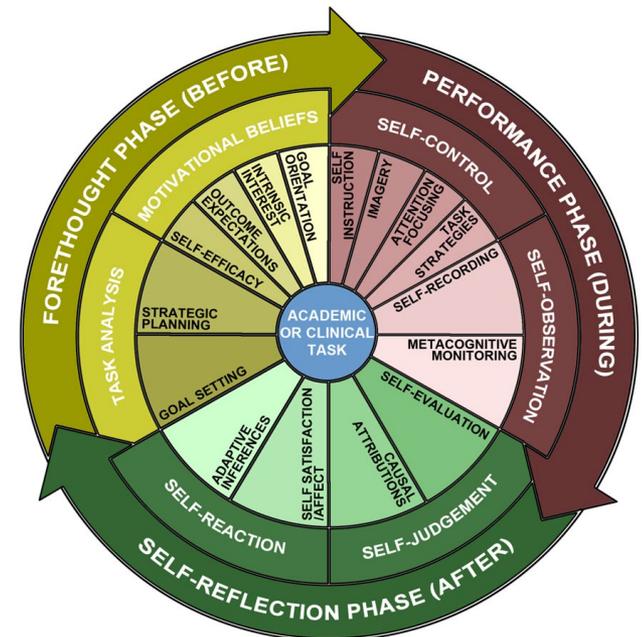
Struggling Test-taker: “Charlie”

Struggling Test-taker: “Charlie”

http://youtu.be/v_maDtOXE8Y

Struggling Test-taker Subtypes

1. Lack of script recognition
2. Lack of script specificity
3. Premature closure (anchoring)
- 4. Underconfidence**
- 5.
- 6.
- 7.



Struggling Learner Type #4: Underconfidence/self-monitoring

- The learner knows the correct answer, but subsequently talks himself out of it when he sees the answer choices
- Usually occurs when learner has been discouraged by repeated failures/suboptimal performances
- Can also result from “over-thinking” the question
- Evident during the “think aloud” QRF #5-6, 8,9, 13

13. How confident are you in your answer now?

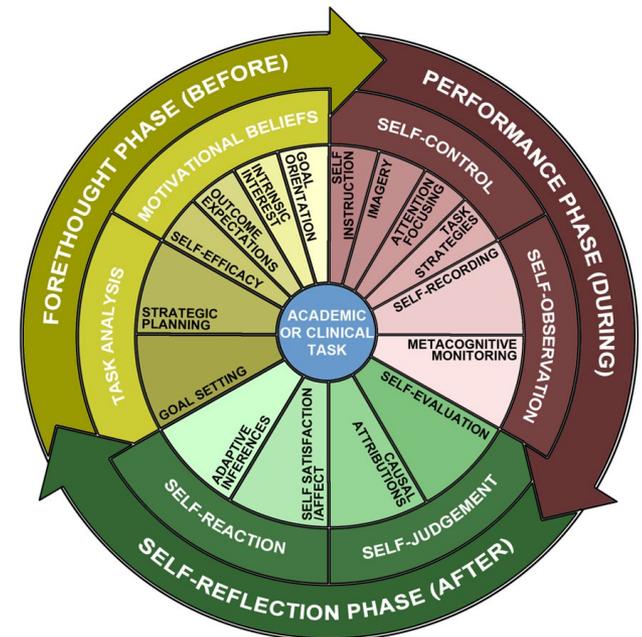
Not at all confident	Slightly confident	Moderately confident	Quite confident	Extremely confident
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Solution

- Use the test-taking worksheet to collect data on
 - Accuracy of his initial answer
 - Confidence (**BEFORE** looking at choices)
- Compare mean confidence scores on questions answered correctly vs. incorrectly
- Over time, learner re-calibrates his own confidence
- *Overconfidence can be a problem also, but usually occurs with another learning deficiency*

Struggling Test-taker Subtypes

1. Lack of script recognition
2. Lack of script specificity
3. Premature closure (anchoring)
4. Underconfidence
- 5. Incorrect causal attribution**
- 6.
- 7.



Struggling Learner Type #5: Incorrect causal attribution

- Learner **unable** to articulate why he/she got the answer right or wrong (QRF#15) – thus is at a loss for next steps
- May be able to complete hundreds of questions per study session, but doesn't try to understand correct or incorrect answers
- Correct answers may reflect lucky guessing, key word recognition without understanding or knowledge of the underlying disease

14. Did you answer this test question correctly?

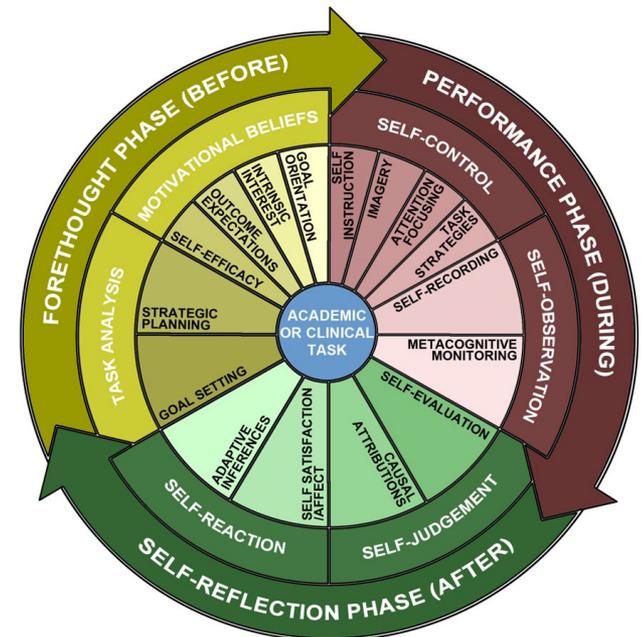
15. Why or why not? Whether or not you got the item correct, what else do you need to learn?

Solution

- When doing practice questions, the learner should examine each answer and explain why it is right or wrong
 - *Bonus:* Think in which situations would the wrong answers be right (compare/contrast)?
- Cut back on the number of questions per session to allow for the in-depth review required above

Struggling Test-taker Subtypes

1. Lack of script recognition
2. Lack of script specificity
3. Premature closure (anchoring)
4. Underconfidence
5. Incorrect causal attribution
6. Inappropriate adaptive inferences
- 7.



Struggling Learner Type #6: Incorrect adaptive inferences

- Learner is unable to articulate an effective learning plan
- Doesn't know/can't explain what he needs to do differently to answer this and similar questions in the future

16. What is your plan to improve so that you can get this or a similar question right in the future?

Struggling Learner Type #6: Incorrect adaptive inference

A learner who correctly identifies the disease script as acute hepatitis B infection but picks the wrong serologic test...

His remediation plan is

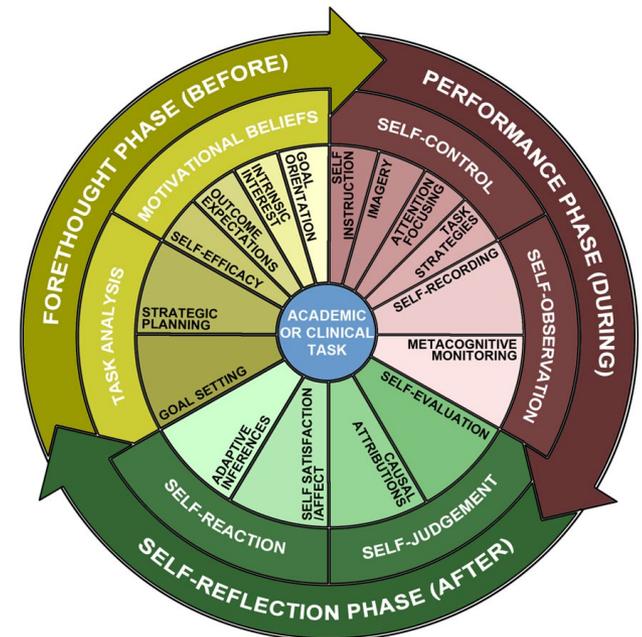
“Read more about hepatitis B”

Solution

- Prompting
 - Give learner examples of appropriate learning plans
 - “Make a graph of the different serologic markers of hepatitis B and the timing of each and explain which markers correspond infection”
- Mentor can help identify ways he learns best
 - Who were your most memorable teachers?
 - What concepts do you know well and how did you master those?

Struggling Test-taker Subtypes

1. Lack of script recognition
2. Lack of script specificity
3. Premature closure (anchoring)
4. Underconfidence
5. Incorrect causal attribution
6. Inappropriate adaptive inferences
7. Isolated knowledge deficit



Struggling Learner Type #7: Isolated medical knowledge deficit

- Learner...
 - Understands the script in detail
 - Can explain why an answer is right or wrong
 - Knows how to develop a study plan
 - **But hasn't spent the time to learn the material**
- Has the tools, but hasn't implemented them

Solution

- Explore reasons why time not spent
- Secondary causes of poor performance (7 D's):
 - Learning **D**isability
 - **D**epression
 - **D**istractio**n**
 - **D**eprivation
 - **D**rugs
 - Personality **D**isorder
 - **D**isease

Audience application

Coaching with the QRF

[Practice Question 1](#)

[Practice Question 2](#)

[Practice Question 3](#)

Identify the Learner's issue

[Matthew](#)

[Paulette](#)

Practice Question #1

A 56 year old female was brought to the emergency department via EMS for altered mental status. The patient's family reports that the patient had a three day episode of severe nausea, vomiting, and diarrhea prior to being found unresponsive in her home the morning of presentation. The patient has a history of hypertension treated with lisinopril, type 2 diabetes mellitus treated with insulin glargine and metformin, and a history of hyperlipidemia treated with atorvastatin.

On physical exam, blood pressure is 105/62, heart rate is 124, temperature is 97.8 F, respiratory rate is 28 and oxygen saturation is 90% on 4 liters nasal cannula. Head is atraumatic. She is obtunded with a Glasgow Coma Score of 7. Heart sounds are tachycardic but regular and without murmurs. Breath sounds are clear but diminished bilaterally. Abdomen is soft.

A finger stick blood glucose reading done by EMS was 878. Repeat finger stick blood glucose testing in the ED confirmed this reading.

Question (objective) and answer choices are
hidden until learner answer

Question Review Form (QRF) # 1 - 6

Practice Question #1

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What is the most appropriate next step in management?

Answer choices hidden until learner answers
Question Review Form (QRF) # 7 - 10

Practice Question #1

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A finger stick blood glucose reading done by EMS was 878. Repeat finger stick blood glucose testing in the ED confirmed this reading.

What is the most appropriate next step in management?

- A) Administer a 1 liter normal saline fluid bolus.
- B) Administration of regular insulin 0.1 units/kg as an intravenous bolus
- C) Assess airway and prepare for intubation
- D) Obtain an ABG
- E) Start a continuous intravenous infusion of regular insulin at 0.1 units/kg/hour

**Answers choices revealed and Learner answers
Question Review Form (QRF) # 11-13**

Practice Question #1

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- E) Start a continuous intravenous infusion of regular insulin at 0.1 units/kg/hour

Correct answer is revealed and Learner answers Question Review Form (QRF) #15-16

Faculty coaching

- The learner should spontaneously mention the following items when discussing their reasoning for this item. If not, challenge them.
 - Clinical presentation of HHS
 - Determination severity of HHS (airway assessment, vitals, volume status, acid base status)
 - Reasons for developing HHS (the three I's: indiscretion (medical or diet), infarction, infection)
 - Typical treatments for HHS (airway, volume, insulin, electrolytes, correction of underlying cause)
 - Prioritization of HHS

Audience Challenge #1: Using the QRF

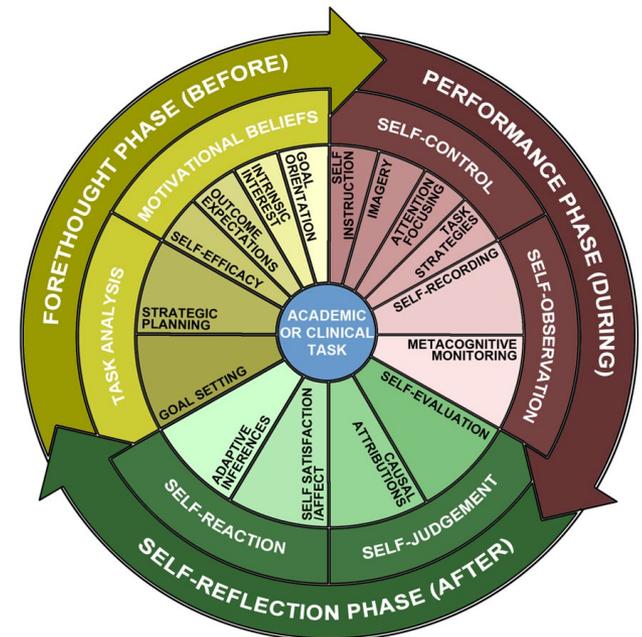
“Matthew”

Matthew

<http://youtu.be/WP0i3bOHCfA>

Struggling Test-taker Subtypes

1. Lack of script recognition
2. Lack of script specificity
3. Premature closure (anchoring)
4. Underconfidence
5. Incorrect causal attribution
6. Inappropriate adaptive inferences
7. Isolated medical knowledge deficit



Audience Challenge #2: Using the QRF

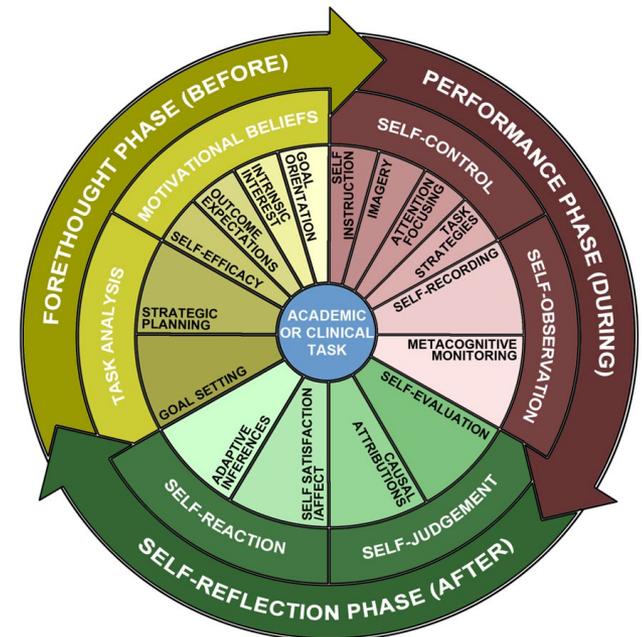
“Paulette”

Paulette

http://youtu.be/5-QAzP_sgJY

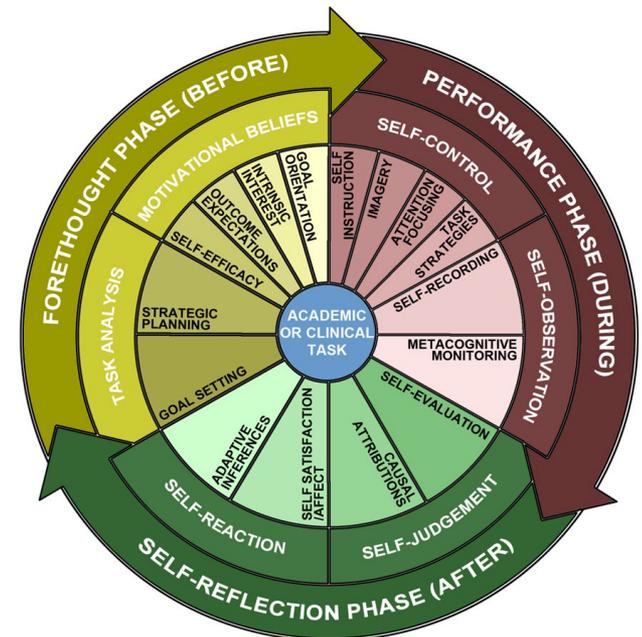
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1. Lack of script recognition
2. Lack of script specificity
3. Premature closure (anchoring)
4. Underconfidence
5. Incorrect causal attribution
6. **INAPPROPRIATE ADAPTIVE INFERENCES**
7. Isolated medical knowledge deficit



[RETURN](#)

To summarize...

- Self-Regulated Learning is a strategic, deliberate, focused, self-reflective, and adaptive approach to accomplishing an academic or clinical task
- Self-Regulated Learning Microanalytic Assessment and Training (**SRL-MAT**) is a framework for assessing the regulatory processes of struggling learners as they approach test questions

To summarize...

- Script theory describes the interior knowledge structure containing the relationships between clinical information and potential diagnoses used by clinicians to rapidly generate hypothetical diagnoses
- The QRF can be used in a semi-structured, think-aloud protocol to identify deficiencies in learner regulatory processes and suggest remediation strategies

Student testimonial

“Dr. Kelly and Dr. Dezee,

Overall the handout was helpful. I remember doing many practice internal medicine questions using the handout I was given, and it did help me focus on the questions. **I no longer use the handouts for my questions, but I still use the approach to questions. ...it keeps me engaged and prevents me from glossing over the question. I do not have to re-read the long questions as frequently as I used to...”**

Student testimonial (cont'd)

“More specifically, I have learned that even if my prediction is not exactly one of the answers, picking the answer that is closest to the prediction usually works well for me.

Here is what I still need to work on:

- Overt-thinking/Confidence.... I often overanalyze the answers. Every once in awhile I have the exacerbating habit changing my answer from my prediction and rationalizing why another answer could be correct. I have become much better at staying with my prediction and moving on the next question. **I find that 9 times out of 10 this serves me well...”**

Our PGY3 Cohort

- In-Training Examination (ITE), n=16
- Anticipated *raw score* improvement: **4%**
 - 10 had > 8%
 - 1 had < 4% improvement but was 67thile
 - 3 that didn't improve were already 90thile
 - **ALL** met benchmark for being “on pace” to pass the ABIM

General Surgery ABSITE performance

- Implementation of SRL-MAT as part of multimodal remediation program for <30th percentile
- Year over year percentile gain before remediation program: 13
- Year over year gain for those who received SRL-MAT: 51
- Small sample size (34 total)

Decoteau MA, Rivera L, Umali K, Chan AD, Soballe P, Ignacio RC. A multimodal approach improves American Board of Surgery In-Training Examination scores. *American journal of surgery*. 2018;215(2):315-321.

SRL-MAT via QRF

- **Feasible**

SRL-MAT via QRF

- Feasible
- **Well grounded in theory**

SRL-MAT via QRF

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- **Emphasizes disease scripts**

SRL-MAT via QRF

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- **Empowers learner**

SRL-MAT via QRF

- Feasible
- Well grounded in theory
- Emphasizes disease scripts
- Empowers learner
- **Empowers faculty**

Why Does This Learner Perform Poorly on Tests? Using Self-Regulated Learning Theory to Diagnose the Problem and Implement Solutions

Mary A. Andrews, MD, MPH, William F. Kelly, MD, and Kent J. DeZee, MD, MPH

April 1, 2018

Abstract

Problem

Learners who underperform on standardized tests are common throughout all levels of medical education and require considerable faculty time and effort to remediate. Current methods for remediating test-taking difficulties are typically not grounded in educational theory or supported by high-quality evidence.

Approach

A test-taking assessment was developed based on self-regulated learning (SRL) microanalytic assessment and training and used during academic year 2012–2013. This method assesses the SRL subprocesses

of strategic planning, self-monitoring, causal attributions, and adaptive inferences during the educational task of answering test questions. The method was designed for one-on-one use by teacher and learner, and for learner self-assessment and practice.

Outcomes

At one academic institution, this method was used to categorize learners into struggling test-taker subtypes which correspond to deficiencies in the SRL subprocesses outlined above. A learning plan based on the SRL deficiency was developed for each struggling test-taker subtype. In a small number of internal

medicine residents with low in-training examination scores, use of this method yielded improvements in 2013 in-training examination score that doubled the expected improvement based on historical averages.

Next Steps

This method is a novel application of SRL theory to a commonly encountered problem in medical education: the learner who performs poorly on tests. Large-scale, multicenter studies of medical learners at a variety of training levels and program types are needed to determine the effectiveness and generalizability of this intervention.

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Video examples: [Youtube.com/wfkfilms](https://www.youtube.com/wfkfilms)

[Link to close]



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PubMed Reference Collection

<http://www.ncbi.nlm.nih.gov/sites/myncbi/147TijGpfonAJ/collections/47374323/public/>

Question Review Form

For use with a clinical-vignette-style test question. Cover up the answers and the last sentence of the stem; e.g., the actual question being asked. The learner reads through the stem and answers #1–6 below.

1. What diagnosis is the patient most likely to have? _____
2. What is the specific clinical scenario and/or severity of this disease (for example, if the disease was depression, is this uncomplicated depression, depression in the elderly, depression with history of mania, depression with suicidal ideation, etc.) _____
3. What factor(s) support your impression of the specific clinical scenario? _____
4. What factor(s), if any, are inconsistent with your diagnostic/clinical scenario impression? _____
5. How confident are you that the patient in the test item has the diagnosis you listed in #1 above?

Not at all confident	Slightly confident	Moderately confident	Quite confident	Extremely confident
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6. How confident are you in your impression of the specific clinical scenario in #2 above?

Not at all confident	Slightly confident	Moderately confident	Quite confident	Extremely confident
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Uncover the last sentence of the stem; i.e., the actual question (e.g., “What is the next best step in management?”).

7. Before looking at the answer choices, what is your answer to the question? _____

8. How confident are you that your answer will be correct?

Not at all confident	Slightly confident	Moderately confident	Quite confident	Extremely confident
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Now uncover the answer choices.

9. Does your predicted answer appear? Yes No N/A
10. If no, are there one or more related answers to your predicted answer? Yes No/N/A
11. How confident are you in your answer now?

Not at all confident	Slightly confident	Moderately confident	Quite confident	Extremely confident
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12. If you wish to change your answer (or suggest one if you didn't predict an answer), list it here: _____

Now look up the answer.

13. Did you get the answer right? Yes No
14. Why or why not? Whether or not you got the item correct, what else do you need to learn? Did you know the exact reason why the right answer was right? Did you know why each fact in the stem was consistent or inconsistent with the clinical scenario? Do you know why the wrong answers are wrong? _____
15. Based on Item 14 (above), what is your plan to improve? _____

A 73 y/o woman with a past medical history of diabetes mellitus type 2, hypertension, and knee osteoarthritis presents to the outpatient clinic for evaluation of feeling extremely cold and a cough. For the previous 2 days, she had been feeling weak with a non-productive cough. On the morning of presentation, she awoke feeling very cold, a now productive cough of white sputum, and right-sided chest pain with coughing. She denied fevers, rigors, limb swelling, changes in her bowel habits, or urinary symptoms. Her medications include metformin 1 gm BID, lisinopril 20mg daily, and acetaminophen 1 gm TID. She does not drink alcohol or smoke. Her daughter lives with her.

Physical exam reveals a woman wearing 2 coats, alert and oriented x3, and in no acute distress. Vitals: HR 75, BP 130/84, R 14, Temperature 99.0, oxygen saturation 98% on room air. Lung exam is significant for bronchial breath sounds in the right base. Her cardiovascular examination is unremarkable.

A CBC shows a WBC of 12.3. A chemistry panel is normal except for a glucose of 116. CXR shows a RLL infiltrate without effusion.

What is the best treatment of this patient?

