

1. A first year pediatric hematology-oncology fellow tells his supervising attending that he would like to improve his communication skills. The attending and fellow work together to ensure that the fellow has the opportunity to lead several family meetings. Which of the following principles of adult learning is being utilized?
 - a. Building learning on the medical literature
 - b. Acknowledging the hidden curriculum
 - c. Allowing the learner to self-direct*
 - d. Building an effective learning environment
 - e. Basing learning on an existing framework

Answer: C. Of the choices listed, only choices c, d, and e are principles of adult learning. Because the fellow described has identified communication as his own learning need and has worked to create his own learning plan to increase his skills, this is an example of how an adult learner may self-direct.

2. Which of the following is an example of reflective practice?
 - a. A multiple-choice examination that allows learners to assess their fund of knowledge
 - b. A meeting between a fellow and her attending to discuss the difficulties the fellow encountered while performing a recent bone marrow aspirate*
 - c. A weekly teaching conference in which fellows hear lectures about pediatric hematology-oncology topics
 - d. A case log to keep track of the diagnoses she sees during her first year of fellowship
 - e. A journal club in which pivotal articles pertaining to pediatric hematology-oncology are examined and critiqued

Answer: B. Reflective practice is an element of adult learning strategy that allows the learner to plan for a learning experience, engage in the experience, and then reflect on how the learning went...what went well and what needs improvement? The reflection augments learning and the learner can then apply those lessons to future situations. Option B is an example because when the attending discusses the procedure with the fellow, and allows the fellow to reflect on the challenges of the procedure, that reflection facilitates learning the fellow can apply to future procedures.

3. A pediatric hematology-oncology fellow is supervising a 3rd year medical student during a one month elective. Which of the following is a useful strategy for giving effective feedback to the student?

- a. Use the month to collect data on the student's performance and then meet with the student at the close of the rotation to summarize your findings.
- b. Complete the medical school's evaluation form in a thoughtful and timely manner
- c. Email your attending to let him know your thoughts about the student's performance during the rotation
- d. Invite the student to meet with you halfway through the rotation for feedback and ask him to reflect on his own performance before the meeting*
- e. Meet with the student halfway through the rotation and give him a concrete list of the 5 things he most needs to improve before the rotation ends

Answer: D. Choice B is actually an example of evaluation, defined as the systematic collection of data about performance, not feedback. All of the other responses represent common methods for feedback. Rather than engaging in feedback at the end of the elective (choice A and C), a meeting to give formative feedback while the elective is still in progress will allow the student an opportunity to improve. During this meeting, the student should be allowed to reflect on his performance (as in D) rather than simply be told what to work on (choice E).

4. Which of the following most accurately describes the proper methods for formative and summative feedback?
- Formative feedback is optional and can happen if there are concerns about the learner's performance while summative feedback should happen regardless.
 - Formative feedback happens once or more than once during a learning block or rotation while summative feedback happens at the end to summarize how the learner performed*
 - Formative feedback is written while summative feedback is verbal
 - Formative feedback happens at the end to summarize how the learner performed while summative feedback happens once or more than once during a learning block or rotation.
 - Both formative and summative feedback are valuable so the decision about which strategy to utilize is left to the discretion of supervising attendings and program directors

This distinction between formative and summative feedback is important in medical education and also for the boards. Both forms of feedback should be utilized even for individuals who are performing well; neither is considered optional (choice A and E). Formative feedback can be either written or verbal and happens at least once during a learning experience. Examples are a meeting at the half-way point of a rotation or half-way through the year in continuity clinic. Summative feedback can be either written or verbal and summarizes the learner's performance. Examples are meeting at the conclusion of a rotation or at the end of the first year of fellowship. Concerns raised in summative feedback should not be new to the learner as these points should have been raised in formative feedback as well. C is incorrect because either kind of feedback can be either written or verbal. D is incorrect because it reverses the two terms.

5. Which of the following evaluation methods is most useful for assessing non-cognitive skills like professionalism or communication?
- Direct observation of a clinical encounter*
 - Self-assessment form
 - In-training examination
 - Chart-stimulated recall

When choosing an evaluation method to use in assessing learners, it is important to think carefully about what skills you most want to measure. Certain skills are best measured by particular instruments and strategies. Professionalism and communication are examples of

non-cognitive skills which are not well measured using a knowledge-based exam (choice c) or through examination of a patient's chart/electronic record (choice d). Self assessment is also a weak strategy since so much of professionalism and communication skills hinge on perceptions of the external observer and for this reason choice b is also incorrect. Direct observation (choice a) is generally recognized as a good strategy for evaluating these skills because an external observer can report on the professionalism and communication skills exhibited by a learner during an actual patient care encounter. Other good options would be a standardized patient encounter or OSCE or a 360 degree evaluation.

6. Which of the following best characterizes a 360 degree evaluation (also known as multisource evaluation)?
- A learner is evaluated on all major areas of his or her performance
 - A learner is evaluated by a multidisciplinary mix of staff, clinicians, and patients, all of whom can comment on the learner's performance from a different point of view*
 - A learner is evaluated by a group of observers following a standardized patient encounter or a simulation
 - A learner is evaluated by numerous clinical supervisors who have each worked with the learner in different rotations and settings
 - A learner is evaluated by a clinical supervisor who reviews numerous patient charts and rates the learner in various arenas of patient care

In a 360 degree evaluation, also known as multisource feedback, the goal is to collect data from numerous sources, all of whom are knowledgeable about the learner's performance. The ideal 360 degree evaluation includes multiple participants such as patients, physicians, and other professionals like nursing, social work, administrative staff etc. Peer evaluations and self assessments may also be included. Of the choices above, only choice b accurately portrays a 360 degree evaluation. The other choices are examples of alternate evaluation strategies.

7. You are planning to teach a group of residents and medical students about the management of chemotherapy-induced nausea and vomiting. You have 20 minutes before morning rounds for this teaching. Which of the following should most influence your decision about teaching methods?
- Adult learners most effectively acquire new information through listening to slide presentations
 - Adult learners seek best evidence so the teaching should completely review the available medical literature

- c. Adult learners will prefer not to discuss patients currently in the hospital with nausea due to concerns for patient confidentiality and privacy.
- d. Adult learners most effectively acquire new information through independent reading
- e. An interactive case-based discussion will utilize adult learning theory by allowing the teaching to be active and practical.*

Adult learners function best when their teaching is problem-based, relevant to their goals and daily work, self-directed, active, and embedded within a respectful and effective learning environment. The scenario depicted in this question is a typical opportunity for teaching in the hospital yet too often these opportunities are wasted by failure to consider adult learning principles. Choices a and d are incorrect as reading in isolation and listening passively to slides do not maximize adult learning. Adults learn best with interaction and when the teaching presents them with problems to solve, as in Choice e. Choice c is flawed because learning by studying patients who are actually suffering from nausea keeps the teaching relevant and therefore optimizes learning. Privacy considerations are rarely a concern in such teaching endeavors. Lastly, while evidence-based medicine is important, the 20 minute time frame will not allow a thorough review of the relevant medical literature, making Choice b an ill-advised strategy.

8. Which of the following best characterizes well-formulated learning objectives
- a. Three to five (3-5) statements that include action verbs to convey what the learner's will gain from a learning experience*
 - b. A comprehensive list of what the learners should know or understand after a learning experience
 - c. A single concise statement providing the rationale for a learning experience
 - d. A short list of questions the learner can use to self-assess his or her knowledge before or after a learning experience
 - e. A list of methods that will be used to evaluate the impact or outcomes of a learning experience

Learning objectives are a key component of educational planning as they focus the teacher, prepare the learner, and allow for coherent evaluation of both the learner and the teacher. Objectives must be written carefully and, of the choices above, only choice a represents a good strategy for writing objectives. The objectives should be limited in number (often to 3-5) making both a comprehensive list (choice b) and a concise single statement (choice c) problematic options. Choices d and e may be

useful components of teaching and educational planning but neither pertain to learning objectives and are therefore incorrect.

9. You are developing a new curriculum for your fellowship program intended to teach procedural skills (bone marrow aspirates and biopsy, lumbar puncture) to first year pediatric hematology-oncology fellows. Which of the following is true about the curriculum planning process?
- A needs assessment is likely not necessary
 - The goals and objectives of the curriculum should be articulated early in the planning process and agreed upon by learners, teachers, and other stakeholders*
 - The strategy to evaluate the curriculum can be determined at a later time and need not be included in the curriculum planning process
 - Learner satisfaction is the only feasible method for curriculum evaluation in small fellowship programs
 - A curriculum should be implemented and run for at least a full year before attempts are made to evaluate its outcomes

As mentioned above, articulation of the goals and learning objectives is a critical part of curriculum planning and should happen early in the process. Anyone involved in the new curriculum, including teachers, students, etc should have the chance to review and comment on the proposed goals and objectives. A new curriculum will often require use of a needs assessment to further explore and measure educational needs (choice a). Evaluation of a new curriculum is also essential and often omitted. The evaluation plan should be conceived early, before the curriculum even begins (choice c) and evaluation can begin promptly. There is no need to wait for any particular period of time before evaluating the curriculum (choice e). Often it is assumed that in a small setting, like fellowship training, satisfaction is the only feasible outcome measure but other possibilities must be considered such as direct observation using a procedural checklist (choice d).

10. Which of the following best distinguishes evaluation and feedback?
- Evaluation is the process of collecting, synthesizing, and interpreting information about a learner's performance while feedback is the process of sharing and discussing the evaluation findings with the learner*

- b. Feedback is the process of collecting, synthesizing, and interpreting information about a learner's performance while evaluation is the process of sharing and discussing the feedback with the learner
- c. Evaluation and feedback are interchangeable terms for helping a learner perform better
- d. Evaluation is the process of using forms to rate or score a learner and feedback involves an observer who watches the learner and then verbally comments on performance
- e. Evaluation is done by supervisors and program directors while feedback can come from numerous sources.

Evaluation and feedback are often used interchangeably, almost as synonyms (choice c), however these terms have discrete meanings and distinct roles in education. Of the choices above, only choice a conveys the definitions of these terms accurately. Choice b has reversed the terms' meanings. Choice d represents 2 different examples of evaluation. Choice e is incorrect because neither feedback nor evaluation is defined by who is engaged in the activity. Both evaluation and feedback can be used by anyone in the educational environment.