MODULE 17: TEACHING PSYCHOMOTOR SKILLS

Cognitive goals

At the completion of this module the student-instructor should be able to:

17.1 Define psychomotor skills
17.2 Explain the relationship between cognitive and affective objectives to psychomotor objectives
17.3 Describe teaching methods appropriate for learning a psychomotor skill
17.4 Describe classroom activities used to teach and practice psychomotor skills
17.5 List methods to enhance the experience of psychomotor skill practice in the classroom

Psychomotor goals

At the completion of this module the student-instructor should be able to:

17.1 Demonstrate proper facilitation technique when demonstrating EMS skills
17.2 Demonstrate the use of corrective feedback during a skill demonstration
17.3 Create a skill session lesson plan which maximizes student practice time
17.4 Create a skill scenario which enhances realism

Affective goals

At the completion of this module the student-instructor should be able to:

17.1 Acknowledge the need to teach the mechanics of a skill before students can apply higher level thinking about the process
17.2 Value the need for students to practice until they attain mastery level
17.3 Model excellence in skill performance

Declarative

I. Why this module is important
   A. Psychomotor skill development is crucial to good patient care by the EMS provider
      1. Psychomotor skills are used to provide patient care and also to ensure the safety of the members of the team
      2. There are many ways to perform medically acceptable skills behaviors
         a. Need to know steps of skills performance in order to effectively apply critical thinking skills in situations they will face in the field setting
   B. Instructors plan their approach to teaching students how to perform skills in order to maximize the student's abilities

II. Understanding the psychomotor domain
   A. Definitions
      1. The psychomotor domain involves the skills of the EMS profession
      2. Skill, action, muscle movement and manual manipulation

III. Five levels of psychomotor skills
  A. Imitation
    1. Student repeats what is done by the instructor
    2. "See one, do one"
    3. Avoid modeling wrong behavior because the student will do as you do
    4. Some skills are learned entirely by observation, with no need for formal instruction
  B. Manipulation
    1. Using guidelines as a basis or foundation for the skill (skill sheets)
    2. May make mistakes
      a. Making mistakes and thinking through corrective actions is a significant way to learn
    3. Perfect practice makes perfect
      a. Practice of a skill is not enough, students must perform the skill correctly
    4. The student begins to develop his or her own style and techniques
      a. Ensure students are performing medically acceptable behaviors
  C. Precision
    1. The student has practiced sufficiently to perform skill without mistakes
    2. Student generally can only perform the skill in a limited setting
      a. Example: student can splint a broken arm if patient is sitting up but cannot perform with same level of precision if patient is lying down
  D. Articulation
    1. The student is able to integrate cognitive and affective components with skill performance
      a. Understands why the skill is done a certain way
      b. Knows when the skill is indicated
    2. Performs skill proficiently with style
    3. Can perform skill in context
      a. Example: student is able to splint broken arm regardless of patient position
  E. Naturalization
    1. Mastery level skill performance without cognition
    2. Also called "muscle memory"
    3. Ability to multitask effectively
    4. Can perform skill perfectly during scenario, simulation, or actual patient situation

IV. Teaching psychomotor skills
  A. Whole-part-whole technique is useful
    1. Requires that the skill be demonstrated 3 times as follows:
      a. WHOLE: The instructor demonstrates the entire skill, beginning to end while briefly naming each action or step
      b. PART: The instructor demonstrates the skill again, step-by-step, explaining each part in detail
      c. WHOLE: The instructor demonstrates the entire skill, beginning to end, without interruption and usually without commentary

2. This technique provides an accurate example of the skill done in repetition
   a. If students were not completely focused on the skill demonstration one time there are two other opportunities for them to watch the presentation
3. This technique provides a rationale for how the skill has been performed
   a. Students may or may not be allowed to interject questions as the demonstration is going on, but generally discussion is allowed during the middle, step-by-step "part" demonstration
4. This technique works well for both analytic and global learners
   a. Analytic learners appreciate the step-by-step presentation and global learners appreciate the overview
   b. Module 7: Learning Styles has more information on analytic and global learners

V. Progressing through the psychomotor domain levels of skill acquisition

A. Novice to expert
   1. Allow students to progress at their own pace
      a. If you move students too quickly they may not understand what they are doing and will not acquire good thinking skills
   2. Although the demonstration may provide information on the performance of the entire skill from start to finish, students should be allowed to learn the individual parts of the skill before pulling it all together and demonstrating the whole skill
   3. Students should master individual skills before placing them in context of a scenario or simulation
   4. Students should be allowed ample time to practice a skill before being tested
   5. The need for constant direct supervision should diminish as practice time and skill level increases

B. From novice to mastery level
   1. Demonstrate the skill to students
   2. Students practice using a skills check sheet
   3. Students memorize the steps of the skill until they can verbalize the sequence without error
   4. Students perform the skill stating each step as they perform it
   5. Students perform the skill while answering questions about their performance
   6. Students perform the skill in context of a scenario or actual patient situation

VI. Providing feedback during psychomotor skill development

A. Interrupt and correct the wrong behavior in beginners to prevent mastery (muscle memory) of the wrong technique

B. Practice sessions should end on a correct performance or demonstration of the skill

C. Allow advanced students to identify and correct their own mistakes under limited supervision

D. Adult learners need encouragement and positive feedback to reinforce the correct behaviors
   1. Adult learners need good role models of correct technique

a. Primary instructors, secondary instructors, skills instructors, clinical faculty and preceptors are all important in developing students and these individuals should be carefully selected for suitability to their individual roles

E. Allow adults to develop their own style of the standard technique after mastery has been achieved
   1. There are numerous ways to do things right
      a. Focus on what is considered medically acceptable behaviors instead of demanding rote performance or parroted skills
      b. Spend time helping students develop high level thinking skills so they can differentiate between options and adequately solve problems

VII. Improving psychomotor skill development during a skills session
   A. Have all necessary equipment set up before session begins
   B. Use realistic and current equipment that is in proper working order
   C. Use standardized skills sheets
   D. Allow ample practice time in class, at breaks and during other times
   E. Always model correct psychomotor skills behavior
   F. Keep students active and involved
   G. Insist students respect equipment and skills
   H. Ensure competence in the individual skills before using scenarios
   I. Adding realism
      1. Place need for skill in context with a real life scenario or simulation
      2. Limit objectives of the scenario to three learning points
         a. As students become more sophisticated using critical thinking skills you can add more dimensions to the scenarios
      3. Make the scenario realistic
      4. Use actual equipment
      5. Consider moulage, props, background noises, etc.

VIII. Maximizing skill session time
   A. Assign students in a skill group to each of the following roles according to the size of group
      1. Evaluator: uses a skill sheet or records steps as they are performed
         a. Videotape and audiotape may also be helpful in creating a record
         b. Allowing several students to critique and provide feedback will illustrate how easy it is for observers to miss steps students may perform
            i. This technique also allows students to improve their own skills performance as they watch the skill being repeated
      2. Information provider: uses a script and supplies information as it is requested
      3. Team leader: primary patient care provider
      4. Partner or assistant: performs care as directed by team leader
      5. Patient: faithfully portrays signs and symptoms according to scenario
      6. Bystander #1: acts as a distractor or helper
      7. Bystander #2: acts as a distractor or helper
   B. Distribute a written scenario to be practiced

1. Can use real calls to create scenarios
2. Medical textbook publishing companies have books of scenarios
3. Most textbooks have scenarios in each chapter
4. EMS professional organizations websites have scenarios

C. Begin scenario with the reading of the dispatch information
D. Do not interrupt the scenario
   1. Mastery of individual skills should have already been obtained
   2. Can comment on timing and decision making later
   3. Safety compromises may necessitate your intervention, but do not interfere if it is not a clear safety danger
E. Group performance evaluation
   1. Utilize a positive-negative-positive format
      a. Begin with positive statements and general comments
      b. Move into constructive feedback and areas for improvement
      c. End with positive reinforcement
   2. Patient care leader should comment on what he or she did correctly, then what needs improvement
      a. Remember that students are often their greatest critics; encourage them to look for positive aspects of their performance
   3. Assistant critiques the team's performance
   4. Patient comments on how he or she was treated
   5. Bystanders add their observations
   6. Evaluator comments on timing, sequencing, prioritization, and skills performance
   7. Students should rotate through each role then begin another scenario
   8. This method keeps everybody active and involved in the skills practice time

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