Teaching-Learning Process

Assess
Plan
Implement
Evaluate
Document

By
Teressa Banks, RN Ph.D.
Coastal Region Education Consultant
Nurse Aide I Training and Registry Administration
Health Care Personnel Registry Section
North Carolina Division of Facility Services
North Carolina Department of Health & Human Services
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Introduction

Teaching-Learning Process
Definitions

Teaching is an active process in which one person shares information with others to provide them with the information to make behavioral changes.

Learning is the process of assimilating information with a resultant change in behavior.

Teaching-learning process is a planned interaction that promotes behavioral change that is not a result of maturation or coincidence.

Andragogy is the art and science of helping adults learn.

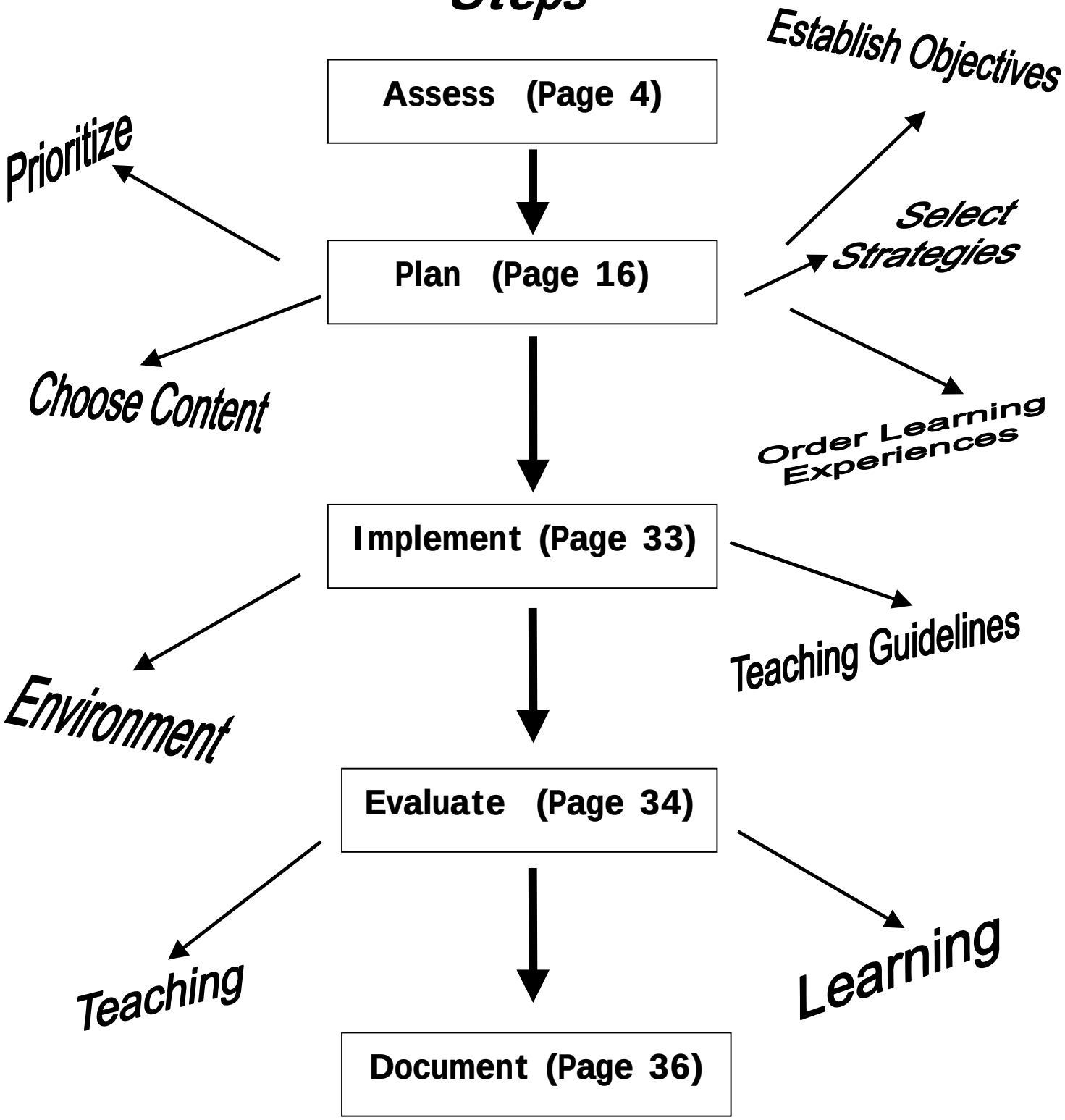
Teaching-Learning Process

Principles of Adult Learning

1. As people mature, they tend to become more self-directed and independent in their learning.
2. An adult's previous experiences may serve as an excellent resource for learning.
3. Adults are more oriented to learning when specific learning needs are created from real life situations and the material learned is immediately useful.
4. Resistance to learning may occur if the adult does not see the relevance in the material.
5. Intrinsic motivation produces more permanent learning.
6. Adults prefer learning activities to be problem centered and relevant to life.
7. Adults learn throughout their lifetime.
8. Positive reinforcement is effective.
9. Material to be learned should be presented in an organized manner.
10. Active participation by the learner improves retention of knowledge.
11. Learning is enhanced by repetition of material.
12. Adults learn at different rates because of individual differences.
13. Trust, support, and a climate of mutual respect are important to the adult learner.

Teaching-Learning Process

Steps



Teaching-Learning Process

Assessment

Specific learning needs for health care providers are determined by:

- Asking the health care provider to identify his/her perceived learning needs;
- Consulting with key facility personnel, such as the risk manager, the quality assurance manager, and the infection control nurse;
- Consulting with facility administrators; and
- Mandatory training requirements.

Assessment of the audience includes:

- Current knowledge base;
- Past work experiences;
- Learning styles (see page 5);
- Readiness to learn;
- Level of education; and
- Reading level (see page 11).

Understanding Learning Styles

Learning style is personal biological and developmental characteristics that makes identical instruction effective for some students and ineffective for others.

A person's individual learning style explains how he/she processes new information:

- Learns it;
- Concentrates on it;
- Understands it; and
- Retains it.

To be effective in the classroom, educators must understand learning style differences among the learners.

Learning styles involve perceptual strengths and processing styles.

Perceptual Strengths

The 4 major perceptual strengths are:

- Visual people learn by seeing (30% - 40% of learners);
- Auditory people learn by hearing (20% - 30% of learners);

- Tactual people learn by touch (20% - 25% of learners); and
- Kinesthetic people learn by doing whole-body or real-life experiences (20% - 25% of learners).

Selected Teaching Strategies:

- Visual learners prefer seeing new information (overhead transparencies, charts, diagrams, pictures, videos) and study best with visual aids (flash cards, diagrams, posters).

- Auditory learners prefer hearing new information (lecture, videos) and study best with auditory aids (tape recordings of lectures, audio resources, reciting concepts out loud.)

- Tactual learners prefer hands-on experience and learn best with manipulatives, simulation, demonstration/ return demonstration. In addition, tactual learners learn by writing important concepts down several times.

- Kinesthetic learners prefer learning by doing and learn best by role play activities, charades, skits, and activities involving movement using giant wall charts and flip charts.

Visual or Auditory Learner?

- Susie would much rather listen to a tape than look at a filmstrip. She can spell out loud better than she can write words down. She remembers things more when she discusses them in class than reading them from a book. She dislikes copying things from a chalkboard. She prefers jokes and riddles better than cartoons or puzzles. She does not enjoy map activities. _____

- Jack is always having his teacher repeat what was said. He tunes out his teacher and looks out the window. He often knows what he wants to say during class discussions, but cannot come up with the words. He prefers to demonstrate how to do something, rather than making a speech. Jack likes to have his assignments written on the chalkboard, rather than told by his teacher during class. _____

Processing Styles

Most people use one of two processing styles to learn:

- Global learner (55% of learners); and
- Analytical learner (28% of learners).

The remaining 17% of learners process information either way and show no preference to style.

Global learners prefer:

- Knowing what they need to know and why they need to know it, then they will concentrate on details;
- Introductions to training session that capture their attention, such as a funny story, a short story, a quote, or an illustration;
- Sound while working and soft lights;
- Informal seating, such as sofas or chairs;
- Working on several tasks at one time with breaks in-between;
- Snacking while working on tasks;
- Working alone or with someone in authority;
- Following standard directions; and
- Assignments that use graphs and illustrations to map out new information.

Analytical learners prefer:

- Having information introduced to them step by step, fact by fact, and will listen to facts as long as they are goal directed;
- Quiet while working and bright lights;
- Formal seating, such as hard chairs and desks;
- Working on a single task at one time, completing it, and then beginning a new one;
- Snacking after completing the task;
- Working with peers;
- Immediate feedback;
- Having copies of assignments, directions, test dates, and objectives written down on paper and passed out to each student.

Male and Female Preferences:

Women

- Tend to be more auditory;
- Self-motivated;
- Conforming;
- Authority-oriented;
- Are able to sit at a conventional desk with chair with minimal movement; and
- Tend to need a more quiet environment.

Men

- Tend to be more visual. tactual, and kinesthetic;
- Need more mobility and have difficulty sitting still for long periods of time in conventional desks and chairs;
- Prefer a more informal environment;
- Typically are more nonconforming; and
- Are peer-motivated.

Understanding Reading Level

Educators often teach a variety of individuals with different reading levels. Health care educators and staff development coordinators may be responsible for teaching residents/patients, professional health care staff (nurses, physicians), and unlicensed personnel (nurse aides, dietary aides).

Definitions

Literate - a person who can read at or above the 8th grade reading level.

Functionally literate - a person who can read at reading level of 5th through 7th grades.

Illiterate - a person who reads at a reading level of 4th grade or below.

Concepts Related to Reading Level

The last grade of formal education may not accurately reflect a person's reading ability:

- Example 1 - a person with some formal education may still be functionally illiterate; and

- Example 2 - a person with a low level of formal education, yet reads well if she works as a secretary.

People who cannot read well or at all may not admit this due to embarrassment.

Studies of public and resident/patient populations have found average reading abilities do not exceed the 8th grade level.

Common printed resident/patient education materials require a 10th grade reading level.

Differences between reading ability and reading level required for written instructional materials may result in poorly understood information and a negative learning experience for the individual.

In summary, when determining the reading abilities of individuals, the educator should remember two things:

1. In general, people do not read above the 8th grade level; and
2. Individuals will probably read two to five grade levels below the last grade completed in formal education.

Determining Reading Level

The SMOG formula is a reliable and quick method for determining reading level of printed resident/ patient instructional materials and educator-developed materials. The steps include the following:

1. Choose 30 sentences to analyze:
   - 10 sentences from the beginning;
   - 10 sentences from the middle; and
   - 10 sentences from the end.
2. Count the number of words with three or more syllables in the 30 sentences. Be sure and include the following during the process:
   - Repeats of the same word;
   - Hyphenated words (consider these as one word);
   - Abbreviations (consider them as if they were not abbreviated);
   - Numerals (consider them as if they were written out in words); and
   - Proper nouns.
3. After words with three or more syllables are counted, write the number down.
4. Find the nearest square root of the number that was written down in the previous step. Add three to the square root. -or- Use the number that was written down in the previous step and locate the approximate grade level on the conversion table below:

SMOG Conversion Table

Total Number of Words with 3 or More Syllables	Approximate Grade Level
0 - 2 words	4
3 - 6 words	5
7 - 12 words	6
13 - 20 words	7
21 - 30 words	8
31 - 42 words	9
43 - 56 words	10
57 - 72 words	11
73 - 90 words	12
91 - 110 words	13
111 - 132 words	14
133 - 156 words	15
157 - 182 words	16
183 - 210 words	17
211 - 240 words	18

From McLaughlin, G. (1969). SMOG grading: a new readability formula. *Journal of Reading*, 12 (8), 639-646.

Example - Betsy wanted to determine the reading level of a textbook she used for a Nurse Aide I class. Betsy selected 10 sentences from the beginning of the book, 10 from the middle, and 10 from the end. She analyzed the 30 sentences and counted 67 words with three or more syllables.

- She looked up 67 on the conversion table and discovered that the textbook had a reading level of 11th grade.
- She found the nearest square root of 67 (which was 8), added 3, and obtained a reading level of 11th grade.

Samples of Reading Levels

Samples of different reading levels include the following (Boyd, Graham, Gleit, Whitman, 1998, p. 218):

- College reading level - With the onset of nausea, diarrhea, or other gastrointestinal disturbances, consult with your physician immediately.
- 12th grade reading level - If you experience nausea, diarrhea, or other stomach or bowel problems, call your physician immediately.
- 8th grade reading level - If you start having nausea, loose bowel movements, or other stomach or bowel problems, call your doctor immediately.
- 4th grade reading level - If you start having an upset stomach, or loose bowel movements, call your doctor right away.

Teaching-Learning Process

Planning

Establishing Priorities

Determining teaching priorities allows the educator to organize and rank order his/her responsibilities.

Teaching priorities are derived from the previous assessment and are based on both facility needs and staff needs.

Other individuals, such as administrators or regulatory representatives, may influence teaching priorities.

Once the educator determines the top teaching need and establishes the broad idea or topic, he/she can then continue with the planning phase of the teaching-learning process.

Establishing Learning Objectives (Pages 22 & 26)

Learning objectives (behavioral objectives) state what the learner is expected to “know,” “do,” or “feel” at the end of the educational session.

- Learning objectives that state what the learner is expected to “know” fall within the cognitive domain of learning.
- Learning objectives that state what the learner is expected to “do” fall within the psychomotor domain of learning.
- Learning objectives that state how the learner is expected to “feel” fall within the affective domain of learning.

Behavioral objectives or learning objectives describe observable behaviors or performance that a student must demonstrate or perform for the teacher to conclude that learning took place.

Choosing Content

The content is the material that the educator will teach and is determined by learning objectives. Sources for content include in-house data, in-house policy/procedure manuals, resources from regulatory agencies, textbooks, handbooks, nursing journals, periodicals, the Internet, and experts in the field.

Content should be accurate, current, and adjusted for characteristics of the learner (age, educational level, employment background, culture, reading level). Time constraints and availability of resources should also be considered when selecting content.

Selecting Teaching Strategies

During planning, the educator selects appropriate teaching methods to deliver content to the learners.

A teaching strategy is the way that a teacher delivers information and is based on the learning needs of the people receiving the information.

Teaching strategies are selected based on the particular domain(s) of learning that will be taught.

- Lecture – a strategy that involves active participation by the teacher and allows him/her to convey a large body of information to a group of learners. Lecture is best used with periodic group discussions, visual aides, and question/answer sessions. A successful lecturer moves about the room, reflects excitement, and is well prepared.

- Group discussion – a strategy that allows the learners to gain insight from each other and offers a forum for opposing viewpoints in a safe environment.

- Simulation – an approach that mimics a condition a person may have to face and requires the learner to handle the situation as if he/she was actually experiencing the situation.

- Mental imagery – an approach that involves the learner visualizing in his/her mind's eye (imagination) a place, situation, or event either he/she has experienced, is currently experiencing, or could have experienced in the past.

- Role-play – a method that requires the learner to "make up" and "act out" responses to specific situations.

- Skit – a method that requires the learner to play roles in a skit for them to experience new or uncomfortable situations.

- Overhead transparencies & slides – are visual aids that typically complement lecture and are projected onto a screen or white wall (Page 32).

- Demonstration/return-demonstration – a concrete, realistic strategy used by the teacher when he/she actually reproduces a real situation or a task, using actual equipment and supplies. Upon observation of the teacher reproducing the real situation or task, the learner may attempt to repeat the situation or task back to the teacher.

- Case study – a written account of a specific situation that requires the single learner or group to analyze the

case, discuss the issues, problem solve an approach, and then report back to the class.

- Gaming activities – the reinforcement of concepts in the form of puzzles, flash cards, word search, games, etc.

- Printed materials – paper copies of information in the form of pamphlets, handouts, booklets, tables, and charts distributed to the learner (Page 30).

- Three-dimensional teaching aids – equipment, materials, models, or displays that assist learners to grasp abstract concepts more quickly and provide them with opportunities to use several of their senses.

Ordering Learning Experiences

When developing a teaching plan, the educator should be attentive to the ordering of behavioral objectives and the organization of content and learning experiences. Guidelines include the following:

- Opening remarks should include an example, quote, story, etc., to engage the global learners.
- Begin with information that the learner knows and proceed to information that is unknown.
- Teach basic information first and then proceed to variations or adjustments to the norm.

- Plan for frequent "stretch" breaks to allow for movement and rejuvenation. Health care providers are accustomed to long hours and constant simulation. Placing them in a classroom setting for a long period of time may result in restlessness and loss of attention.
- Allow time for review of content and questions.

Understanding the Three Areas of Learning

Cognitive Area

The ***cognitive area*** includes intellectual skill.

The cognitive area includes cognitive learning arranged from simple to complex.

The level of learning required determines teaching strategies and method of evaluation.

Teaching strategies include lecture, discussion, examples, outlines, question/answer sessions, and acronyms.

Examples of verbs used for learning objectives include compares, defines, describes, explains, identifies, lists, selects, states, and summarizes.

- Knowledge – remembers previously learned material. (Example: a health care provider learns the stages of pressure ulcer development.)

- Comprehension – understands the meaning of learned material. (Example: a health care provider learns how

the different stages of pressure ulcer development can be recognized and what to do at each stage.)

- Application – applies newly learned material in new concrete situations. (Example: a health care provider learns to minimize pressure at certain areas of a resident/patient's body to decrease the later development of pressure ulcers.)

- Analysis – breaks down learned material into components parts and separates important from unimportant. (Example: a health care provider recognizes which skin conditions are abnormal and reports them to his/her supervisor.)

- Synthesis – takes parts of learned material and puts them together to form new material. (Example: a health care provider learns steps to prevent the development of pressure ulcers.)

- Evaluation – judges the value of the learned material. (Example: a health care provider can describe how the knowledge of pressure ulcer development can prevent skin breakdown among residents/patients.)

Affective Area

The ***affective area*** deals with the expression of feelings/emotions and involves the acceptance of attitudes, opinions, or values.

Teaching strategies include case studies, simulation, role-play, and discussion.

Examples of verbs used for learning objectives include chooses, initiates, justifies, shares, uses, participates, and follows.

Example: a health care provider realizes the worth and value of pacing and patience while caring for residents/ patients.

Psychomotor Area

The ***psychomotor area*** involves acquiring skills that require the integration of mental and muscular activity.

The psychomotor includes motor skills development. The psychomotor area includes learning arranged from simple to complex.

Teaching strategies include sequencing of sub-skills, demonstration, lab practice, and clinical practice.

Examples of verbs used for learning objectives include arranges, assembles, calculates, creates, demonstrates, measures, and organizes.

How to Write Behavioral Objectives

A behavioral objective is the central point of a lesson plan. It is a description of an intended learning outcome and is the basis for the rest of the lesson.

It provides criteria for evaluation of the learning of content.

A well constructed behavioral objective describes an intended learning outcome and contains three parts.

The 3 parts are:

1. Conditions - a statement that describes the conditions under which the behavior is to be performed.

2. Behavioral Verb - an action word that infers an observable student behavior.

3. Criteria - a statement that specifies how well the student must perform the behavior.

To write behavioral objectives, the teacher should begin with an understanding of the particular content to which the objectives will relate.

Step 1. Determine the Conditions

The teacher first specifies the conditions or circumstances, commands, materials, directions, etc., that the student is given, to initiate the behavior.

The “conditions” part of an objective usually begins with a simple declarative statement such as the following:

- Upon request the student will . . . (this means the student is given an oral or written request to do something).

- Given (some physical object) the student will . . . (this means the student is actually given something, such as a role play activity, a set of bed linen, that relates to performing the intended behavior).

Step 2. Choose the Appropriate Verb

The verb in a behavioral objective is an action word that implies an observable behavior and the domain of learning that is expected.

Verbs such as “identify,” “name,” and “describe” are behavioral because you can observe the act or product of identifying, naming, or describing.

Verb examples representing each cognitive level of Bloom’s Taxonomy are listed below. Bloom's Taxonomy is a method to categorize behavioral verbs based on level of difficulty.

Knowledge: *identify, define, label, list, locate, match, select, recall, and state.*

Comprehension: *classify, describe, estimate, discuss, explain, express, measure, summarize, and recognize.*

Application: *apply, arrange, calculate, construct, demonstrate, operate, schedule, sketch, and solve.*

Analysis: *analyze, debate, determine, compare, categorize, contrast, criticize, interpret, and differentiate.*

Synthesis: *arrange, assemble, collect, compose, construct, create, design, develop, formulate, manage, organize, plan, prepare, and propose.*

Evaluation: *appraise, argue, assess, attach, defend, and judge.*

Verb examples representing affective learning include: *accepts, attempts, challenges, defends, disputes, joins, judges, praises, questions, shares, supports, and volunteers.*

Verb examples representing psychomotor learning include: *administers, operates, and demonstrates.*

Step 3. The Criteria

The criteria are a set of descriptions that describe how well the behavior must be performed to satisfy the intent of the behavioral verb. Usually, criteria are expressed in some minimum number, or as what must be, as a minimum,

Putting It All Together

The Condition	The Behavioral Verb	The Criteria
Upon completion of the instructional session, the learner will	describe	Three signs of normal wound healing.
Upon request, the learner will	compare	Two non-therapeutic communication techniques.

How to Develop Written Material

Guidelines:

- Use **boldface type**, *italicize*, or <u>underline</u> key words or points for emphasis;

- Begin with a simple introduction that states the purpose of the written material;

- Place appropriate visuals (pictures, charts) very near to the accompanying text;

- Paragraphs
  - Use one idea per paragraph;
  - Start each with a strong topic sentence;
  - Vary sentence length;
  - Provide examples;
  - Use no more than 3 – 4 sentences per paragraph;
  - Use organizers (headings, indentation); and
  - Determine readability.

- Sentences
  - Keep sentences short – 10 words or less;
  - Avoid complex sentences;
  - Use active voice;

- Know your target audience and use words familiar to them.

- Words
  - Avoid words with 3 or more syllables;
  - Avoid abbreviations; and
  - Substitute short words for long ones.

- Font
  - 12 to 14 point font is easy to read (this is 8 point type, this is 10 point type, this is 12 point type, this is 14 point type);
  - Lines should not be longer that 50 to 70 characters in length;
  - White space should be used to rest the eyes (double spacing and margins);
  - Upper and lower case letters should be used (ALL CAPITAL LETTERS ARE HARDER TO READ);
  - Serif type should be used. Serif type has letters with horizontal strokes at the bottom and top of letters. This type print is easier to read. (Most people are accustomed to Times New Roman typeface).

How to Make an Overhead Transparency

Benefits: Low cost; easy to make; can be made by hand, by computer printer, or copy machine; easily stored and maintained; and add a visual dimension to a verbal lecture.

Guidelines:

- Should be clear and convey one idea or theme on each one;
- Pictures and letters should be easily seen or read;
- Background and subject matter should have a high contrast (dark letters on a light background); and
- Color should be used to attract the audience, retain information, and create a favorable learning atmosphere.

The Use of Colors:

- Primary colors (red, blue, and yellow) appeal to children;
- Secondary colors (green, purple, and orange) and light colors appeal to adults;
- Warm colors (red, orange, yellow) catch the eye more than cool colors (blue, dark green, purple); and
- Can facilitate recall.

Teaching-Learning Process
Implementation

Environment An optimal learning environment includes the following: adequate space to accommodate the numbers of learners present, comfortable chairs and a table or tables (so the learners can take notes), adequate lighting free from glare or bright sunshine, comfortable temperature, pleasant smell, and functioning audio-visual equipment.

Characteristics of an Effective Teacher

- Is interesting and holds the learner's interest;
- Is optimistic, positive, and non-threatening;
- Presents content that is accurate and current;
- Provides positive reinforcement;
- Uses a variety of teaching strategies to accommodate a variety of learning styles;
- Uses the learning objectives to guide his/her teaching efforts; and
- Uses time and resources wisely.

Teaching-Learning Process
Evaluation

Teaching:

It is important to have the learner evaluate all aspects of the teaching-learning process. Evaluation should include consideration of the following – the timing, the teaching strategies, the amount of information, the environment, and whether the objectives were met.

It is also a good time to determine perceived learning needs of the learners. This information will serve as valuable input for future teaching activities.

The teacher should use feedback from learner evaluations to modify the present teaching activity and consider the feedback when developing future teaching activities.

Learning

Learning is measured against the learning objectives selected during the planning phase of teaching-learning process.

The best method for evaluating whether cognitive learning occurred is by direct observation of behavior, written tests, oral questioning, and self-reporting.

The best method for evaluating psychomotor skills acquisition is direct observation of performance.

The best method for evaluating whether affective learning occurred is by direct observation of behavior, oral questioning, and self-reporting.

Teaching-Learning Process
Documentation

Staff development records should be kept based on the type and amount of information that may be requested at a later date. Record keeping should mirror requirements by regulatory agencies and follow protocols established by the facility's administrative body.

Often regulatory agencies require documentation of:

- Mandatory education;
- Competence and continued competence of skill performance; and
- Facility-based problems and how they have been resolved through education.

At a minimum, the following information should be kept for each education session:

- Participant information (for example, name, social security number, etc.);
- Attendance records;
- Contact hours of instruction;
- A syllabus or course outline (that includes objectives); and
- Method of evaluation.

Employee education records:

- Are frequently requested by regulatory agencies; and
- Have been used to defend employees and/or the facility in malpractice cases and criminal cases.

Resources

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