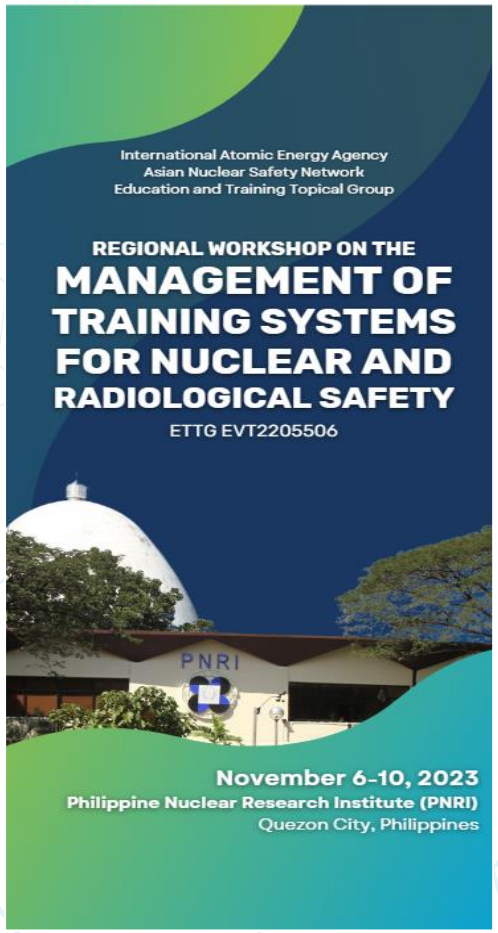

5.5 Role of different learning techniques (PNRI)

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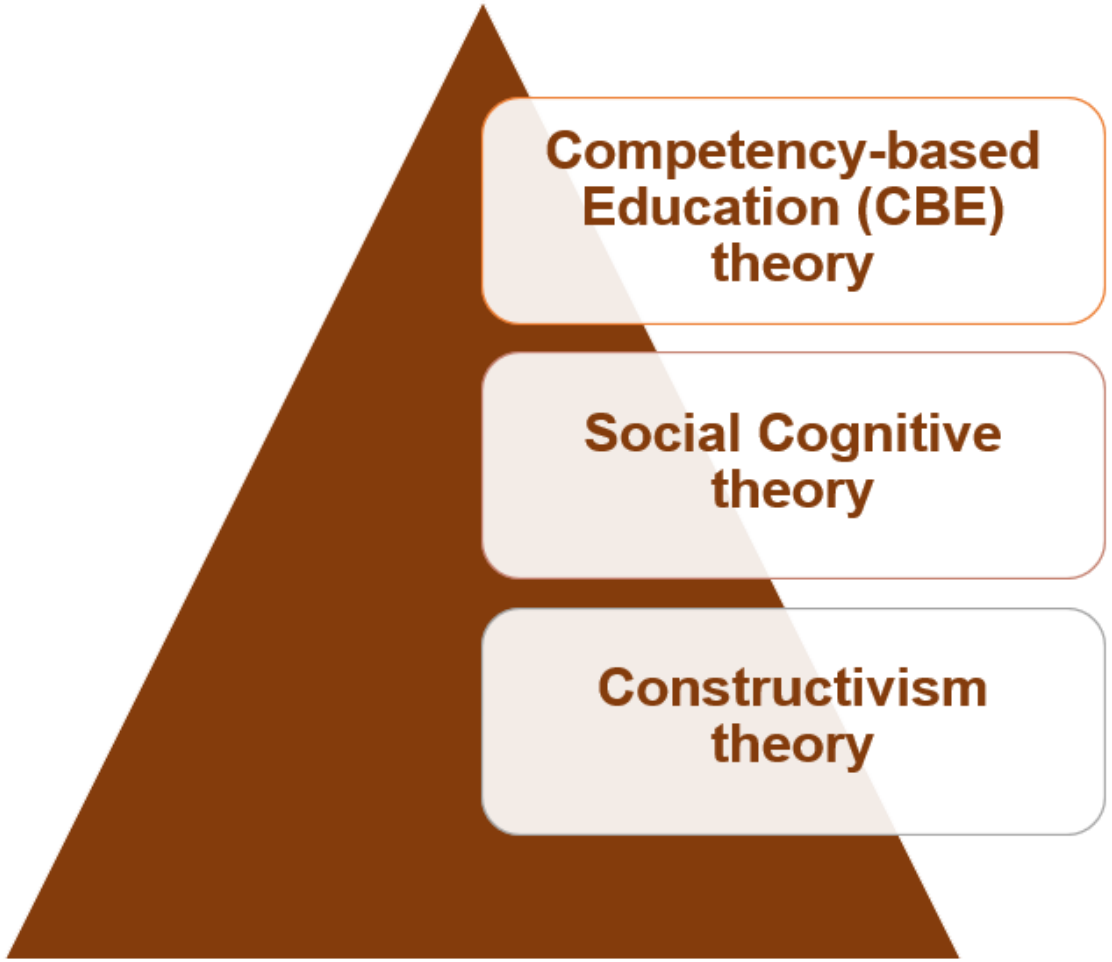
Instructional design

- **Training Strategy / Delivery**

Instructional strategies

- techniques instructors use to help students learn or gain a deeper understanding of content
- techniques for engaging and motivating students, as well as supporting learning.
- an essential aspect of course design because they allow the instructor to make purposeful decisions about content delivery and assessment that help keep the course aligned to objectives and outcomes while also helping students gain meaningful knowledge
- should be learner-centered and focused on the development of competency and connection to real-world application and allow for self-reflection to foster self-governance and accountability

Theoretical Foundations



Theoretical Foundations

- **Competency-based Education (CBE) theory**
  - is an educational theory that evolved as a hybrid model with roots in behaviorism, constructivism, experiential learning, and social cognitive theory
  - hybrid theory that adopted key concepts of existing educational theories to create a method for constructing knowledge and modifying behavior until students achieve mastery in critical technical skills and learning objectives
  - borrows scientifically grounded concepts from existing educational theories to form a hybrid type of educational approach intended to help students construct knowledge and develop critical behavioral outcomes through experience in their chosen profession.
  - Competency-based teaching has 5 major tenets: clear alignment with expected competencies, focus on fostering learning and self-governance, criteria-driven with focus on accountability and competency, connection to real-world experiences, individualized and learner-centered

Theoretical Foundations

- **Competency-based Education (CBE) theory**

Learning outcomes

- Traditionally, learning outcomes are focused on memorization and comprehension with the goal of passing tests.
- In competency based learning, the focus is placed on deep understanding that is demonstrated through application. This means that learning outcomes are proven by action, and focus on building the skills students need to become better learners into adulthood.

Theoretical Foundations

- **Social Cognitive theory**
  - is centered on the belief that learning occurs in the social domain
  - includes learning techniques such as **observation** and **role modeling**
  - a key component of career education and is seen in activities such as **job shadowing, internships, and clinical education.**

Theoretical Foundations

- **Constructivism theory**
  - based on the premise that learning is the students' construction of meaning from their experiences
  - maximizes the students' learning through well-planned and structured experiential learning, enabling them to construct fundamental knowledge and develop needed skills.
  - Places importance on the social aspect of learning, which is a key factor in adult education
  - Other well-known theories within constructivism are **Vygotsky's theory** of the zone of proximal development and **scaffolding**, which describe the progression of constructing knowledge

Instructional Strategies

Instructional Strategies

- **Lectures**
  - can occur in many forms in the online format, though it is not recommended to hold 2- or 3-h live lectures online
  - Students may begin to feel disengaged, and authentic learning is undermined with lengthy lectures.
  - In online learning, lectures work best when using short formats to provide a foundation for a topic or lesson and should not exceed 20 min at a time
  - can be provided as a voice-over PowerPoint, a live presentation, a prerecorded format, or a podcast.
  - Effective online learning uses short lectures to supplement learning in combination with other methods that are student-centered and require participation.
  - Live lectures can be used as a short supplemental clarification of commonly made student mistakes or a question-and-answer session at the end of an online module.

Instructional Strategies

- **Case Studies**
  - tie into several learning theories and support development of critical thinking and competency
  - Although this is often used to present images to students, case studies do not have to be images. Case studies present a student with a clinical problem but not a clear solution.
  - Case studies may even be combined with small group work that provides opportunities for brainstorming and social learning
  - Some video-conferencing platforms allow for breakout sessions that support this type of instruction.
  - Case studies are beneficial for supporting the development of practical knowledge and helping students think like a technologist.
  - Examples include **image analysis or review, a complex clinical case, or an interesting/unusual quality control finding or image.**

Instructional Strategies

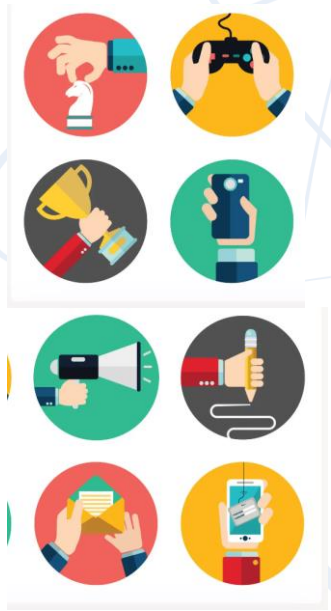
- **Discussions**
  - among the most widely used instructional strategies in online classrooms, and the most effective
  - Effective use of discussion posts appeals to adult learners and supports social learning and construction of knowledge.
  - Discussion posts not only keep students engaged but also they create interactivity
  - Discussion posts are beneficial in providing a sense of connectedness and belonging to students, as well as strengthening the connection to the content
  - Discussion prompts that are problem-based also foster critical thinking and the construction of practical knowledge

Instructional Strategies

- **Group Projects**
  - can be difficult to facilitate and motivate all students in the online format, though it can be done effectively
  - Some problematic aspects include difficulty in the group being able to meet or communicate effectively due to varied schedules and unequal participation or division of work by individual members.
  - Online group project assignments should be carefully designed to promote individual accountability while maintaining clear interdependence
  - Practical tips for incorporating group work are regular self-evaluations and periodic feedback from the group.
  - support the professionalism competencies because group projects require interpersonal social skills based on behaviorism, social cognitive theory, and constructivism while improving students' small group social skills and communication.

Instructional Strategies

- **Gamification**
  - the incorporation of gamelike activities or concepts into learning.
  - Gamification is a broad term that could be as complex as creating a virtual game or incorporating game elements into course content.
  - Incorporating gaming into an online course can be a complex and intimidating task for instructors. One method to incorporate gaming into an online course is by hosting a **trivia-based game**.
    - Some **PowerPoint and presentation software programs** have free templates for trivia and jeopardy
    - **Zoom** allows for breakout rooms that instructors can use to break classes into more manageable teams.
    - **Learning Management Systems (LMS)** have add-on applications that can be used to award students with badges for successfully completing modules or tasks.
  - **Choose-your-own-adventure–style games** can be useful for teaching students topics such as troubleshooting of equipment, handling a radioactive spill, or other imperfect scenarios encountered as a technologist.



Instructional Strategies

- **Assessments**
  - Assessment of student learning can be difficult in online learning.
  - Many proctoring options exist to protect the integrity of online exams, though students determined to cheat continue to find innovative ways to cheat on exams.
  - Several assessment strategies apply to online learning, which align nicely with various educational philosophies and instructional methods
  - Although quizzes and exams remain an important aspect of nuclear medicine education, other assessment strategies effectively support competency-based education in the online setting
  - Students in online classrooms should be given a variety of assessment methods aligned with a variety of learning assignments.
  - Examples of assessments: **Student digital presentations, student-generated videos, and student presentations**

Practical tips for quality e-learning

1

COURSE DESIGN

organization of the course in the LMS and the visual presentation

2

CONTENT CHUNKING

a way of breaking the content into smaller pieces, making it easier for students to focus in-depth on the topic and prioritize information

3

VARIETY

Varying instructional material supports learning for all learning styles. This can be accomplished by incorporating assigned readings, videos, short live or recorded lectures, graphics, and concise notes

4

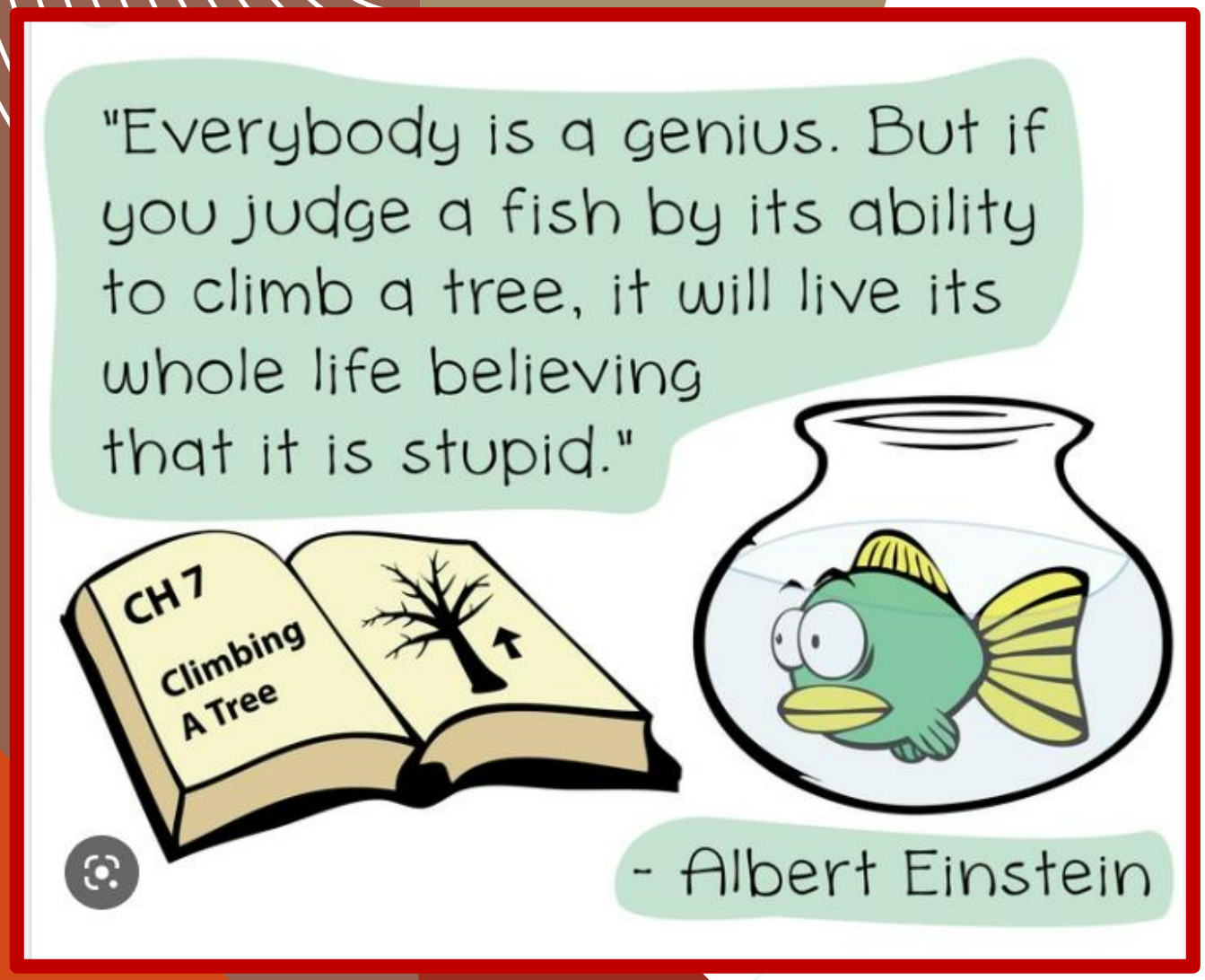
INCORPORATING TECHNOLOGY

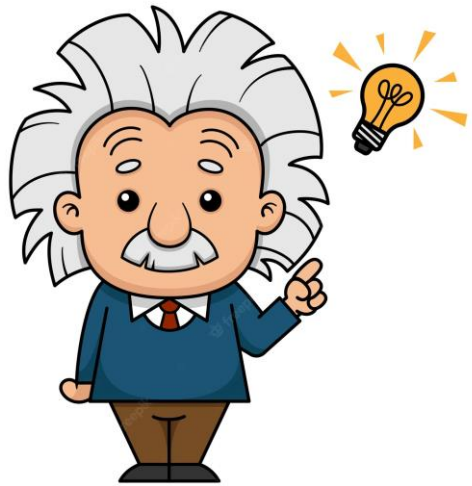
The use of various types of technology in a course can add to the variety of instructional materials and support student engagement with the topic.

5

INSTRUCTOR FEEDBACK

Frequent and constructive feedback fosters student learning


"Everybody is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid."
CH 7
Climbing A Tree
- Albert Einstein



References

PNRI NTC Course Syllabus
PNRI NTC Learning Management System

https://tech.snmjournals.org/content/49/3/269

Maraming salamat po sa inyong lahat!

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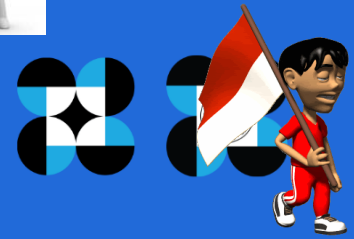

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