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Handout ICT Tools IN Problem Based Learning Arias Navarro

Education (Eastern Samar State University)

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HANDOUT IN Technology for Teaching and Learning II

Chapter 3: PROBLEM-BASED INSTRUCTIONAL PLAN DEVELOPMENT

(Chapter No./Title)

Lesson 2: ICT TOOLS IN PROBLEM-BASED LEARNING

(Lesson No./Title)

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CHAPTER 3

ICT TOOLS IN PROBLEM-BASED LEARNING

Objectives

At the end of this lesson, the students should be able to:

- define problem-based learning
- identify the different ICT tools in problem-based learning; and
- explain the importance of integrating ICT tools in problem-based learning

Problem-based Learning (PBL)

- Is a student-centered approach in which students learn about a subject by working in groups to solve an open-ended problem.
- Uses complex, real-world issues as the classroom's subject matter, encouraging students to develop problem-solving skills and learn concepts instead of just absorbing facts.
- The teacher introduces problems to which the students must suggest solutions that require them to engage in the topic content.
- Increases student engagement, motivates peer interactions, and the acquisition of lifelong learning.

Technology Becomes Critical

- Our devices have a slew of apps that once required additional time in resources.
- Problem-based learning provides a model that taps into both the connective and creative capacity of technology so that students can access the tools and the information to solve real world problems.

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ICT Tools in PBL

1. **Online Discussion Platform**

- this online platform allows students to engage on online discussions, share ideas, and collaborate in problem-solving task.

  - Moodle – an open-source learning management system that offers a variety of tools for online discussion. It provides discussion forums where students can interact, share ideas, and collaborate on problem-solving tasks.



2. **Multimedia Creation tools**

- this are tools used to create multimedia presentation, videos, infographics to showcase their research findings.

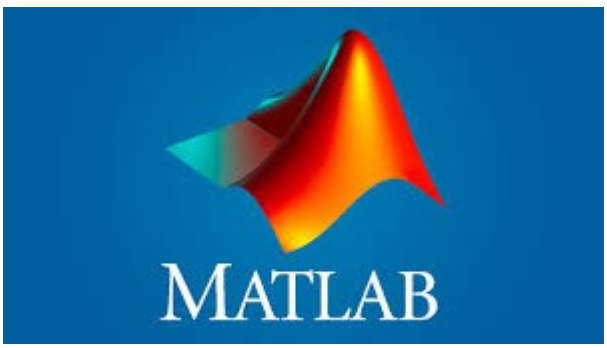
  - Genially – allows you to create interactive presentations, infographics, quizzes, and more. It offers a variety of templates and interactive elements to engage your audience.

genially

3. **Simulation and Modeling Software**

- this platform uses to simulate real-world scenarios and allow students to experiment, analyze data, and draw conclusions.

  - MATLAB – a simulation modeling tool widely used in engineering and scientific disciplines. It provides a graphical programming environment for modeling and simulating dynamic systems.



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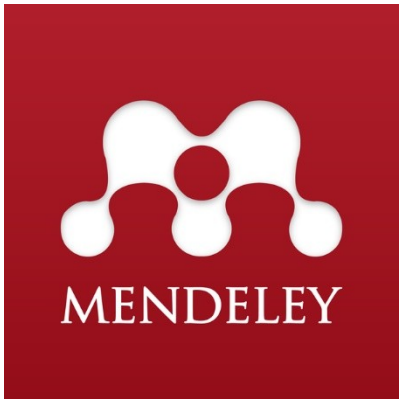
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4. **Online Research Databases**

- it enables students to find credible sources of information to support their problem-solving process.

    - Mendeley – a reference management tool that also offers a mobile app. It allows users to organize their research papers, highlight and annotate documents, and collaborate with others. It provides access to a large database of academic articles and allows for offline reading.



5. **Digital Mind Mapping Tools**

- it helps students organize their thoughts, brainstorm ideas, and visually represent the connections between different concepts.

    - Xmind **–** a popular mind mapping and brainstorming tool that can be used in problem-based learning to visually organize ideas, concepts, and relationships.



OTHER ICT TOOLS IN PROBLEM-BASED LEARNING

1. **Thinkrolls –** Thinkrolls teaches children aged three to eight the basic concepts of problem-solving and the laws of physics. Players control one of 26 characters to navigate the maze presented in the game. Kids are taught to use the physical properties of each character such as heat, gravity, acceleration, and force to their advantage.



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2. **Lumielabs -** is Britannica's K-12 digital storytelling and video-creation platform that shapes a new future for classroom learning. LumieLabs combines curriculum-relevant, project-based video lessons with millions of royalty-free, rights-cleared, fair-use multimedia clips and thousands of audio clips from best-in-class producers and artists for professional-quality content creation. It is the only video product on the market specifically designed to meet K-12 learning objectives, allowing students to become media-savvy creators. LumieLabs allows students to create stories, share them, and engage with their peers' videos in a safe, controlled environment.

3. **Thinkster Math –** this app helps students develop critical-thinking and math abilities. It allows math teachers to relate math concepts to real-life situations. This app also tracks students' process for arriving at their answers and helps the teacher give feedback and corrections.

4. **Kodable -** Kodable teaches coding to kids from ages 4 through 10; it is the only complete coding program on the market. This app can be used for an individual student or for a whole school district. Kodable encourages problem-solving and critical-thinking skills while informing children of algorithms, syntax, variables, and more. These are all crucial skills that coders must acquire to succeed in computer programming. With the assistance of the app's fuzzFamily avatars, children can learn computer science with friends.



5. **Problem Based Learning Experience -** This unique app features a collection of starter questions to help students and teachers begin problem-based learning activities. Each starter question also contains links to other resources to help students work to solve the problem in a real-world way.



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Resources

- Powerpoint presentation

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