AACE Proposal – November 11, 2021

Requested morning session

Submitted October 11, 2021

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Twenty-First Century Skills

Abstract: The 2020 COVID 19 pandemic situation rapidly utilizes technology learning systems to accomplish work and in education fields. The 21st Century technology skills learning was developed with input from teachers, education experts, and business leaders to enable and illustrate the skills. The knowledge learners need to succeed in work and life, as well as the support systems necessary for 21st century learning outcomes. Many learners and employees are skilled in various environments and technologies in their homes in order to fulfill educational and career commitments. During the pandemic, education educators can develop practice-based plan ideas and create emergency survival plans with computational skills for their institutions.
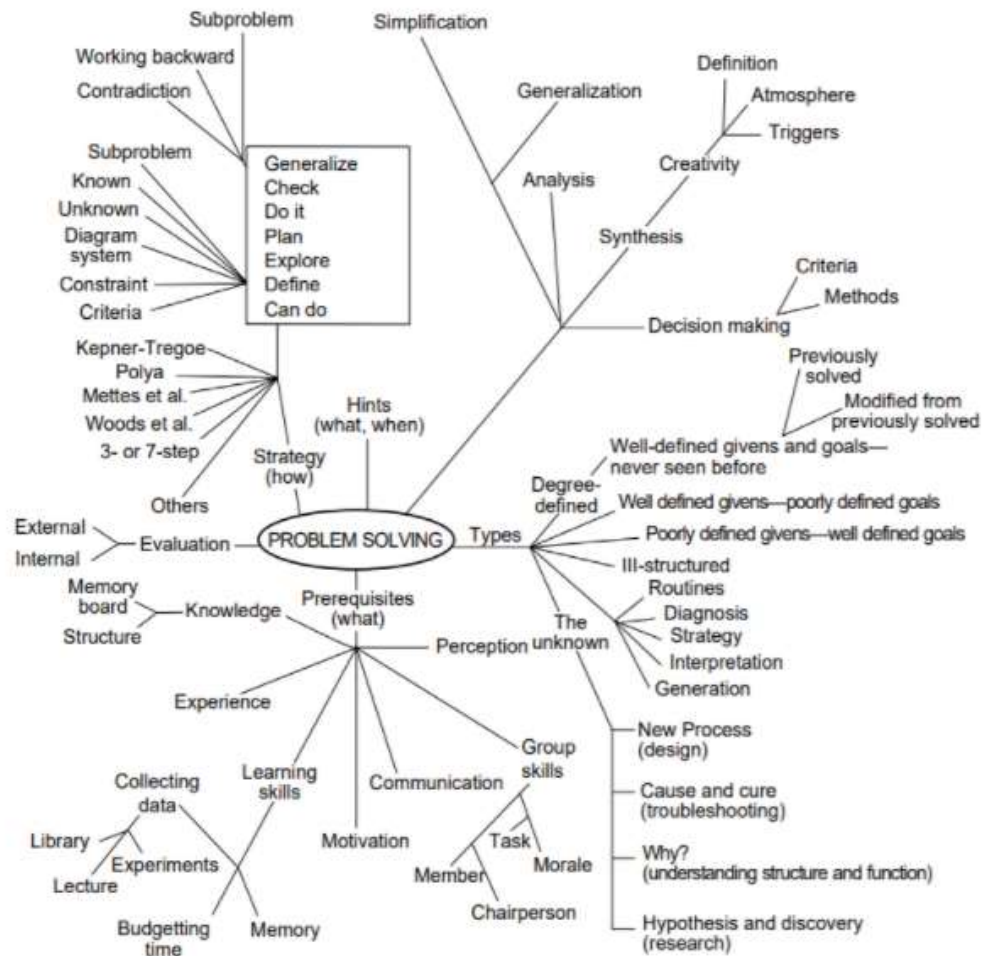
Introduce

In these innovative learning sections on Computational Skills, Creativity and Problem Solving, Life and Career Skills, and Policy, Law and Copyright Awareness utilize within the novices and experts for unstuck in learning. Cognitive psychologists are in general agreement that there are generalizable problem-solving skills, but that problem solving is also very dependent upon the knowledge required to solve the problem [see Chapter 14 and Kurfiss (1988) for a review].

Computational Skills

1. Computational confidence and self-efficacy, including the lack of fear of the Program
2. Problem solving skills
3. Logic and reasoning when dealing with big data and models
4. Dirt (data collection) to desktop - transform raw collected data to the 5. program so, it can be read

6. Control of the data - the opposite of a black box. Read the code and know what it does and why!

7. Communicating science

8. Reproducible research

Creativity and Problem Solving

CONCEPT MAP OF PROBLEM SOLVING. Reprinted with permission of *CEE, 13,* 132, (1979).

For this problem-solving mapping, the entry skills are the motivation and knowledge. Relatively structured strategies are most useful for well-defined problems (Mettes et al., 1981).

Many experts use simplification procedures to get a rapid solution. Personal creativity can be enhanced with proper coaching to problem solving. Analysis of the problem in decision making is often a major part of solving the problem.

Exercises which require students to develop trees or networks can help them form appropriate linkages (Staiger, 1984). How do the novices who start college differ from experts? This has been the topic of many studies (Dansereau, 1986; Fogler, 1983; Hankins, 1986; Larkin et al., 1980; Lochhead and Whimbey, 1987; Mayer, 1992; Smith, 1986, 1987; Whimbey and Lochhead, 1982; Woods, 1980, 1983; Woods et al., 1979; Yokomoto and Ware, 1990). The learners should be able to break down the problems to a part then analyze to perform the explore step and encourage them to go back to the fundamentals to monitor the problem during their progress. Once learners know how to utilize their strategy and how to check their results and evaluate their criteria then the problem has been unstuck and completed but allow learners to learn from their mistakes.

This paper is focus on the six operational steps and a prestep which focuses on motivation:

0 I can - a motivation step

1 Define - clearly identified with visual learning or other fundamental relationship

2 Explore- Think about it," or "Ponder."

3 Plan- formal logic for global thinkers and intuitive practice

4 Do it- actually generalize values and calculate answers

5 Check- automatic results for problem-solving and checks for errors

6 Generalize- How could the problem be solved much more efficiently in the future?

Since anxiety can be a major detriment to problem solving, it is useful to work on the student's self-confidence (Scarl, 1990; Richardson and Noble, 1983).

The instructors or experts want to avoid being subtle when first working on the 0 step. It is also useful to teach students a few simple relaxation exercises (Richardson and Noble, 1983; also, see Section 2.7 on handling stress).

Life and Career Skills

Q: Which of the strategies, technology, and projects resource that could we use to seamlessly integrate these life and career skills into our curriculum? (Think-Pair-Share)

Life and career skills are essential to compete globally.

Flexibility and Adaptability, Initiative and self-direction, social and cross-cultural skills, productivity and accountability, and leadership and responsibility.

"School should be less about preparation for life and more about life itself." ~John Dewey

Policy, Law and Copyright Awareness

WIPO Magazine's article _Understanding Copyright — A Life Skill_, by Lesley Ellen Harris, "Once the preserve of specialists, copyright has become a mainstream issue, and understanding how it works is an increasingly necessary life skill. In the online world, consumers come face to face with copyright law, but many remain confused and unsure about what they may or may not legally do. […] Copyright education offers a steady and sure means of building understanding and respect for creators' rights."

IFLA defines copyright literacy as:

… sufficient copyright knowledge to be able to take well informed decisions on how to use copyrighted materials. It includes understanding the structure, functioning and implications of

the copyright system, as laws, practices, and user expectations evolve. Copyright education is the process of developing and updating copyright literacy.

Librarians are often the copyright leaders in their organizations and educate and influence others, thereby shaping institutional policies and use of copyright-protected content. At the same time, the statement explains how copyright knowledge varies from librarian to librarian, and that there is an important need for copyright training among information workers. It states, … a greater level of copyright literacy within the profession as a whole will mean that more users' questions can be answered in a quick, confident and well-informed way.

The IFLA policy statement urges all to be aware of and support copyright literacy among all information workers.
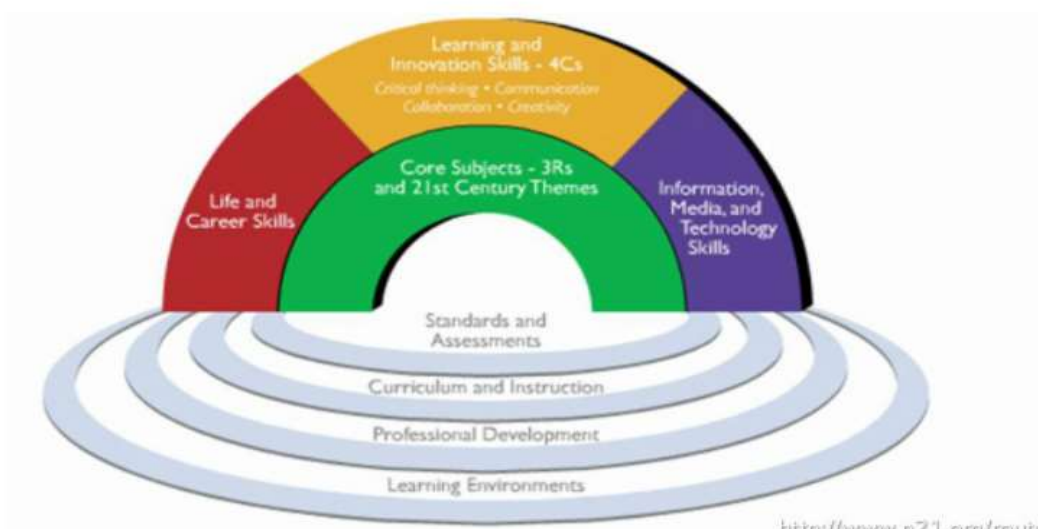
COPYRIGHT AWARENESS DAY

A *Copyright Awareness Day* is the day that's dedicated to promoting copyright awareness and education through activities that are impactful for your field.

1. audience and what copyright-related content would interest them
2. highlight copyright materials created in our field, such as images, diagrams, slide presentations and publications
3. Making our audience aware of legal ways to share and republish content and how licenses work, including Creative Commons licenses

Information, media, and technology skills, Learning & **Innovation skills-4Cs-Critical Thinking, communication, Collaboration, and Creativity**, and **Life & Career Skills**

Learning environments, Professional Development, Curriculum and Instruction, and Standards and Assessments

http://www.p21.org/route21/index.php

Reference

http://static.battelleforkids.org/documents/p21/P21_Framework_Brief.pdf

https://engineering.purdue.edu/ChE/aboutus/publications/teaching_eng/chapter5.pdf

https://www.battelleforkids.org/networks/p21

https://www.copyrightlaws.com/in-depth-guide-copyright-literacy/

https://serc.carleton.edu/NAGTWorkshops/data_models/computational.html

https://www.aace.org/conf/summit/about/#topics