TECHNOLOGY IS NOT THE KEY TO STEM AND CREATIVITY

EXPERIENCE FROM TEACHING A COURSE CREATIVITY IN STEM INVENTION

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BACK OF THE COURSE
CREATIVITY IN STEM INVENTION

- Elective course in **"Creativity and STEM/STEAM" Minor**
- No pre-requisite for enrollment
- students with diverse background can register this course
- Formerly known as Creativity in Science and Technological Invention prior to 2017/18

TECHNOLOGY INTRODUCED IN THE COURSE CREATIVITY IN STEM INVENTION

- LINO board
- 3-D drawing and 3-D printing
- Open Source software and hardware
- Arduino
- Littlebits

CONCEPTUAL TOOLS FOR STEM AND INVENTION INTRODUCED IN THE COURSE

- Strategies for brainstorming
- Creativity and innovation is both a collaborative process and individual efforts
- Patents and copyright
- Open-source softwares and hardware system
- Design cycle

EXPOSURES TO IDEAS ON STEM INVENTION

- Historical cases of invention and scientific discoveries
- Examples of Past projects
- STEM and invention activity in the community
- Exemplar modules on using ARDUINO platform
- ……..

SOME EXAMPLE OF STUDENTS PROJECT

- badminton grip for children
- wake up machine
- Rubbish bin
- An apps to teach maths to primary students

INVENTOR'S MINDSET

- Awareness of problems to be solved in their context
- Brainstorming different strategies for solving the problem
- Choose the most probable action plan for solving the problem
- Demonstrating the feasibility of selected solution through trials and errors
- Optimizing the solution for better performance

KEY CHALLENGES IN TEACHING THE COURSE

- STEM stress the importance of problem solving in daily life.
- Even when the students are presented with the necessary skills to start the exploration process, students often are very hesitant to start the exploration process, and can have a tendency to delay.
- Implementing an idea is the key step in invention. Encourage the students to go beyond "brainstorming" requires deliberate efforts in guidance.
- To successful implement some innovative ideas usually need a lot of trials and errors. The process can be quite frustrating if the students are not self-motivated.

LAST WORD…

- FUN is an important factor to drive educational process in STEM and Creativity.
- Bridge building activity