

The Direction of Creative engineering design education at the University



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1. 2. 3

SUBJECT





Part 1. What is Creativity ?

Part 2. What is Creative Eng.
Design?

Part 3. How will you Educate?





Part 1. What is Creativity?

- What is Creativity?
- Misperception of Creativity
- The Dilemma of Creativity and Ethics

What is Creativity?



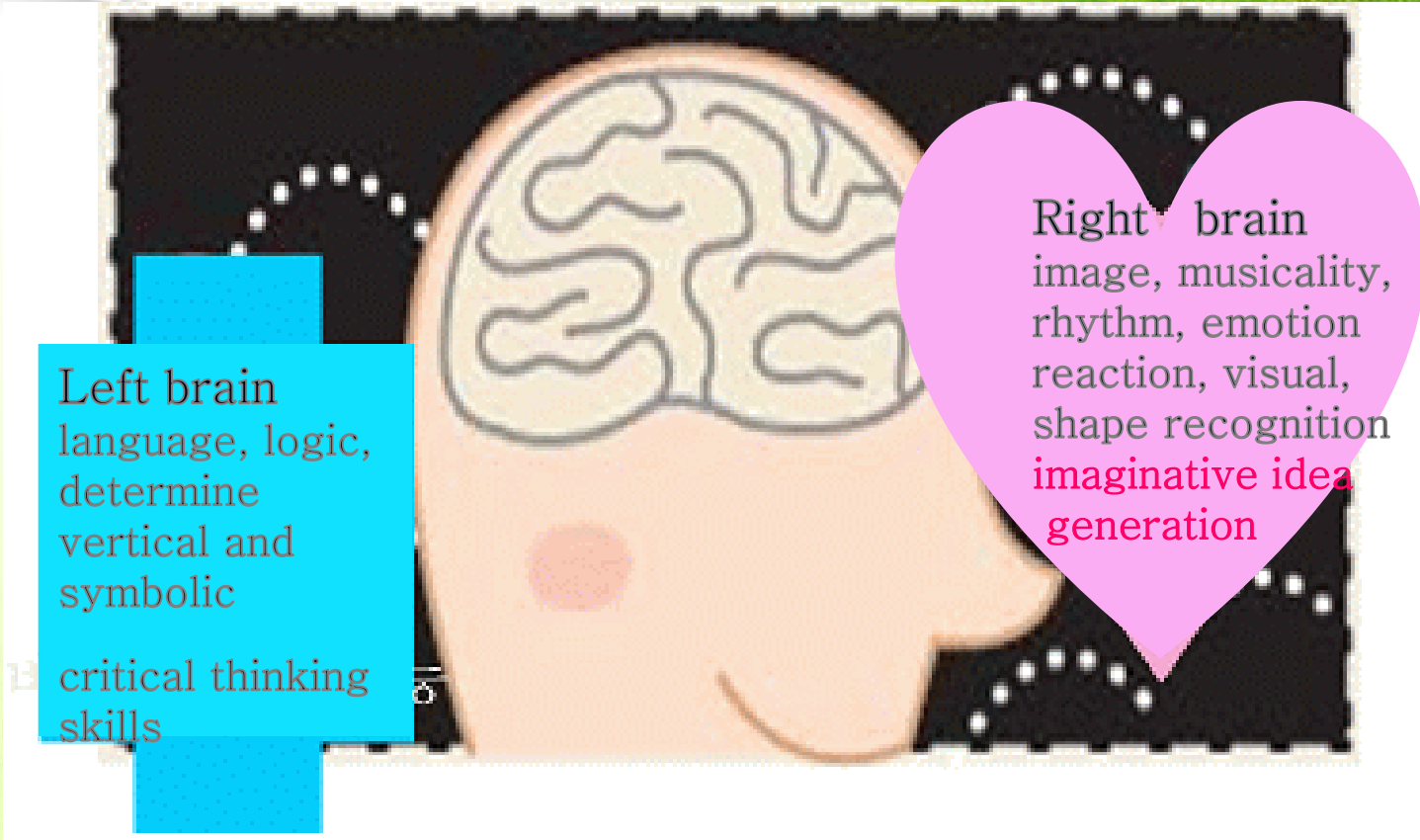
- Intellectual capacity including factors of divergent thinking and special personality
A form of problem solving ability
- Recently, Recognized for definition of creativity by academia
- “The ability to produce novel and appropriate product ”
- It is not granted characteristics to specialist, Every human has a latent-creative potential



Misperception of Creativity



- ❁ *Creativity is a natural talent can not be improved by learning.*
- ❁ *Creativity comes from special people, or from breaking common sense.*
- ❁ *Creativity is reserved for artists and creative workers.*
- ❁ *The creative ability is developed in the right side of the brain.*



Common ideas about misperception of right and left brain



Paradigm shift for creativity

- All humans have the ability for creative potential

Creativity can be enhanced by learning and training

- A lack of ethics, creativity can be a double edged sword.

Part 2. What is Creative Eng. Design?



- What is creative engineering?
- What is creative engineering design?
- Differences between experiment and creative design



What is Creative Engineering?



- People are not born with creativity, it is developed.
 - Idea generation and thinking ability is distinctive with intelligence and knowledge
- Creative thinking techniques prove to be effective in creative engineering
- Creative engineering design is solving a given problem or ways and means to achieve refinement and execution.
- Training Goals -> a structured to acquire improve creative thinking technique problem solving skills
- Goals oriented are required in promoting additional abilities communities



Engineering, Creative Engineering, Creative Engineering Design

- **Engineering** that can get the same result as a objective way is a structured knowledge
- Creative Engineering → Objectified system of knowledge for creativity
- **ABEEK Design** → Creative Design/Element Design/Comprehensive Design
Required courses for certification



Engineering, Creative Engineering, Creative Engineering Design

- **Experiment** -> **Confirming the truth in a result**
Design -> **Process of finding results of open problems**
- The difference between creative design, architectural design, mechanical design, and circuit design

Core Planning, coordination, concrete and Performance



What I hear I forget
What I see I remember
What I do I understand

- Confucius -



Part 3. How Will You Design Educate ?



- PBL(Problem Based Learning) and Team teaching
- Creative thinking techniques and Presentation
- Creative design contest and Portfolio



The Necessity of Problem Based Learning and Team teaching

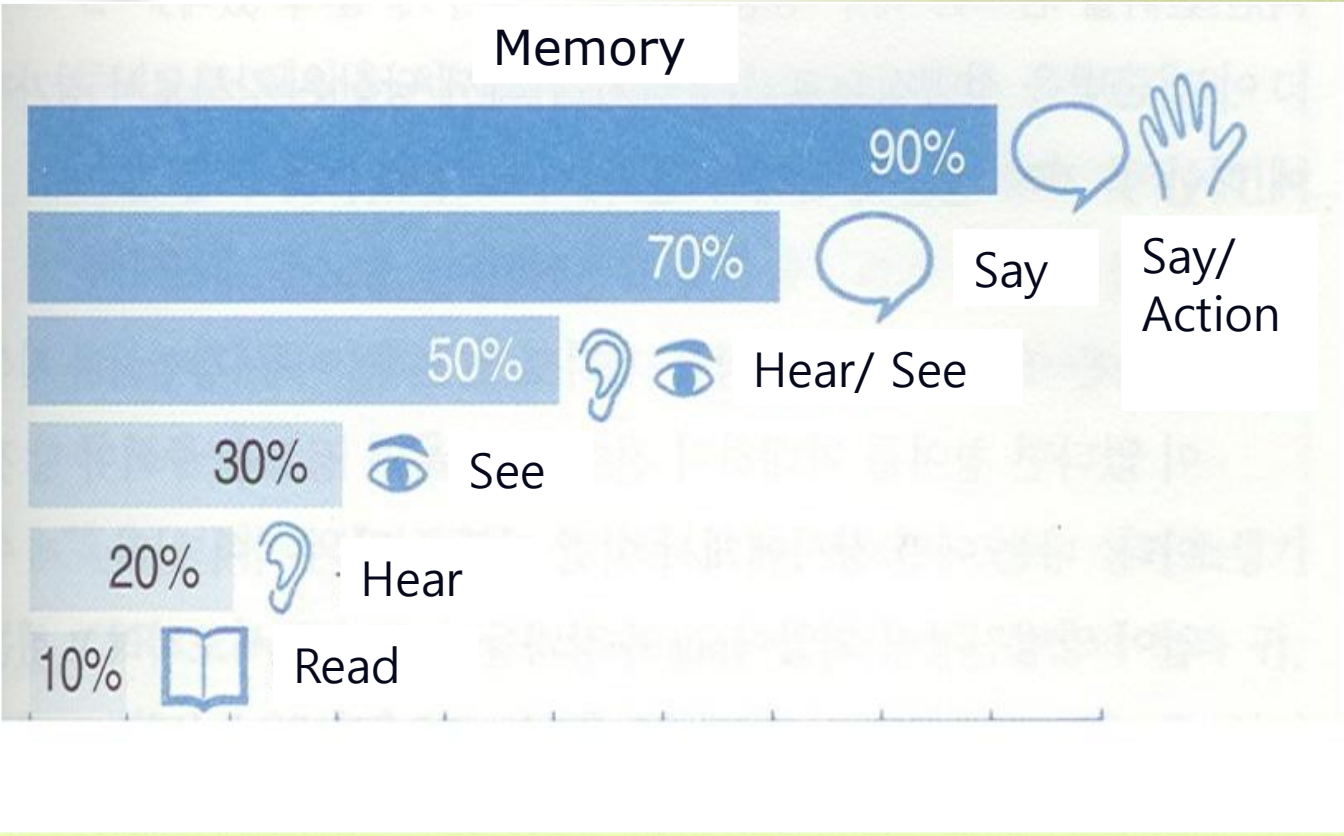
- The Community needs more of “What can you do” instead of “What do you know”
- The main task of university graduates is solving problems in a team
- Problem of creative engineering is “Inconsistency between the current state and desired state”
- Requires problem analysis, creative thinking, presentation and discussion, competition and cooperation, planning and execution



Creative thinking techniques and Presentation



- Problem analysis and creative idea generation are the core of creative engineering design processes
- The skills needed for creative thinking are lateral thinking problem solving and effective decision making
- The proposed idea is viable after thorough a process of presentation and discussion, competition and processing
- Learning thinking techniques and decision making need for solving the problem, as well as experience



Important of learning participation and creative design courses

Creative Design Contest and Portfolio



- The result of projects will be exhibited to Growth Participation and learning efficacy
- To achieve team teaching objectives get experience with team work, presentation, discussion and decision making through team project performance
- The portfolio is a requirement for ABEEK, provided source such as competitions and awards photo to satisfied
- In the classroom, rather than Learning with one way type of listening, participating in the team as a member as well as on your own will Improve achievement and efficiency



Motivating, Reviewing

Dynamic interaction and Learning
participation

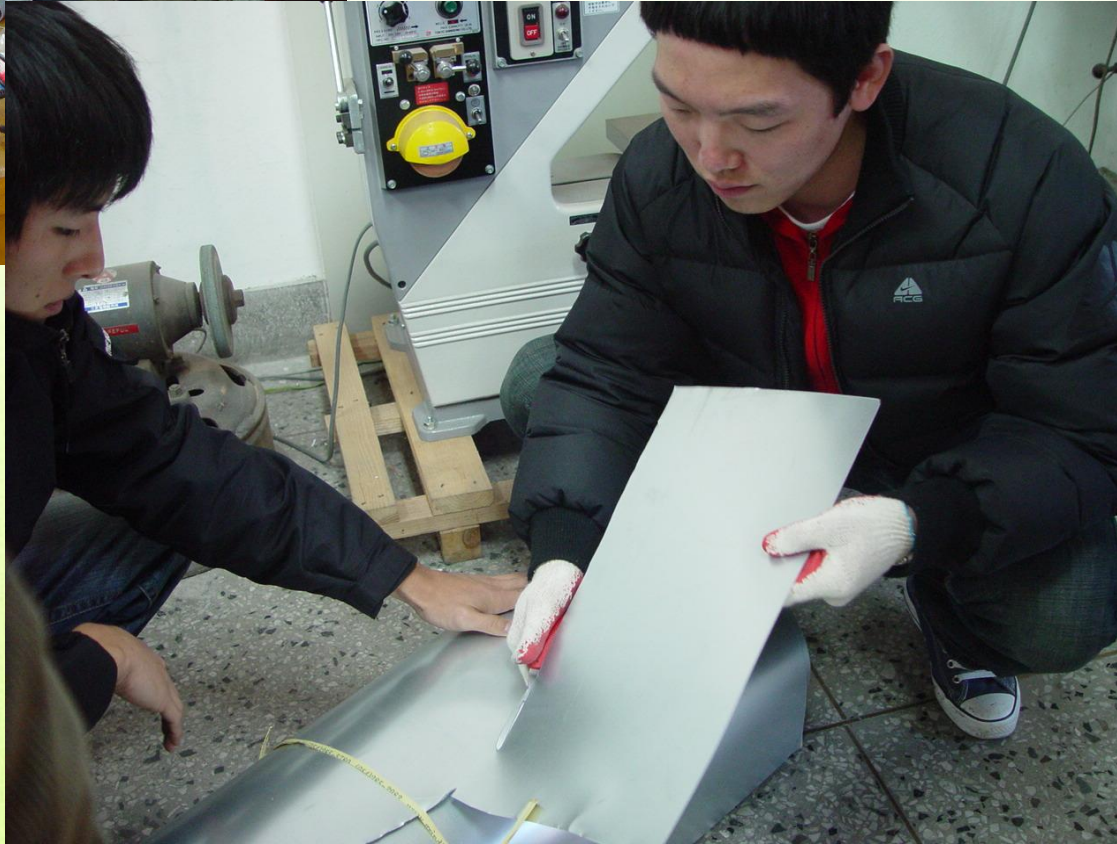
Try out enjoy themselves and Team
teaching

Apply PBL and Team Teaching





**Creative design and
presentation**



**Creative design project
and production**



Creative engineering design competition(1)

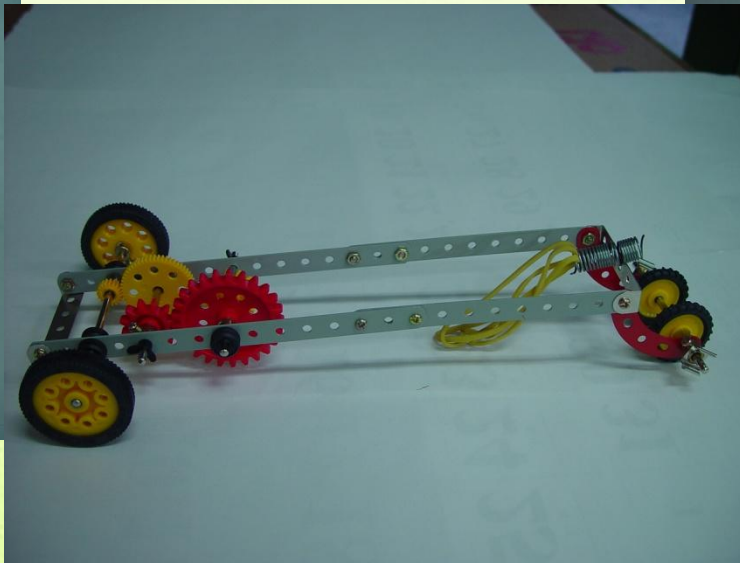
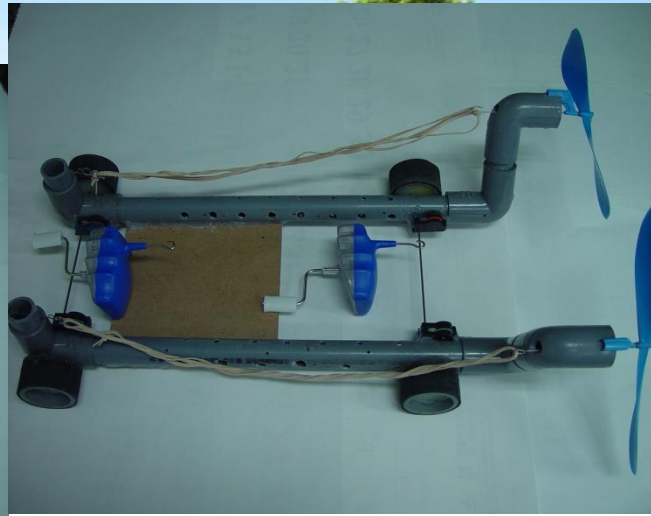


Creative engineering design competition(2)



Creative engineering design works







Summery & Conclusion

🌳 What is creativity?

What is creativity?

Misperception of creativity

The dilemma of creativity and ethics

🌳 What is creative engineering design?

The creative engineering and creative engineering design

Differences between experiment/practice and creative design

🌳 How will you educate the creative engineering design?

Problem based leaning and team teaching

Creative thinking techniques and presentation

Creative design contest and portfolio

Thank you
for your participation !

