



Development of TRIZ education materials

for improving the creativity and problem solving capability
of young students (from 10 to 15 age) in Korea

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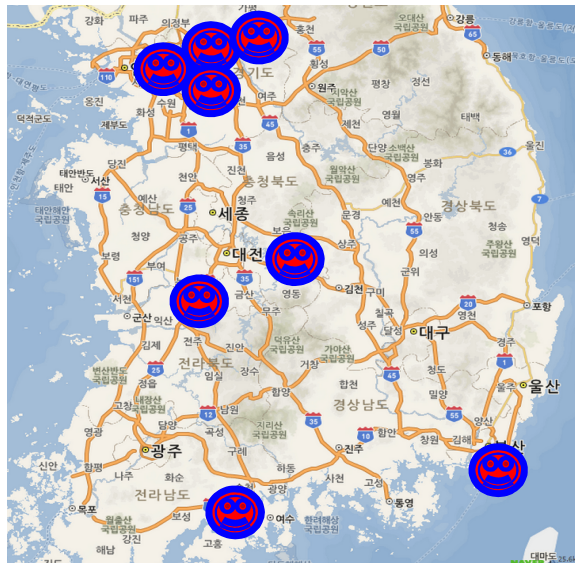
Motivation / State of the Art

- ▶ The conventional TRIZ educational materials
 - technology-oriented materials
 - not suitable for young students without sufficient engineering knowledge

- ▶ So the authors have made some educational materials
 - with divergent creativity methods
 - easy TRIZ tools as logical thinking tools for young students (from 10 to 15 age)

Experimental

- ▶ This TRIZ education materials had been presented
 - at 5 special seminars at Universities
 - at real elementary, middle and high schools



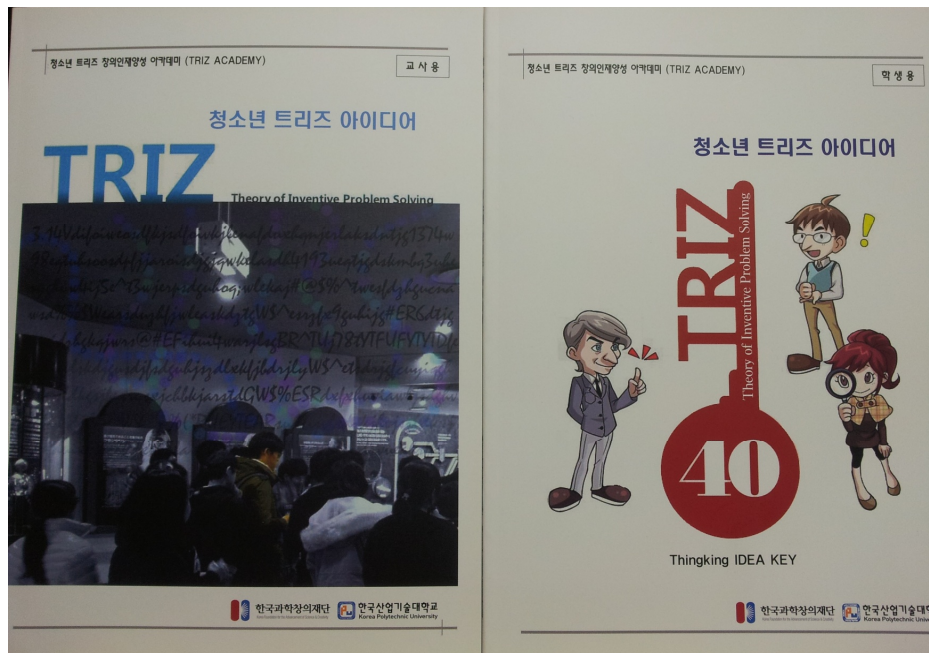
구분	장소	참가자
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	서울대학교	103
	전국경제인연합회	129
경기	마석고등학교	65
대전	충남대학교	48
	계룡시교육청	70
부산	신라대학교	68
전남	순천제일대학교	119
8 회차 621 명 (학생 390명, 교사 등 231명)		

Results and Discussion

- ▶ They are composed of
 - cartoons
 - ease-to-understand
 - with familiar words
 - re-analysis by TRIZ on umbrellas for young students
 - fun to young students

Results and Discussion

- ▶ published as workbook as follows;



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Contents

- Idea of JUNG Jooyoung, founder of Hyundai Motors
- Da Vinci Bridge (for using cheap resources)
- Success of LG Elec. in U.S fridge market (contradiction)
- I can invent, too. (40 principles)
- Welcome to TRIZ (introduction to TRIZ)
- Water saving toilet bowl (physical contradiction)
 - ▶ Silver Award in World Invention Competition
- Detective *Moon* and *Solomon* (with figure character)
- Think in TRIZ(1) Trimming
- Think in TRIZ(2) Smart Little People
- Think in TRIZ(3) STC Operator
- Think in TRIZ(4) Multi-Screen
- TRIZ Principles learning from real Magics

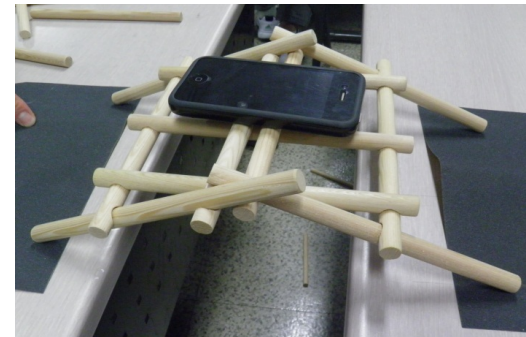
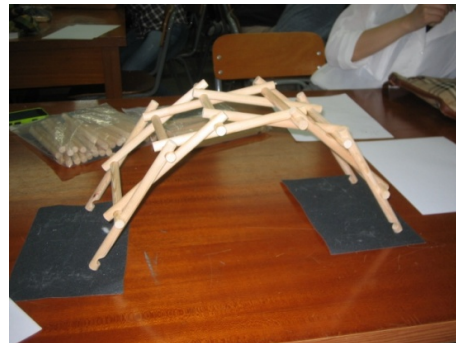
Idea of JUNG Jooyoung

- ▶ The difficulty of reclamation project
- We need stones and dirt to build a bank
- Stones must be truck-portable
- stones must be small to be carried by truck
- But small sized stones are swept away
- Not to be swept away, stones should be bigger
- We need big and small stones at the same time
- There is a contradiction. How can we solve this problem?



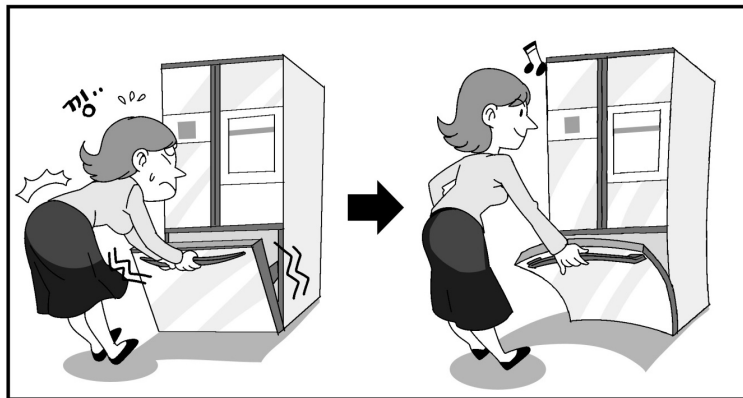
Da Vinci Bridge (cheap resource)

- ▶ How can we build a bridge ?
- We can use some wood, string and scissors
- to make a bridge, 50cm distance between desks
- The less used materials, the better.
- ▶ Think about the shape of bridge.



Success of LG Electronics in U.S.A

- ▶ hard to open the lower door of fridge
- When a magnetic force is strong
it is hard to pull the door
- whereas when a magnetic force is weak
air is leaked from the door → **Contradiction**
- ▶ How can I solve this problem?



I can invent

▶ Let's take a look at "40 Invention Principle"

2. 필요한 것만 남기자



중요한 것만 남겨두거나
필요 없는 것을 제거하자.
우산의 손잡이와 기둥을 없애자.
우산과 사람의 연결기능을 하던
손잡이가 없어졌으니 고리를 추가하자.
밀집모자만 써도 비를 피할 수 있다.



직장에서 일하는 시간에 돈을 보내기 위해 은행을 찾아가는 것은 번거롭다.
새로 나온 상품이 궁금하지도 않고, 다만 돈을 보내기만 하면 된다.
이럴 때 인터넷뱅킹을 사용하면 매우 편리하다.
은행에 찾아가는 교통비도 아낄 수 있으며, 무엇보다도 시간을 절약할 수 있다.
은행지점에서 직원의 친절함 서비스와 자동화기기를 빼고,
돈을 송금하는 기능만 남겨놓은 것이 인터넷뱅킹이다.



편의점에는 삼각 김밥과 라면이 있다.
겨울철에는 어묵을 사서 전자레인지에 넣고 따뜻하게
데워서 먹을 수도 있다.

가격이 비싸기는 하지만 24시간 이용할 수 있어서 좋다.

하지만 지하철을 기다릴 때나
좁은 건물에서는 편의점 서비스를 이용할 수 없다.

Welcome to TRIZ

▶ Figure characters

- Dectective, Moon, who finds out the problems
- Teacher, who suggests good ideas
- Solomon, who is a problem solver



Genrich Altshuller
(1926~1998)



Finder, MOON
(2012~ , KOREA)

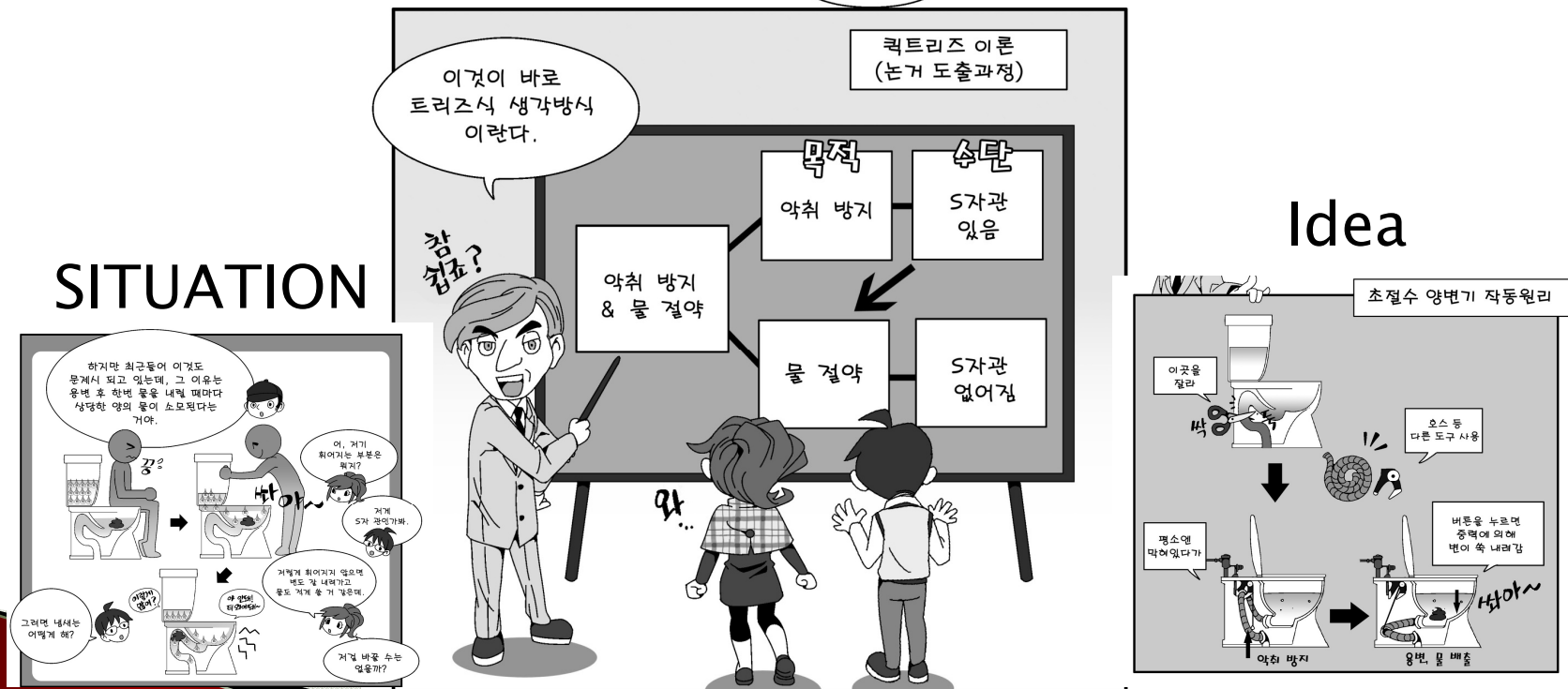


Solver, SOLOMON
(2012~ , KOREA)

Water saving toilet bowl

- ▶ Study “Quick TRIZ” Process step by step
- contradiction analysis
- idea generation (by separation in time)

Contradiction



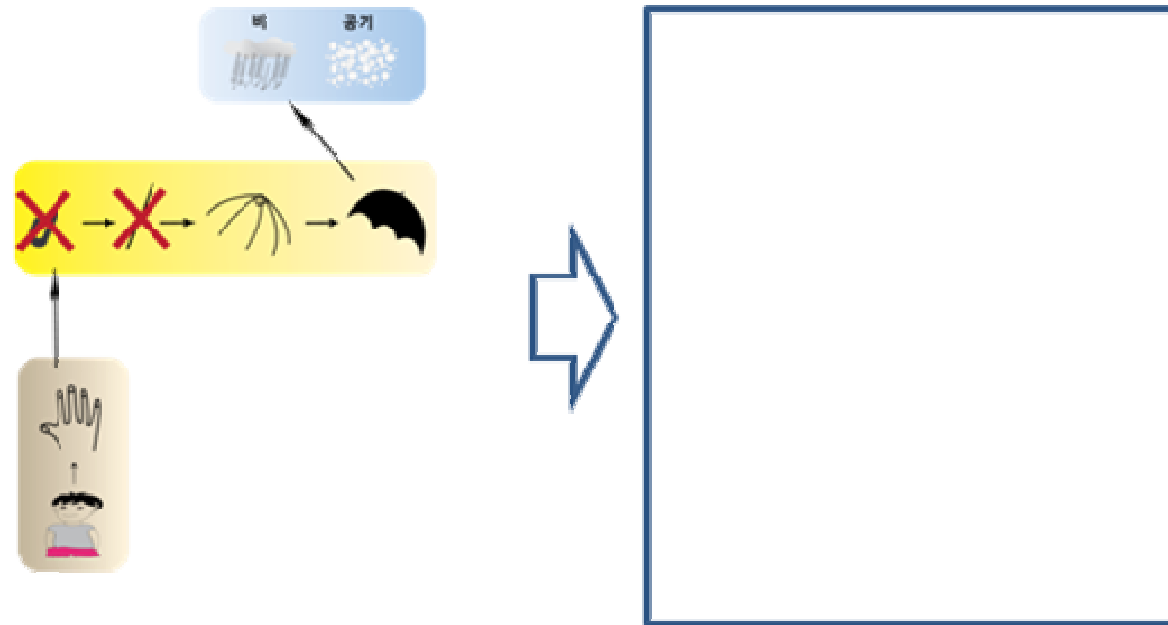
Detective Moon and Solomon

- ▶ Observations on the daily lives of youth
- Treat children's day-to-day problems
- The principles of separation



Think in TRIZ(1) Trimming

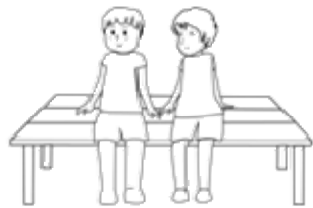
- ▶ Imagination
- Analyze the structure of an umbrella
- Be removed one or two!
- Draw a picture to think of



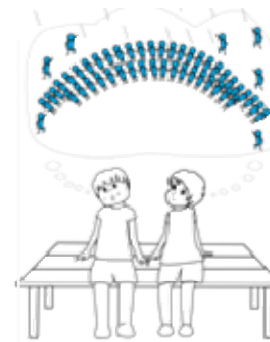
Think in TRIZ(2) Smart Little People

► Imagination

- How does the situation changed?
- What do I need?
- Draw a picture or write a story









TRIZ Principles learning from Magic

- ▶ Let's find out the answer with us

