

# Intel Creative Teacher Network

leading Korea's New Policies on K-12 Software/ Programming Education



John YS Kim



Do you remember your favourite teacher ?  
A teacher that you looked up to, who changed your life?

# Teacher Salary Index:

## Average Teacher Salary in different countries

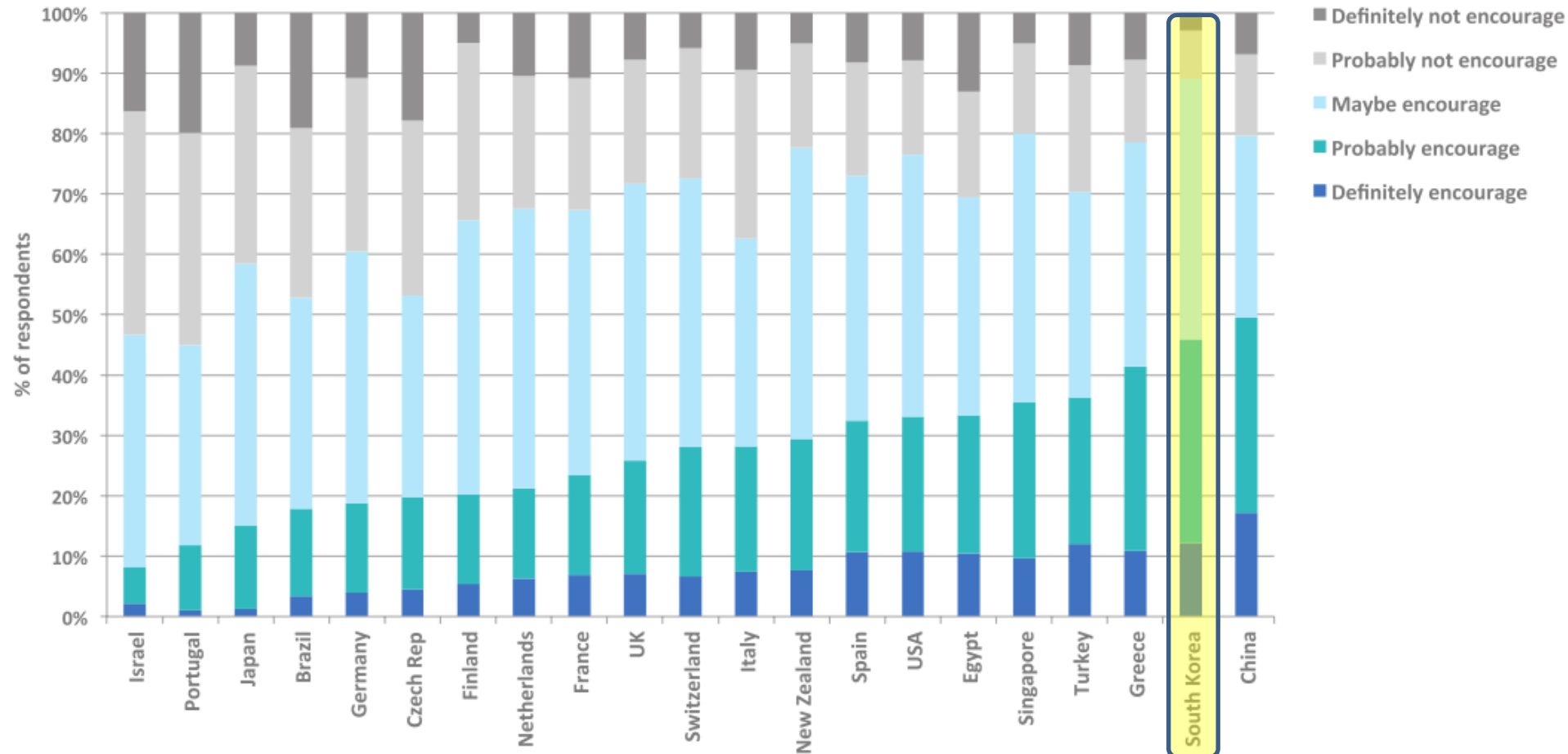
COUNTRY	INDEX RANKING	AVERAGE TEACHER SALARY (\$ USD, PPP ADJUSTED)	PISA RANKING (1= HIGHEST PISA SCORE, 20 = LOWEST PISA SCORE)
<b>China</b>	100	\$17,730	3
<b>Greece</b>	73.7	\$23,341	17
<b>Turkey</b>	68.0	\$25,378	19
<b>South Korea</b>	62.0	\$43,874	4
<b>New Zealand</b>	54.0	\$28,438	6
<b>Egypt</b>	49.3	\$10,604	NOT AVAILABLE
<b>Singapore</b>	46.3	\$45,755	1
<b>Netherlands</b>	40.3	\$37,218	7
<b>USA</b>	38.4	\$44,917	12
<b>UK</b>	36.7	\$33,377	10
<b>France</b>	32.3	\$28,828	11

# Job Preference Index:

## Would you encourage your child to become a teacher?



Figure 4: Would you encourage your child to become a teacher?

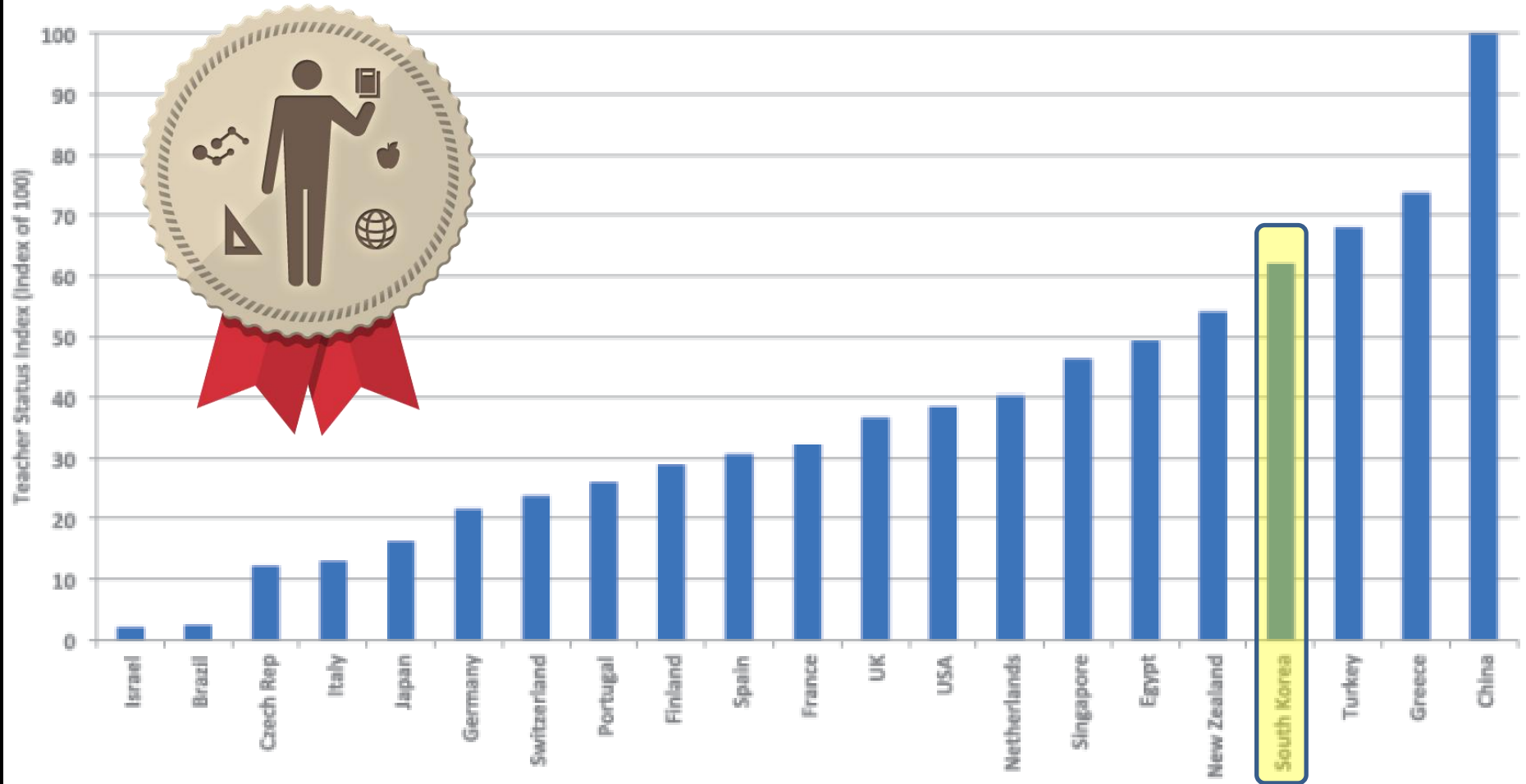


South Korea 48%, China 50%

# The Global Teacher Status Index 2013



Figure 1: Teacher Status Index



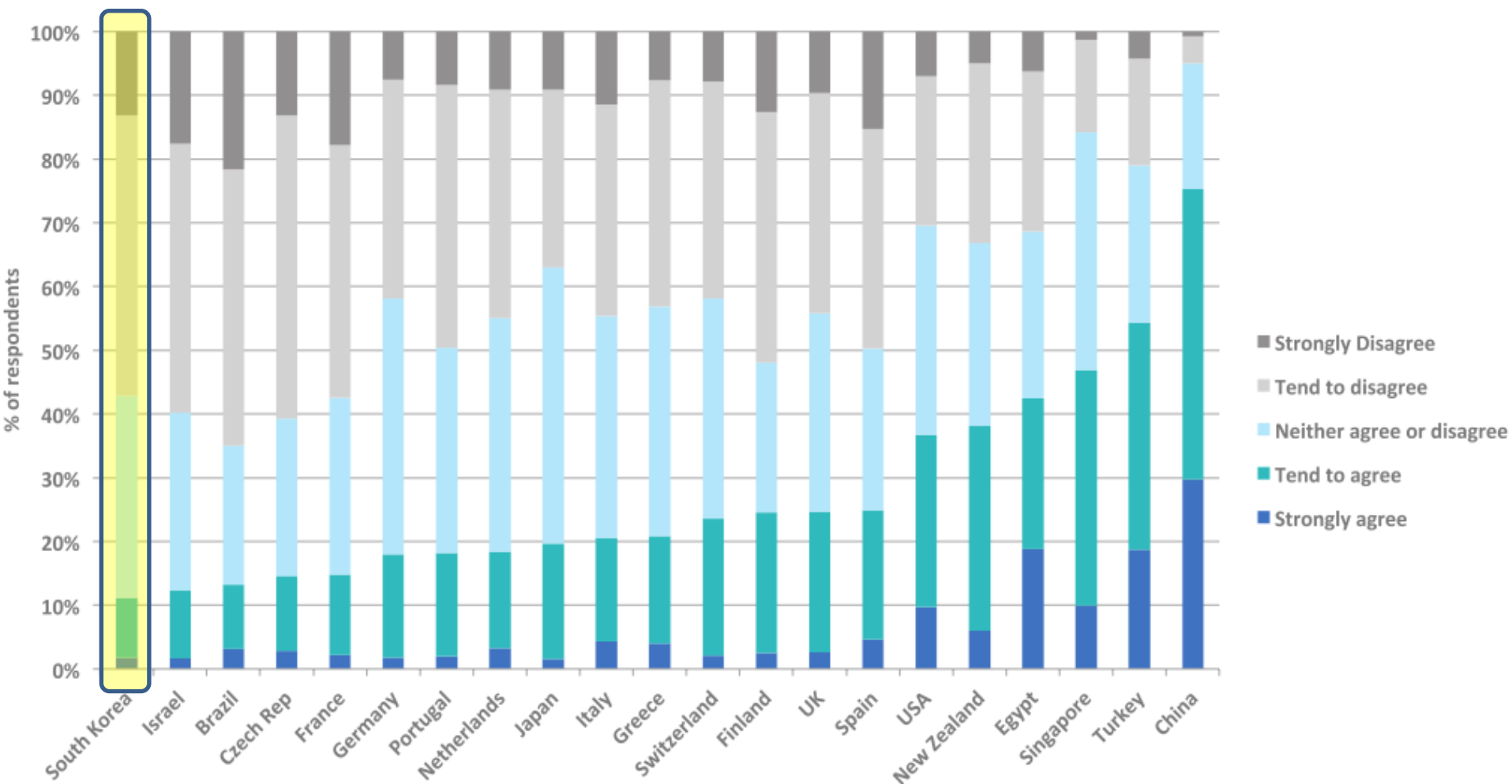
(21 survey countries indexed on a relative scale 1-100)

[VARKEY GEMS FOUNDATION](#)

# But.... According to Pupil respect index Chart, Students don't respect teachers!!



Figure 7: Do pupils respect teachers?



**Why ?**

# Traditional Classroom and Study

Window to the Physical World



**Learning Facilitator  
/Teacher**



**Notes, Materials  
and References**

**Learners**

*Sprawls*



How might we redesign our  
unit plan to elevate  
**student engagement** and  
**academic outcomes**?

How might we create  
a **21<sup>st</sup> century**  
**learning experience**  
at our school?



## Intel Creative Teacher(ICT) Network in Korea

- App 80% graduate from univ but most of them turned to be jobless...youth unemployment has been the critical social issue & President emphasizes career education from young age.
- Govt also drove numerous education policies eg smart education, digital textbook initiatives and software/programming education...educators are confused, need to change teaching practices & thirsty for benchmarks.
- Intel brought together passionate and voluntary educators nationwide who were committed to change their classroom practices and offered capacity building opportunities including various teacher PD – 21<sup>st</sup> century learning, Intel thinking tools, STEM, IOT/Galileo and entrepreneurship efforts.
- Vision: **Learning, Sharing and Taking Action for the Future of Students.**

# Intel Creative Teacher(ICT) Network in Korea









# Collaboration System and Roles

## Intel Creative Teacher Network in Korea



>> BAND

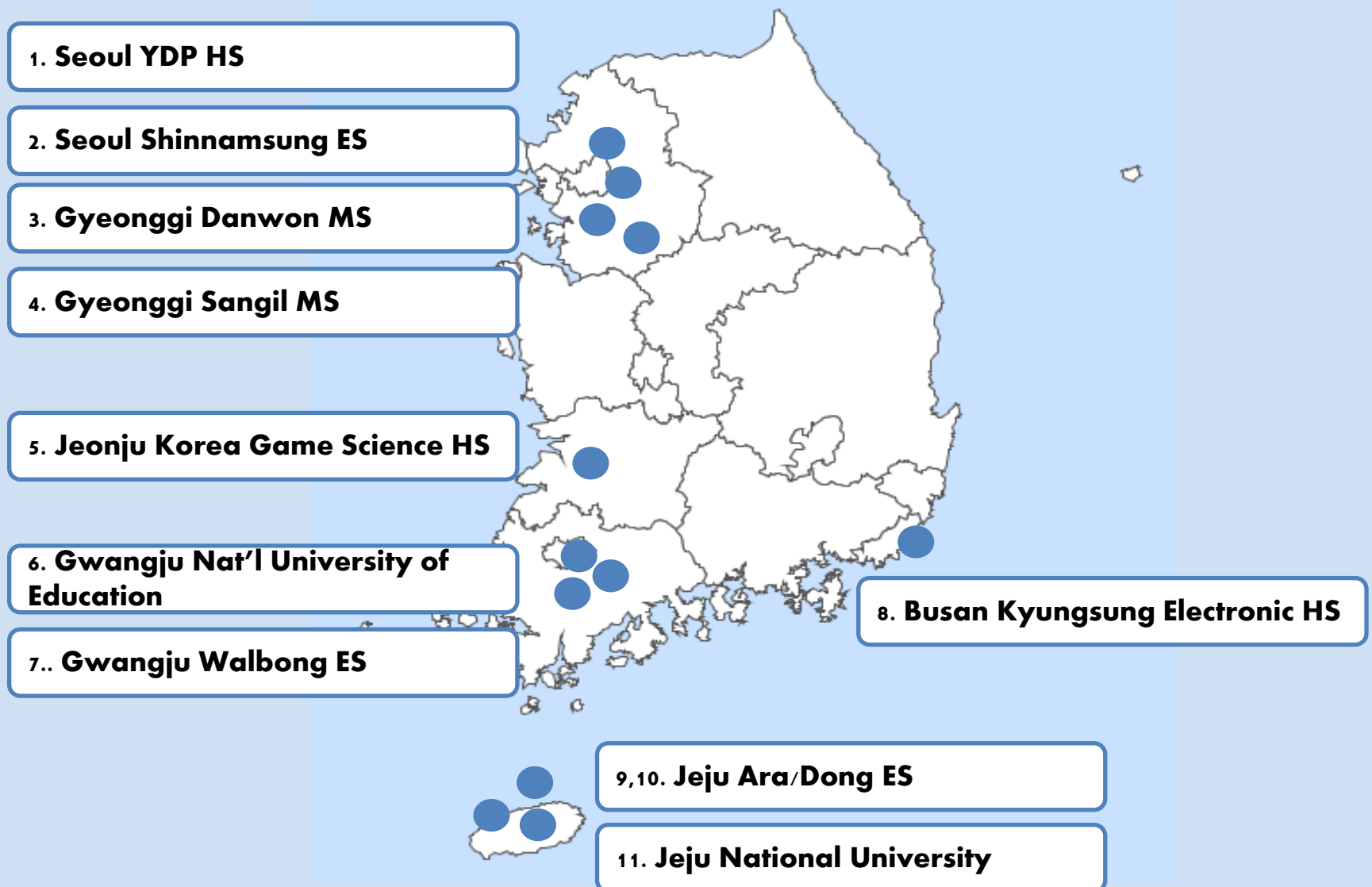


>> Facebook



>> [engage.intel.com/community/korea](http://engage.intel.com/community/korea)

# ICTN gives birth to sub communities





# Core Activities led by ICTN

## ICTN

### F2F Capacity Building

#### Intensive Workshop



**Professional Learning :**  
PBA, Assessing Project,  
Collaboration, 21st lesson  
planning, Thinking Tools, ...

### Online Capacity Building

#### WEBINAR Based on Web/Mobile



**Community :** Intel Engage,  
SNS(Band, Facebook)  
**Webinar :** Consulting,  
Professional learning, ...

### Policy Influence, Programs

#### STUDENT CAMP / INNOVATION HUB



**Galileo Camp, Career  
Camp, Software Education,  
Innovation Hub, ...**



# The Focus: changing own classroom, unit plans through peer consulting process



**Practicing in each classroom**

Assessment

**Making unit plans**

**Creating ideas**

**Consulting**

Collaboration & Thinking Tools

21<sup>st</sup> Skills & PBA





# Beyond own classroom...contribute as Innovation Hubs and software Ed leaders

## Innovation HUB



## Be the Maker Academy



## Student Camp



# Key resources ICTN is using for Teacher Professional learning efforts



**Various Educational Contents  
Supported by Intel**



# Teacher Professional Learning examples...

## From thinking tools

 [www.intel.com/content/www/us/en/education/k12/teachers.html](http://www.intel.com/content/www/us/en/education/k12/teachers.html)

Menu 

Find Content |



## Tools for Student-Centered Learning

## Free tools and resources from Intel® Education

## Visual Ranking Tool

Help your students identify and refine criteria as they assign rankings to a list. This tool can help them better organize ideas, debate differences, and reach a consensus.

[Learn more about the Visual Ranking Tool >](#)



### Showing Evidence Tool

Teach students how to use a visual framework to construct a well-reasoned argument and prove their case with credible evidence.

[Learn more about the Showing Evidence Tool >](#)



## Seeing Reason Tool

Help students understand the cause-and-effect relationships of complex systems. This tool allows them to create visual maps that organize their ideas and build their collaborative reasoning skills.

[Learn more about the Seeing Reason Tool >](#)



## Assessing Projects

Develop or create assessments that address your students' critical thinking and collaboration skills. You can also learn strategies to help make assessment an integral part of your teaching.

[Learn more about Assessing Projects >](#)





# ...to various 21<sup>st</sup> century learning curriculum Readily available and free of charge



## Inquiry in the Science Classroom

Transition from textbook science to authentic inquiry. Explore ways to develop your students' scientific thinking and practices.

[Download the syllabus >](#)

[Launch the course \(requires newer browsers: Firefox, or Chrome\) >](#)



## Thinking Critically with Data

Examine critical thinking with a focus on data analysis. This course will help you prepare students to think analytically in our global, knowledge-driven world.



## Assessment in 21st Century Classrooms

Learn how to plan, develop, and manage student-centered assessment strategies that can benefit your teaching and your students' learning.



## Project-Based Approaches

Explore the features and benefits of project-based learning with classroom scenarios that help you to engage students with self-directed learning.

[Download the syllabus >](#)

[Launch the course \(requires newer browsers: IE9\\*, Firefox\\*, or Chrome\\*\) >](#)



## Collaboration in the Digital Classroom

Plan and manage collaboration activities that integrate online tools, which are increasingly an integral part of our digital, global world.

[Download the syllabus >](#)

[Launch the course \(requires newer browsers: IE9\\*, Firefox\\*, or Chrome\\*\) >](#)



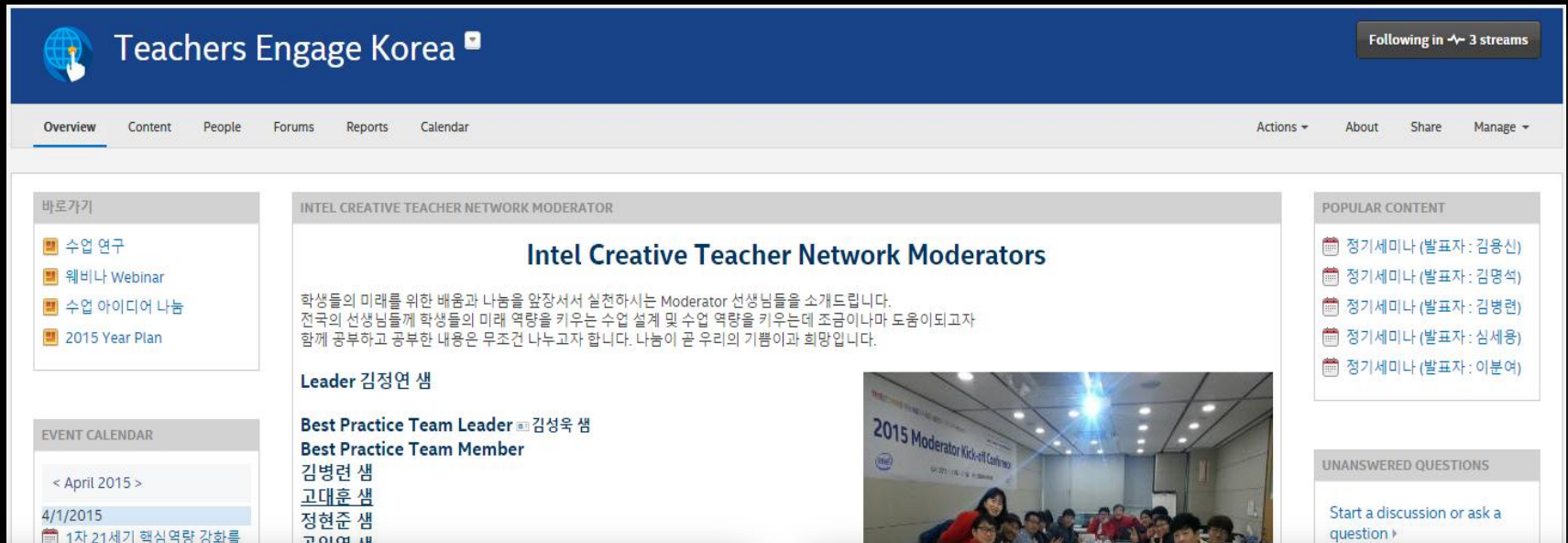
## Educational Leadership in the 21st Century

Learn how school leaders can better use technology to help support teacher effectiveness and improve student achievement.

[Download the syllabus >](#)

[Launch the course \(requires newer browsers: IE9\\*, Firefox\\*, or Chrome\\*\) >](#)

...Also, “Teachers Engage” serves as the main online community platform for ICTN



The screenshot shows the homepage of the Teachers Engage Korea community platform. The header features the site logo and navigation tabs: Overview, Content, People, Forums, Reports, and Calendar. A sidebar on the left contains links to '바로그기' (Blog), '수업 연구' (Lesson Study), '웹이나 Webinar' (Webinar), '수업 아이디어 나눔' (Lesson Idea Sharing), and '2015 Year Plan'. The main content area is titled 'INTEL CREATIVE TEACHER NETWORK MODERATOR' and features a post about 'Intel Creative Teacher Network Moderators'. The post includes a photo of a group of people at a '2015 Moderator Kick-off Conference' and lists the 'Best Practice Team Leader' (김성욱 샘) and 'Best Practice Team Member' (김병련 샘, 고대훈 샘, 정현준 샘, 고이여 샘). A right sidebar shows 'POPULAR CONTENT' with several '정기세미나' (Regular Seminar) entries and 'UNANSWERED QUESTIONS'.

Teachers Engage Korea

Following in ~ 3 streams

Overview Content People Forums Reports Calendar Actions About Share Manage

바로그기

- 수업 연구
- 웹이나 Webinar
- 수업 아이디어 나눔
- 2015 Year Plan

EVENT CALENDAR

< April 2015 >

4/1/2015

1차 21세기 핵심역량 강화를

INTEL CREATIVE TEACHER NETWORK MODERATOR

### Intel Creative Teacher Network Moderators

학생들의 미래를 위한 배움과 나눔을 앞장서서 실천하시는 Moderator 선생님들을 소개드립니다. 전국의 선생님들께 학생들의 미래 역량을 키우는 수업 설계 및 수업 역량을 키우는데 조금이나마 도움이되고자 함께 공부하고 공부한 내용은 무조건 나누고자 합니다. 나눔이 곧 우리의 기쁨이고 희망입니다.

Leader 김정연 샘

Best Practice Team Leader 김성욱 샘

Best Practice Team Member

김병련 샘

고대훈 샘

정현준 샘

고이여 샘

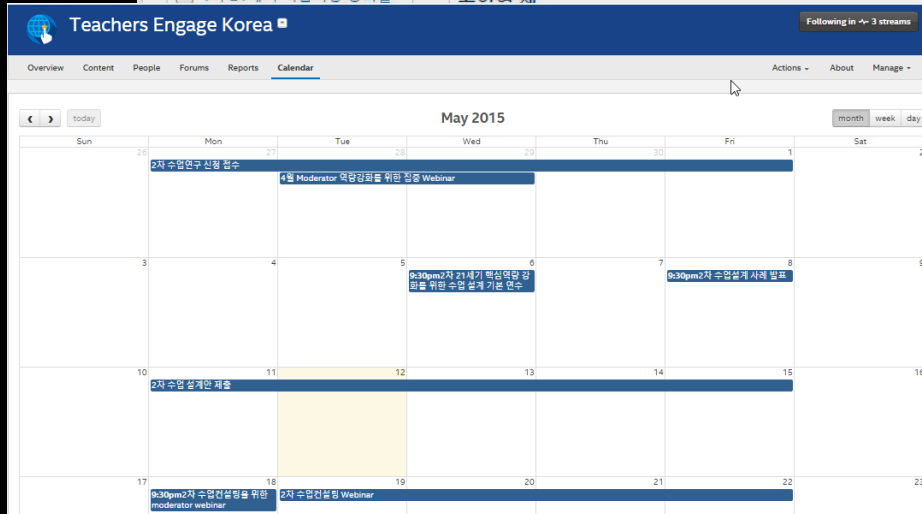
2015 Moderator Kick-off Conference

POPULAR CONTENT

- 정기세미나 (발표자: 김용신)
- 정기세미나 (발표자: 김명석)
- 정기세미나 (발표자: 김병현)
- 정기세미나 (발표자: 심세웅)
- 정기세미나 (발표자: 이분여)

UNANSWERED QUESTIONS

Start a discussion or ask a question



The screenshot shows the calendar view of the Teachers Engage Korea community platform. The calendar is for May 2015 and displays various events and activities. The events are color-coded and include details such as the date, time, and topic. The calendar also shows the current date (May 1, 2015) and the day of the week (Sunday).

Teachers Engage Korea

Following in ~ 3 streams

Overview Content People Forums Reports Calendar Actions About Manage

May 2015

month week day

2차 수업연구심화 심수

4월 Moderator 역량강화를 위한 집중 Webinar

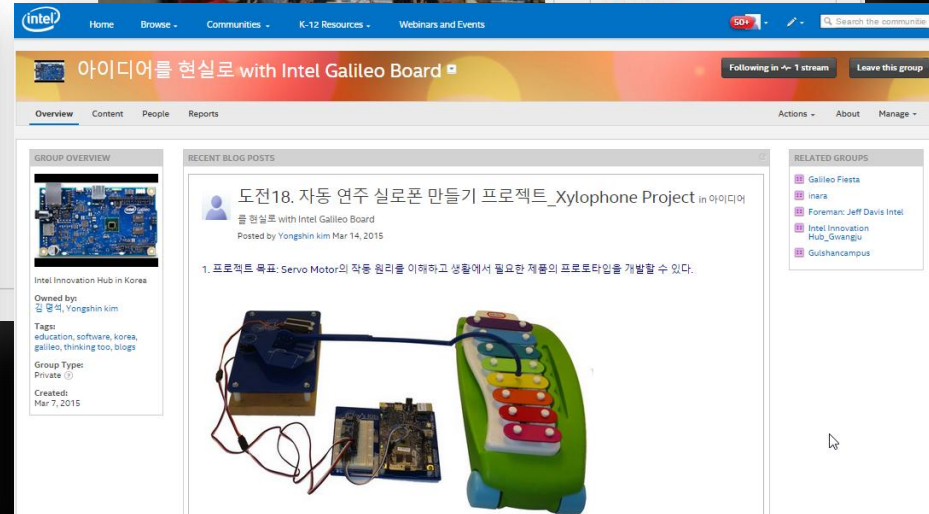
9:30pm~2차 21세기 핵심역량 강화를 위한 수업 설계 기본 연수

9:30pm~2차 수업설계 사례 발표

2차 수업 설계의 재충

9:30pm~2차 수업연구심화 심수 moderator webinar

2차 수업연구심화 Webinar



The screenshot shows the Intel Galileo Board community page. The page features a header with the Intel logo and navigation tabs: Home, Browse, Communities, K-12 Resources, and Webinars and Events. The main content area is titled '아이디어를 현실로 with Intel Galileo Board' and includes a group overview, recent blog posts, and related groups. The group overview shows the group name '도전18. 자동 연주 실로폰 만들기 프로젝트\_Xylophone Project' and the group type 'Private'. The recent blog posts section features a post titled '도전18. 자동 연주 실로폰 만들기 프로젝트\_Xylophone Project' by Yongshin Kim, dated Mar 14, 2015. The post includes a photo of a xylophone and a circuit board. The related groups section lists several groups, including Galileo Fiesta, inara, Foreman: Jeff Davis Intel, Intel Innovation Hub\_Gwangju, and Gushancampus.

intel

Home Browse Communities K-12 Resources Webinars and Events

아이디어를 현실로 with Intel Galileo Board

Following in ~ 1 stream Leave this group

Overview Content People Reports Actions About Manage

GROUP OVERVIEW

도전18. 자동 연주 실로폰 만들기 프로젝트\_Xylophone Project

출정실로 with Intel Galileo Board

Posted by Yongshin Kim Mar 14, 2015

1. 프로젝트 목표: Servo Motor의 작동 원리를 이해하고 생활에서 필요한 저용의 프로토타입을 개발할 수 있다.

Intel Innovation Hub in Korea

Owned by: 김명석, Yongshin Kim

Tags: education, software, korea, galileo, thinking too, blogs

Group Type: Private

Created: Mar 7, 2015

RELATED GROUPS

- Galileo Fiesta
- inara
- Foreman: Jeff Davis Intel
- Intel Innovation Hub\_Gwangju
- Gushancampus



# Best Practices for changing own classrooms by ICTN...available at Teachers Engage


[Home](#)
[Browse ▾](#)
[Go Directly To ▾](#)
[K-12 Free Resources ▾](#)
[Newsletter Sign Up ▾](#)
50+


**학년**

- ☐ 초등
- ☐ 중등
- ☐ 고등
- ☐ 기타

**유형**

- ☐ 평가
- ☐ 자시별 설계서
- ☐ 수업 설계서
- ☐ 프로젝트 아이디어
- ☐ 온라인 교육

**테마**

- ☐ 모바일
- ☐ STEM
- ☐ 디지털 시민의식
- ☐ 창의력
- ☐ 국제교류
- ☐ 소프트웨어
- ☐ 인텔 교육 도구

**인텔 교육 도구**

- ☐ 비주얼 링킹
- ☐ 추론하기
- ☐ 근거 제시하기
- ☐ 평가도구

**나는야 음식 문화 전시 기획자**



광주세계김치문화축제의 '세계 음식 홍보관 기획'을 활용하여 학생들이 직접 홍보물을 만들고 발표해 봅니다. 이를 통해 비판적 사고력과 의사소통 및 정보 활용 능력을 기릅니다.

사회 초등

**일상생활에서 불편한 점 개선하기 프로젝트**



학생 사회 운동가로서 학교와 지역사회 문제점을 찾고 이유를 분석하여 해결 방법을 알리는 활동을 통해 문제 해결 능력을 자세를 기릅니다.

국어 초등

**이산화탄소 줄이기 프로젝트**



이산화탄소로 인해 생기는 다양한 문제를 알아보고 이를 줄이는 활동을 통해 탄소포인트 시스템 마일리지 적립하며 학우들과 환경 보호를 위한 방안을 함께 고민해 봅니다.

영어 초등

**QR코드 교내 식물도감 프로젝트**



QR코드가 우리 생활에서 어떻게 활용되고 편리한 점이 무엇인지 확인하여 운동장에서 볼 수 있는 식물 QR코드 식물도감을 제작해 봅니다.

과학 초등

**타류와 함께 떠나는 여행**



문학 작품을 읽고 작품 속에 나타난 시대적 배경을 이해하며 오늘날과의 연관성을 찾아 봅니다. 주인공들의 행동을 비교 분석하며 비판적 사고력을 길러 봅니다.

사회 고등

**함께 떠나는 졸업 여행**



학생들이 졸업 여행 계획을 스스로 세우고 직접 실천하며 자기 주도 학습력과 정보 활용능력, 협업 능력을 길러 볼 수 있습니다. 여행 이후 정보는 온오프라인에서 여러 사람과 공유해 봅니다.

**우리는 뉴스포츠 디자인어**



여가 시간에 누구나 쉽고 재미있게 활동할 수 있는 뉴스포츠 만들기 프로젝트를 진행합니다. YouTube와 SNS를 활용하여 프로젝트 결과물이 많은 사람들에게 소개되고 활용될 수 있도록 합니다.

**'나'의 주인은 누구일까요?**



일상 생활에서 문제 상황을 소개하고 법원에서의 활동인 재판을 하는 과정을 통해 법원의 역할과 우리 생활과의 관련성을 이해하고 비판적 사고력, 의사소통 능력을 길러 봅니다.

**What's Wrong with My Cellphone?**



사용중인 휴대 전화의 불편한 점을 찾아 소비자 센터에 건의함으로써 문제를 해결해 봅니다. 불편 사항을 개선하고 나아가 독창적인 제품을 구상하여 발표해 봅니다.

**행복 소동 캠페인**



매년 실시되는 친구 사랑 주간에 맞이하여 계획, 실천, 반성, 확산으로 소통의 가치와 실천이 꾸준히 이어질 수 있도록 합니다.

# Using all these, Passionate ICTN Meet Day and Night through webinars

## Bands and FBs

The collage illustrates the use of technology for ICTN Meet Day and Night through webinars, bands, and Facebook groups.

**Top Left: Video Conference**  
A screenshot of a video conference showing four participants. The interface includes a 'Screen Sharing' panel on the right with options like 'Show My Screen', 'Stop Showing Screen', 'Give Keyboard & Mouse', and 'Change Presenter'. The bottom of the window shows a Windows taskbar with various application icons.

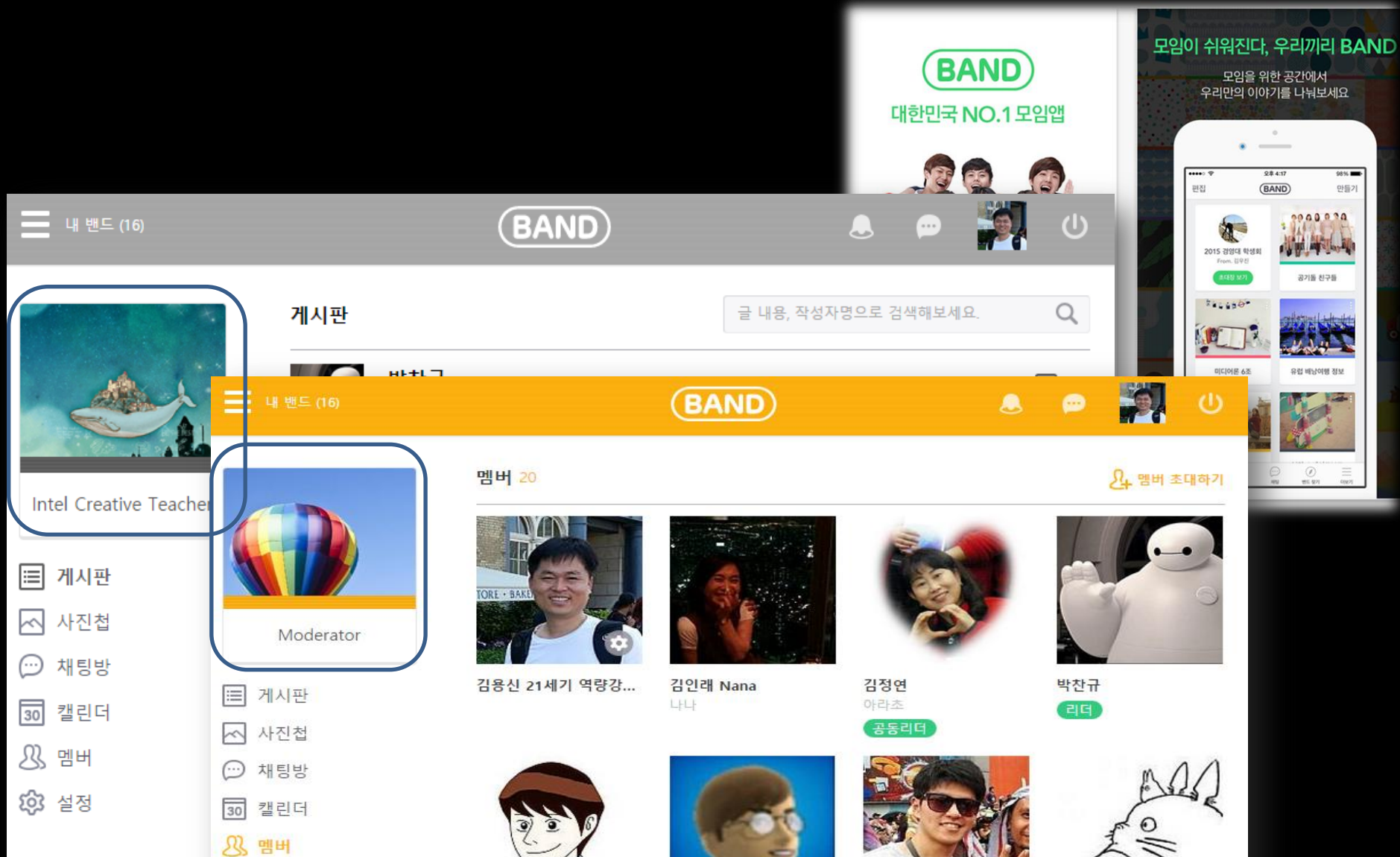
**Top Right: Facebook Group Page**  
A screenshot of the Facebook group page for 'Intel Creative Teacher'. The page shows a search bar, a profile picture, and a cover photo. The cover photo is a group photo of participants at an 'Intel Creative Teacher Action Workshop'. The page also displays a 'News Feed' with a post from 'Kim John' and a 'Messages' section.

**Bottom Left: Chat Window**  
A screenshot of a chat window titled 'Welcome to Engage Korea W...'. It shows a list of participants on the left, including 'John Kim', 'myong suk kim', 'nana kim', '고 대훈', '권 별변', '정 원준', and '한 승규'. The chat area on the right shows a conversation between 'Raushanah' and 'hyunah'.

**Bottom Right: Workshop Photo**  
A photograph of a group of people, likely participants and organizers, posing for a group photo at the 'Intel Creative Teacher Action Workshop'. The photo is taken indoors, and the participants are smiling and posing for the camera.



..in order to share and learn from each other  
real time...power of bottom up and voluntary teacher movement leading to  
real changes!





**Now, enjoy meeting with ICTN schools, educators and students!**

**A. Korea's Jeonju Daejung School case: creating plant pot with appropriate technology with Grade 5-6 students led by ICTN teacher**

**B. Korea's Student Camp using Galileo, where ICTN took risk in creating the content and training aligned with Korea's software/programming policy**

**C. "Be the Maker Academy", software/programming education Hackathon led by Korea Govt, where ICTN drives the content and implementation**

# **Video : Daejung Elementary School**

# **Video : Intel Galileo Camp**

# What will you Make?

## Student Idea Brainstorming: 1

### Automatic Pool Cleaner

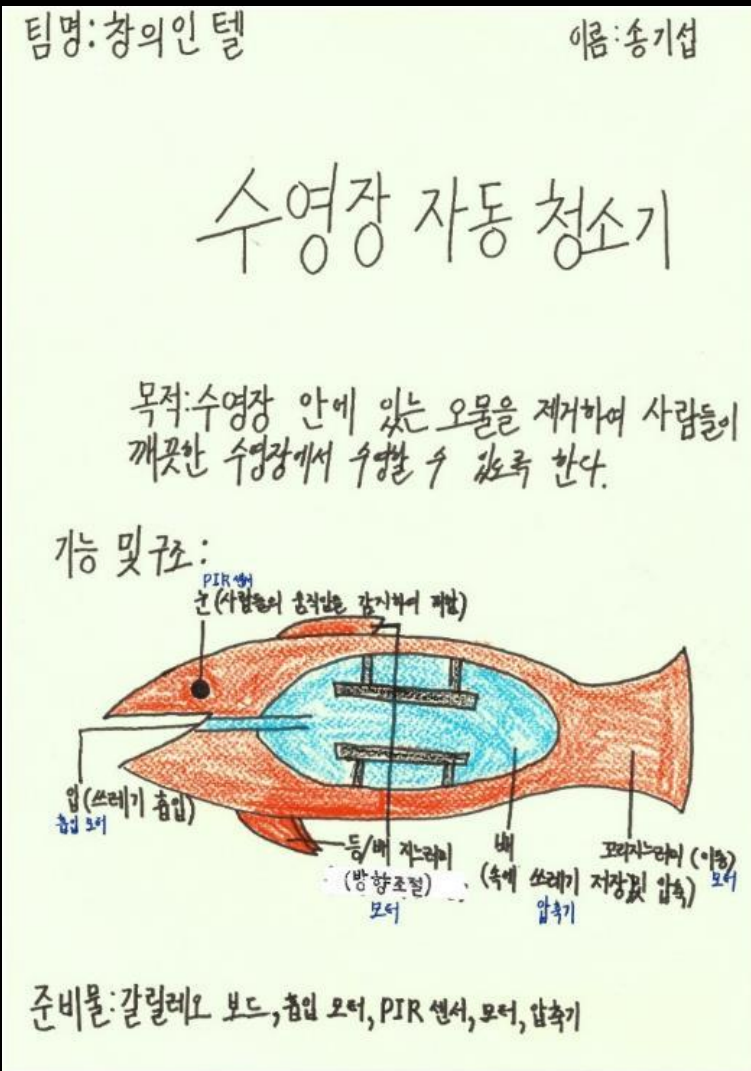
by: Gisup Song

**Goal:** To create an electronic fish that cleans a swimming pool, so that people can enjoy fresh water.

**Materials:** Galileo Board, Motor, PIR (Passive Infrared) Sensor, Vacuum Motor

**Details:**

PIR Sensor is placed in the fish's eye.  
Dirt and trash goes into the mouth  
The stomach stores the dirt.  
The fins move the fish.



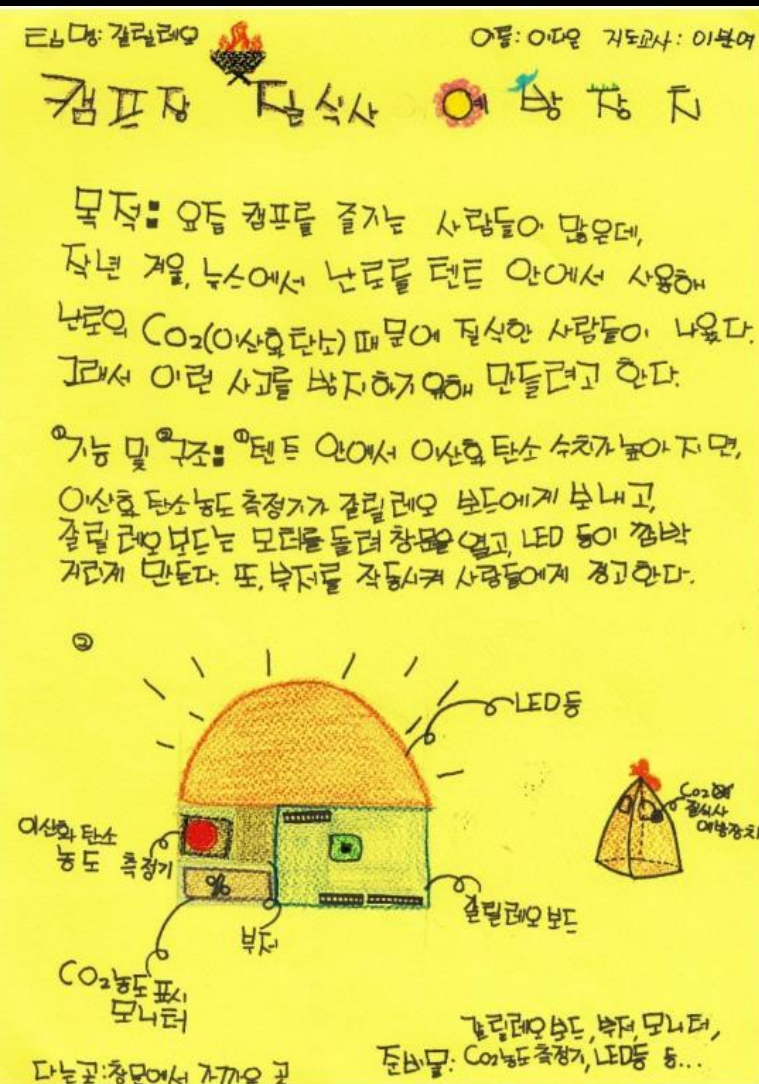
# What will you Make?

## Student Idea Brainstorming: 2

### Suffocation Prevention System by: Jieun Lee

**Goal:** Many people love to go camping. But people who try to use a stove inside their tent risk suffocation from CO<sub>2</sub>. We made the Suffocation Prevention System to avoid this.

**Function:** Place the System next to the tent window. When the sensor detects too much CO<sub>2</sub>, the Galileo board sets off an LED alarm and rolls down the window.



# What will you Make?

## Student Idea Brainstorming: 3

### Glasses That Change Itself by: Minsun Park

**Goal:** Reducing the annoyance of dealing with changing prescription. Improving eye health.

**Function:** The prescription changes according to the users eyes. Changes to sunglasses according to the situation

# **Video : The Makers Academy**



# Key Impacts of ICTN

**Model School  
By MOE**

**Software Education  
Model School  
Chosen by MOE**

**Seoul**

**Best Local  
Community**

**Best Teachers'  
Community  
In Jeju**

**Jeju**

**Research  
School**

**Teaching  
Practice  
Research  
School  
(Gwangju)**

**Gwanju**

**Model School  
By KOFAC**

**Software Education  
Model School  
Chosen by KOFAC**

**Gyeonggi**

**“Growth To The Influential Group”**





# Student Awards and Policy Influence



- **Gold medal** at the skill Olympics regional trials
- **3 awards** : SW Development, Electronic Machines, Electricity



- Special Prize at International Internet Film Festival
- Invited to the **National Assembly**



- Sustainable Education Development Forum through Software Education
- Invited to the National Assembly

# In Summary

## Challenges

1. Engagement
2. 21<sup>st</sup> Century Skills

## Needs

1. Students centered resources
2. Professional Learning Community

## Solutions

1. Partnership with Intel Education
2. Nationwide Teacher Community
3. Teacher Train the Teacher

## Results

**Build Intel Creative Teacher Network for PL**

**Share classroom ideas**

**Influence policy and government**

**Build Innovation hub at Core Local Area**

**More and more students respect their teacher**

# ICTN in Korea: 2 years journey what we've learned:

- A. In order to prepare students for 21<sup>st</sup> century challenges, teachers **much change first**.
- B. **Focus on changing own classroom** e.g. 21<sup>st</sup> century unit plan and student engagement using technology
- C. Teachers need HELP: a **professional learning community** is critical to make changes & influence policies.
- D. **Social Media** places important roles for just in time learning and sharing
- E. **Scaling and sustaining** the teacher community is challenging but worthy: need everyone's engagement (Gov't, Private Sector, Educators, NGOs etc)

## **Key Next Steps**

- 1. Empower to Core Leader Group**
- 2. Enhance to Local Innovation Hub**
- 3. Expend the opportunities to learn through F2F and Online**

## **Recommendation for you**

- 1. Invite Global education experts**
- 2. Join ICTN for sharing classroom ideas, etc**

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전문가  
Open  
Creators

# Win Win

Sharing Valuable Time

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Q & A

