

# **ICT in education: A powerful enabler and equalizer**

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# Seoul, Korea



# The same place back in the 50's





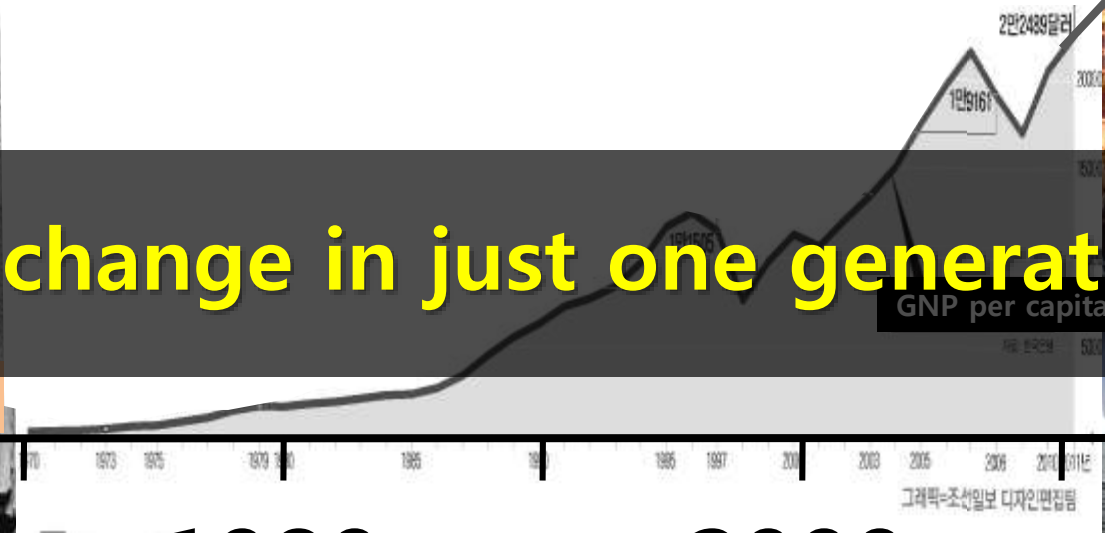
# Success Story: The "Miracle of Han River"



This change in just one generation.

US\$67

US\$28,300



1960

1980

2000

2020



# **A case study: Korea**

**not for you to duplicate,  
but to do better!**

**1940's**

**During Japanese Occupation**



**34 years of devastation**





**1940's**

**During Japanese Occupation**



**Women trucked to  
military camps as sex slaves**

**1940's**

**During Japanese Occupation**



**Goods and cultural heritage  
shipped away to Japan**



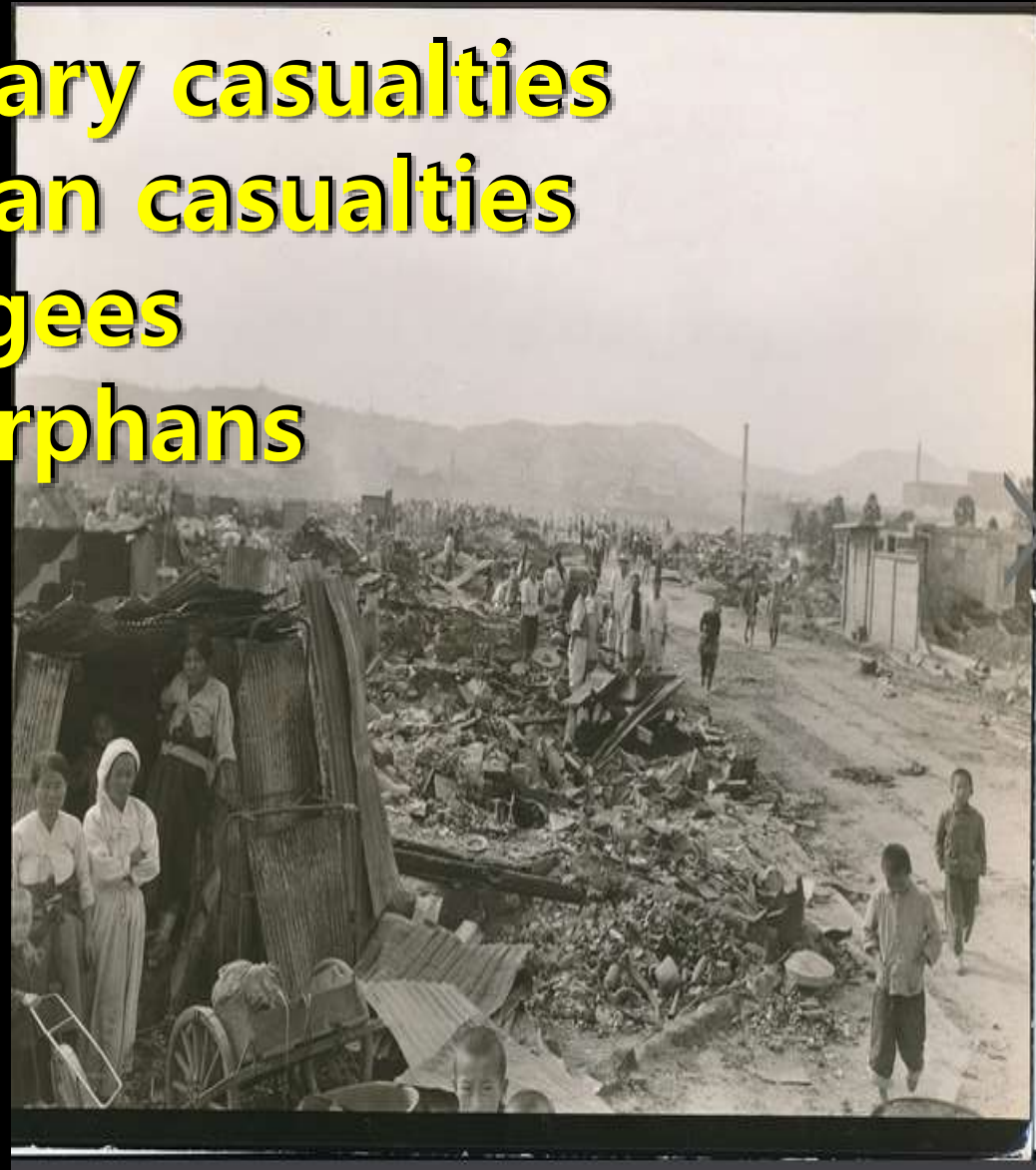
# 1950's During Korean War

2.7 million military casualties

2.5 million civilian casualties

3.2 million refugees

100 thousand orphans





# 1960~80's

# Coup d'états & Civil Unrest





# 1980~90's

# Corruption & incompetence



**'뇌물 문화'에** 검은 거래 만연  
**물든 나라**



## IMF구제금융 공식 요청

### 林부총리, 어젯밤 긴급회견

200억달러 수준 될 것  
이르면 내달 중 지

합동기자회견 직후 지원 밝혀

김영삼 대통령이 21일 저녁 6시 30분 청와대 정무회의실에서 IMF 구제금융을 공식 요청했다. 김영삼 대통령은 이날 밤 11시 30분 긴급기자회견을 열어 IMF 구제금융을 공식 요청했다. 김영삼 대통령은 이날 밤 11시 30분 긴급기자회견을 열어 IMF 구제금융을 공식 요청했다.

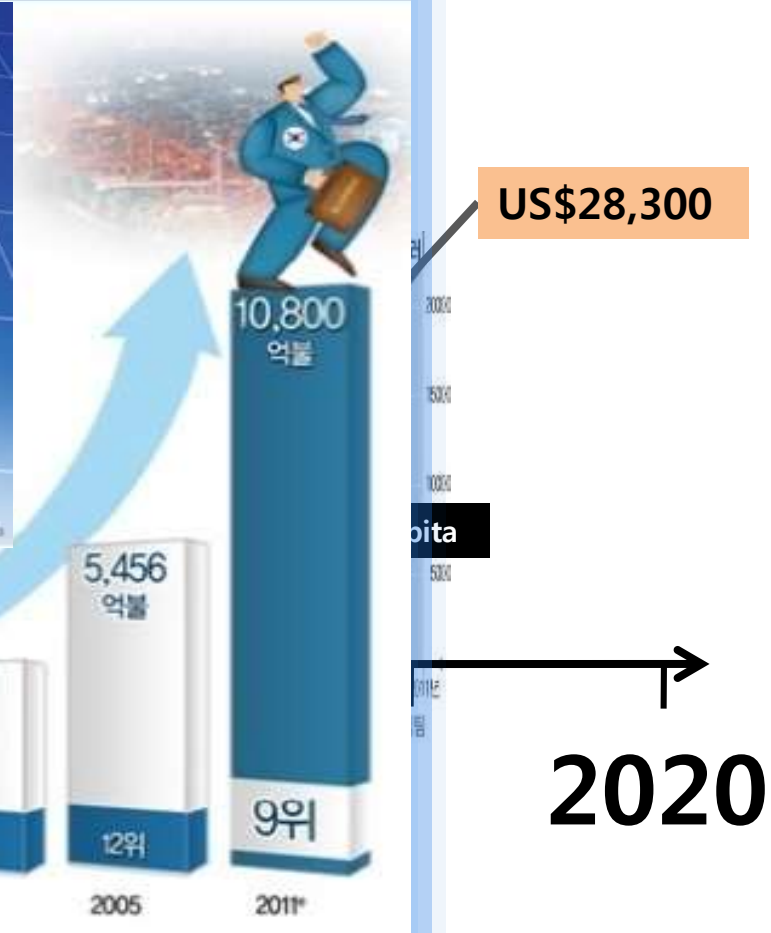
◇'경제회담' 김영삼 대통령이 21일 저녁 6시 30분 청와대 정무회의실에서 IMF 구제금융을 공식 요청했다. 김영삼 대통령은 이날 밤 11시 30분 긴급기자회견을 열어 IMF 구제금융을 공식 요청했다.





# Success Story: The "Miracle of Han River"

Korea is 9<sup>th</sup> nation w/ US\$1 trillion in export



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Korea is 9<sup>th</sup> nation w/ US\$1 trillion in export



US\$28,300

Korea is 7<sup>th</sup> in GDP pc US\$20,000 & 50M

20-50 국가들의 내수시장 규모 2011년 기준. 단위: 달러



그래픽= 박상훈 기자 ps@chosun.com

무역규모  
무역순위

20-50 클럽 진입국가 진입시기	1인당 소득	인구
일본 1987년	2만366달러	1억2203만명
미국 1988년	2만821달러	2억4497만명
프랑스 1990년	2만2003달러	5671만명
이탈리아 1990년	2만151달러	5669만명
독일 1991년	2만2693달러	7998만명
영국 1996년	2만990달러	5816만명
한국 2012년	2만3680달러	5000만명

※진입국가 현황은 돌파 당시를 기준으로 함

자료: OECD(경제협력개발기구), 통계청

# Success Story: The "Miracle of Han River"

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20-50 국가들의 내수시장 규모 2011년 기준. 단위: 달러

Korea is 5<sup>th</sup> nation to host all 4 major sports events

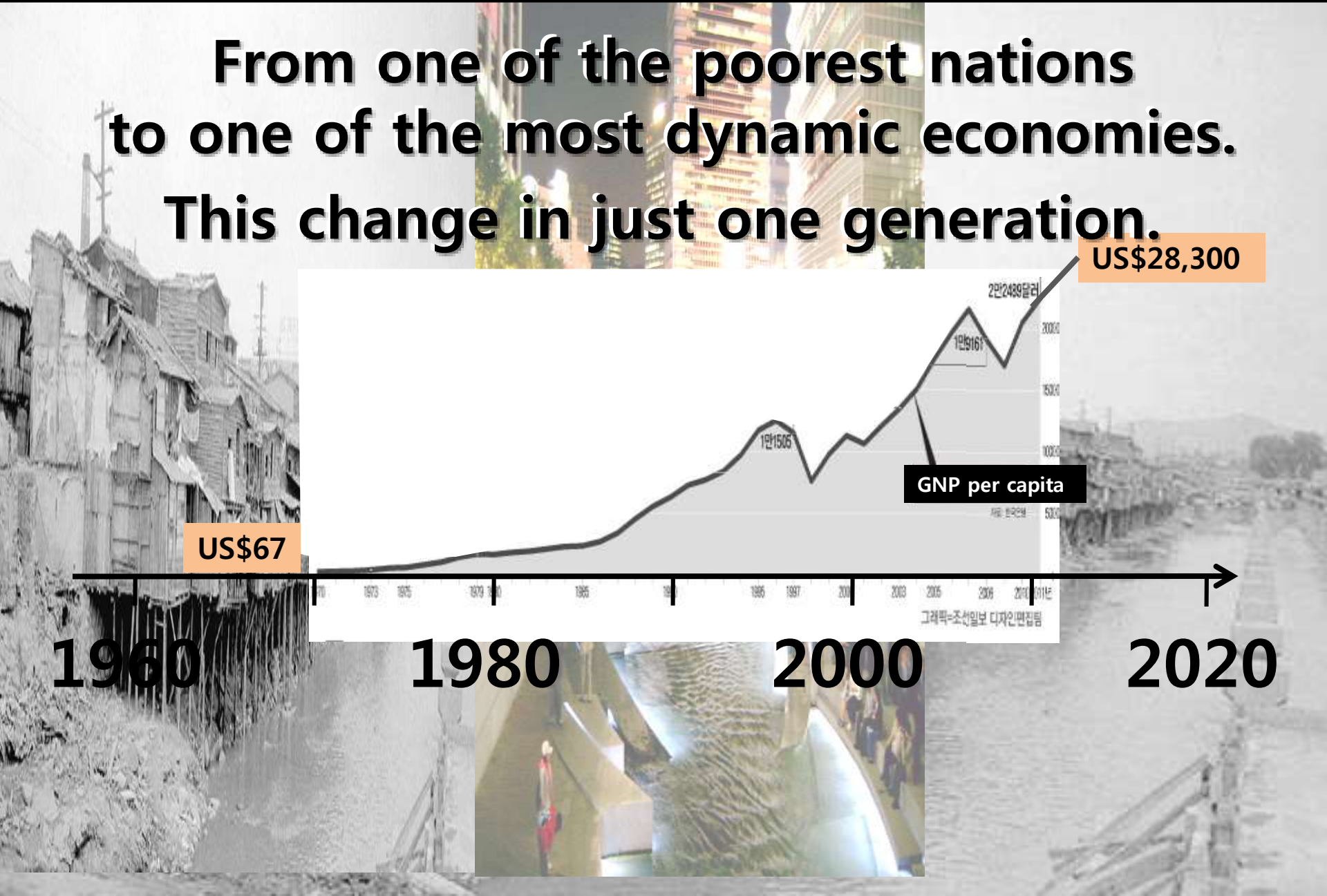
Italy      Germany      Japan      France      Korea





# Success Story: The "Miracle of Han River"

From one of the poorest nations to one of the most dynamic economies.  
This change in just one generation.



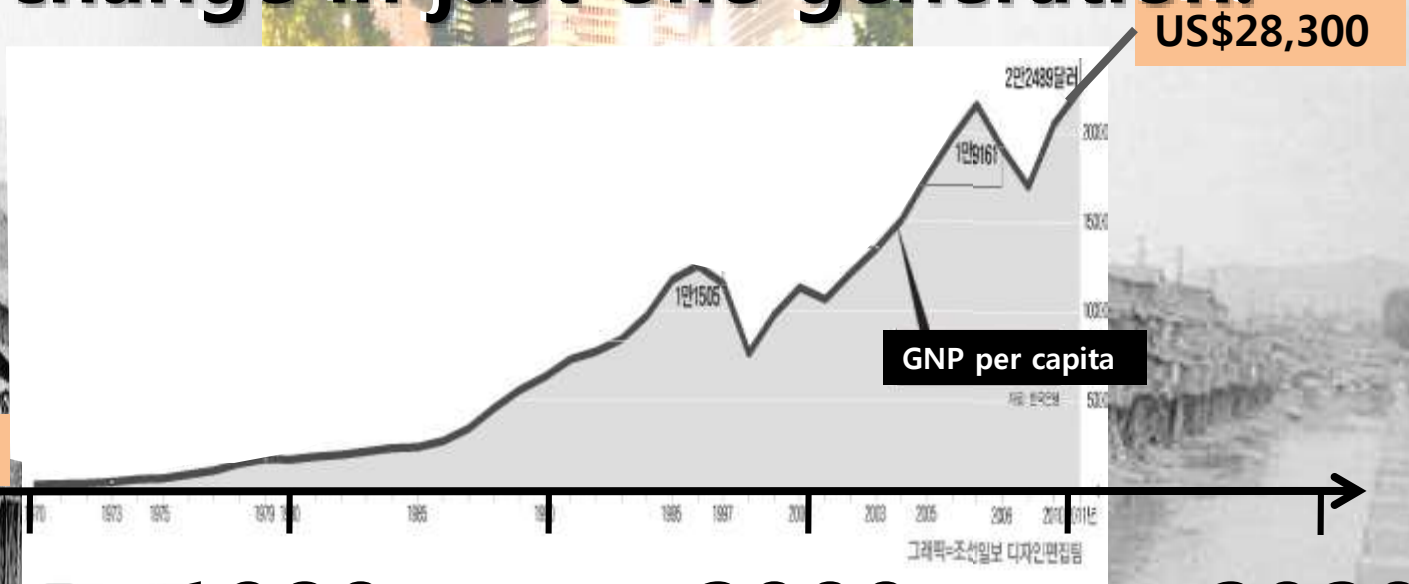
US\$67

1960

1980

2000

2020



# Key to success is: Education

1

**Build national consensus  
on the importance of education**

**Invest in people  
especially in the future of children**



# Key to success is: Education

By land size (km2)

By population

People are Korea's only 'natural resource'

102	 Benin	112,622 (43,484)
103	 Honduras	112,492 (43,433)
104	 Liberia	111,369 (43,000)
105	 Bulgaria	110,879 (42,811)
		109,884 (42,426)
87	 Kyrgyzstan	199,951 (77,202)
		108,889 (40,000)
108	 Iceland	103,000 (40,000)
109	 South Korea	100,210 (38,690)
110	 Hungary	93,028 (35,918)
111	 Portugal	92,090 (35,560)
112	 Jordan	89,342 (34,495)
113	 Serbia	88,361 (34,116)

25	 Burma	51,419,420
26	 South Korea	51,342,881
27	 Colombia	48,148,900
112	 Kyrgyzstan	5,935,400
29	 Kenya	46,749,000
30	 Spain	46,464,053
31	 Argentina	43,131,966
32	 Ukraine <sup>[Note 5]</sup>	42,873,583
33	 Algeria	40,400,000
34	 Poland	38,484,000
35	 Sudan	38,435,252



**Key to success is: Education**

# 3W learning

**Whenever  
Wherever  
Whoever**

**Key to success is: Education**

3

# 3S learning

**Same time**  
**Same place**  
**Same age**

1



# Key to success is: Education

3

## 3S learning

11,000 schools  
483,000 teachers

199 four-yr. colleges  
132 two-yr. colleges

1

1945

0 four-yr. colleges  
29 two-yr. colleges



**Key to success is: Education**

3

# 3S learning

**100% attend K-6**

**99.8% move onto 7-9**

**99.6% move onto 10-12**

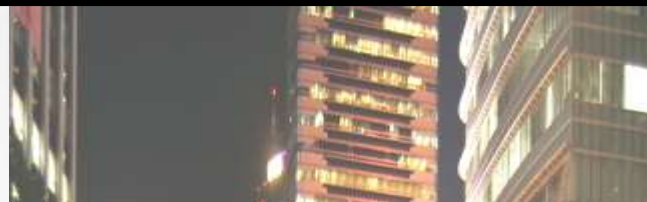
**97.9% literacy rate**

1

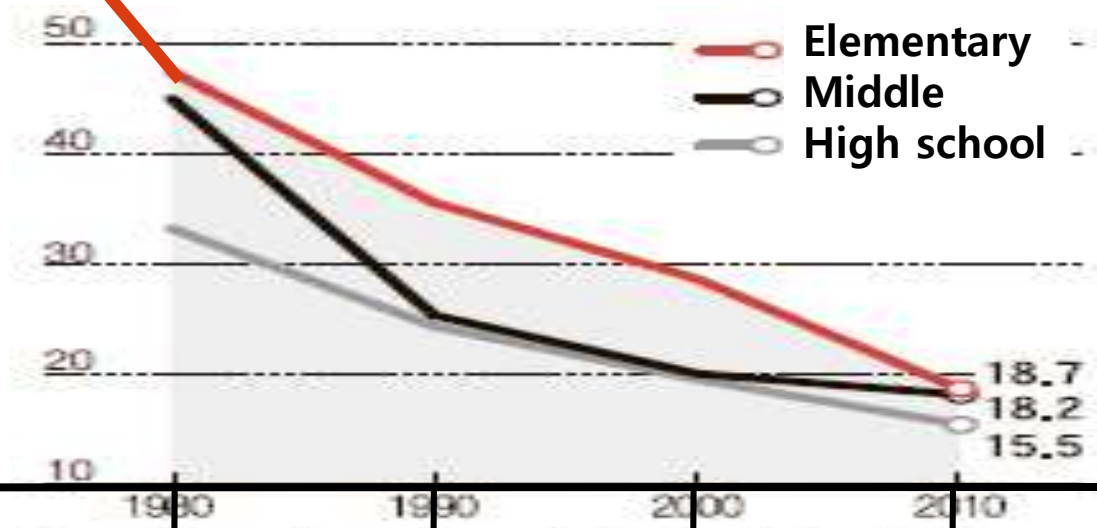
0

# Key to success is: Education

90



## No. of students per teacher



그래픽=조선일보 디자인면집팀

1960

1980

2000

2020



# Key to success is: Education

## 3W learning



## 3S learning



## 3A learning



1960

Whenever  
Wherever  
Whoever

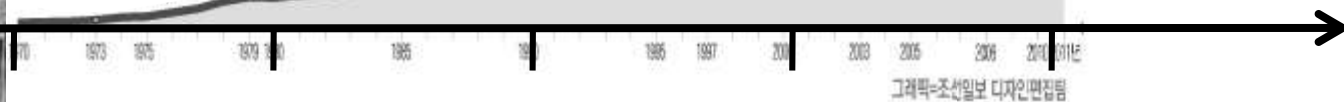
1980

Same time  
Same place  
Same age

2000

2020

Anytime  
Any place  
Anyone





# e-learning (ICT 1.0)



Internet  
Computer  
TV & AV

# e-learning (ICT 1.0)

01 희망 선택하기

씨앗심기 · 물주기 · 뿌리내리기 · 열매맺기

희망 열매 라운지

나를 위한 성공, 곧사다

4 리닝별  
1 학습 도우미  
2 내 스크린샷  
3 교안 다운로드  
4 키보드 제어

인쇄하기

다음 페이지로

00:29 / 00:29

이전 07 08 다음

TeacherVille

SAMSUNG



# e-learning (ICT 1.0)





# e-learning (ICT 2.0) smart media

*It's mobile and ubiquitous.*



# e-learning (ICT 2.0) smart media

20 yrs in class

2 wk online

1 yr online

4,000 students

4,000

**40,000**

**Accessibility**

**Social impact**



# Key to success is: Education

## ② Invest in technology

✓ *ICT is a great enabler*

✓

✓



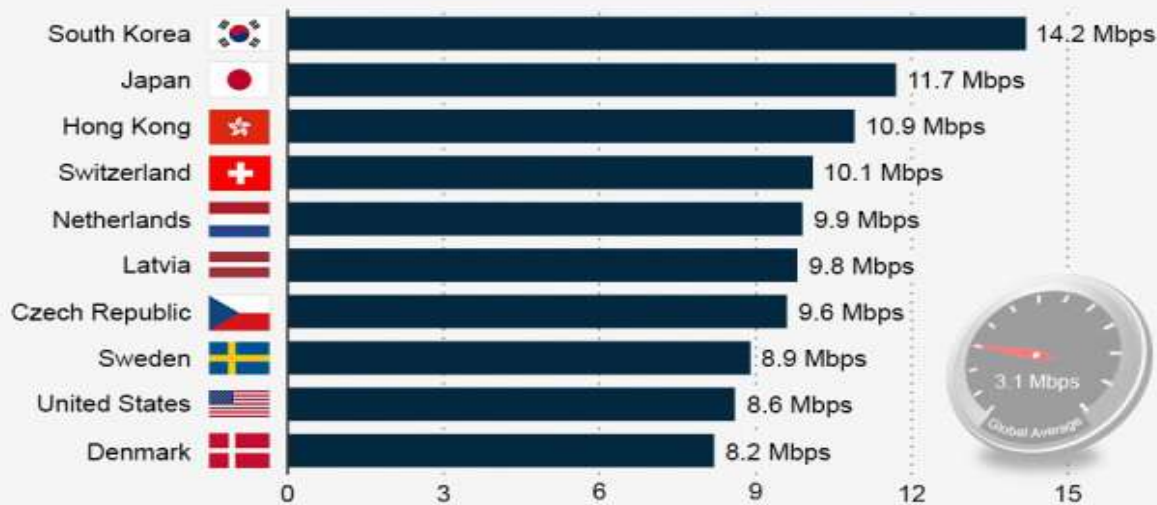


# smart media (ICT 2.0)



## South Korea and Japan Top Internet Speed Ranking

Average measured internet connection speed in Q1 2013



## 3A learning



**Anytime  
Any place  
Anyone**

# smart media (ICT 2.0)

Smart  
Mobile  
Ubiquitous



## Percent of South Korean Students Owning Smartphones

Source: Ministry of Education Survey released July 29, 2013

Regional category	Elementary	Middle School	High School	Total
City	49.2	85.4	83.7	69.6
Rural (farming/fishing villages)	46.6	83.1	83.7	66.5

Korea had the highest smartphone ownership in the world last year.



# smart media (ICT 2.0)





# smart media (ICT 2.0)

**5 TV channels dedicated to learning**

**General audience**

**Elementary school children**

**Middle school students**

**College preparatory**

**English Education**



# Key to success is: Education

**3W learning**

**3S learning**

## 2013 PISA result:

(Program for Int'l Student Assessment)

**Korea is the best  
among 34 OECD nations  
in Math, Science and Reading**

## MATH Rank

1. Korea ←
2. Japan
3. Switzerland
4. Estonia
5. Finland
6. Canada
7. Poland
8. Belgium
9. Germany
10. Austria
11. Australia
12. Ireland
13. Slovenia
14. Denmark
15. New Zealand
16. Czech Republic
17. France
18. United Kingdom
19. Iceland
20. Luxembourg
21. Norway

1960

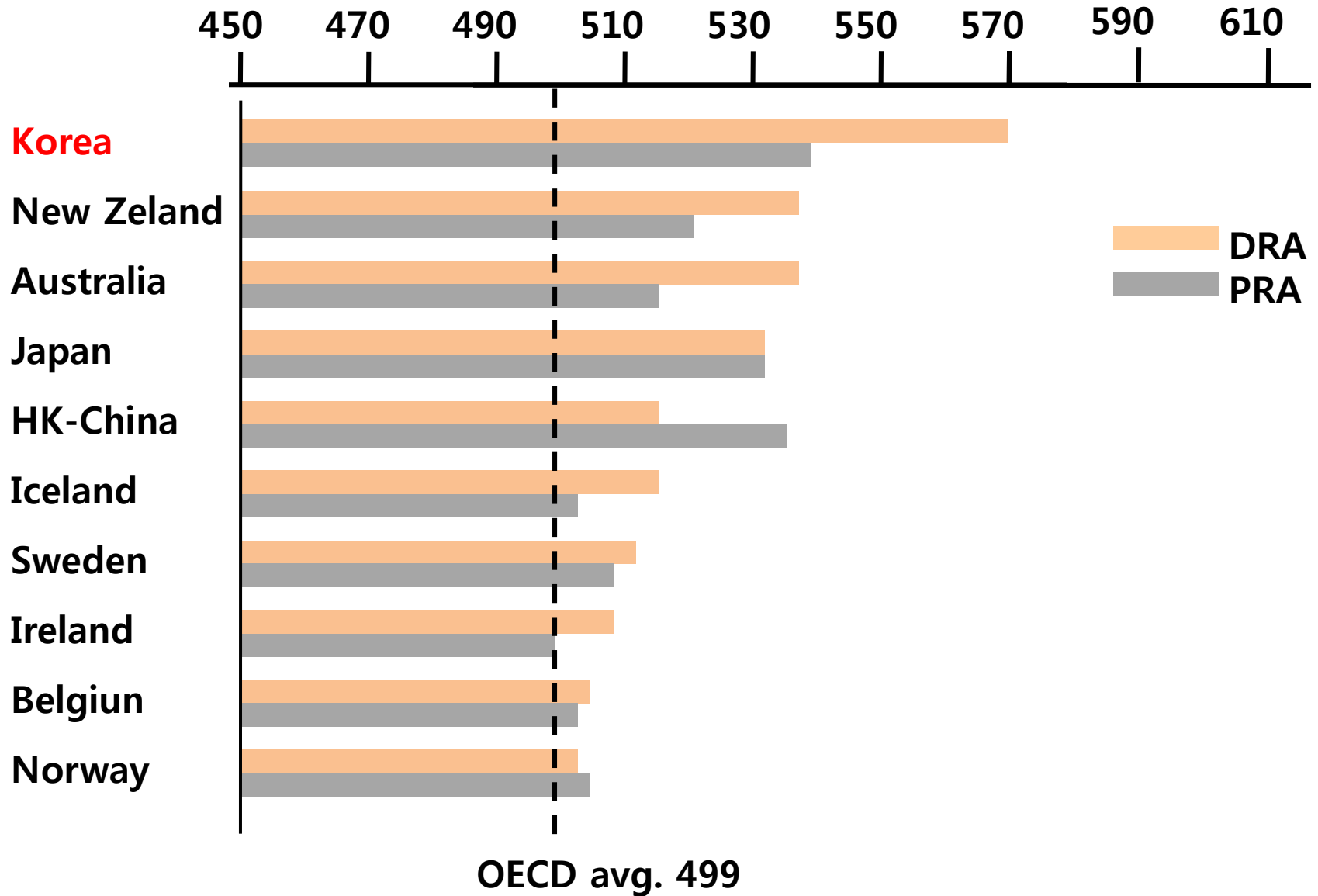
**Whenever  
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1980

**Same time  
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Same age**

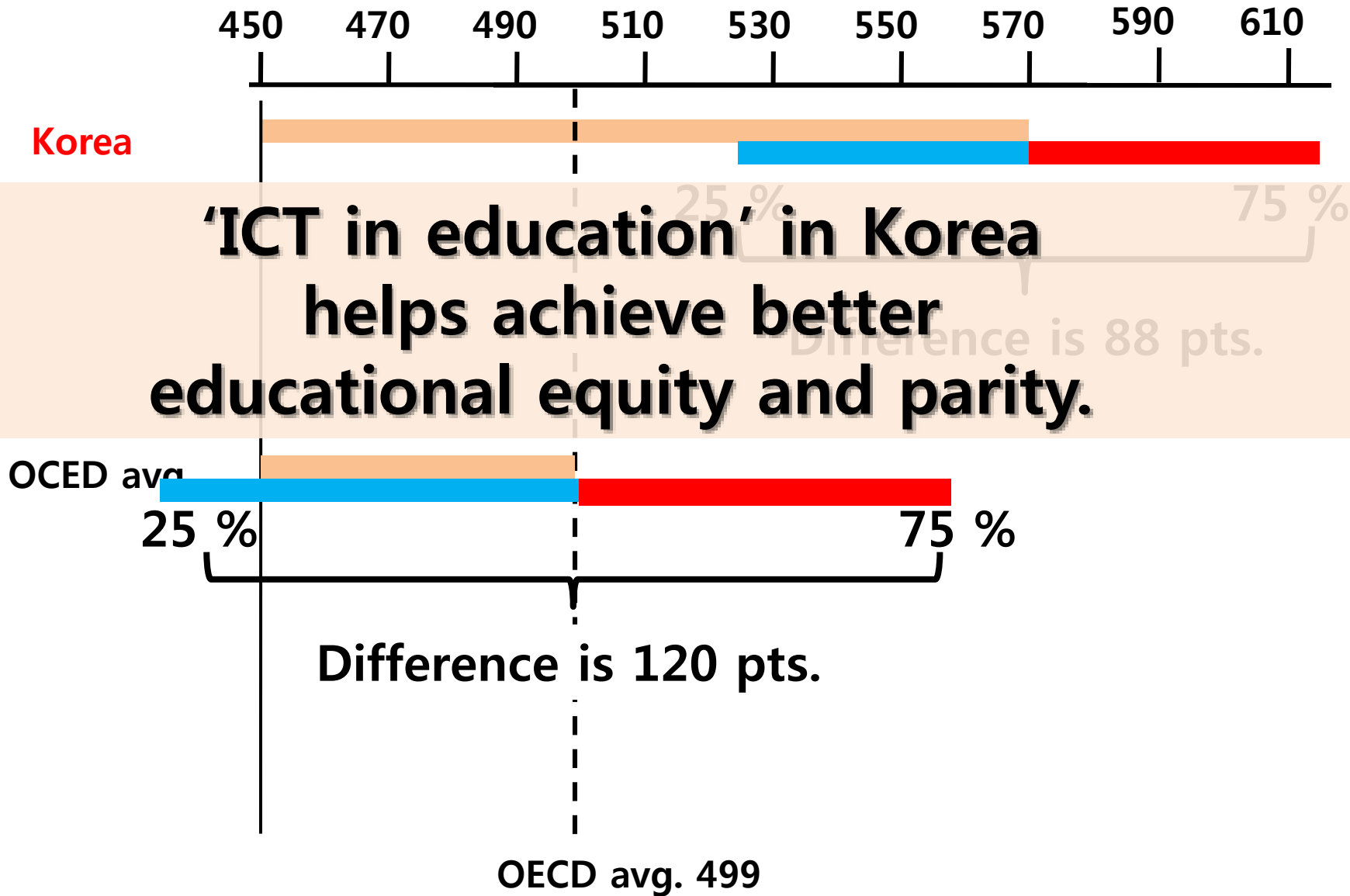
2000

# DRA and PRA, OECD 2009





# DRA and PRA, OECD 2009



## 2

## Invest in technology

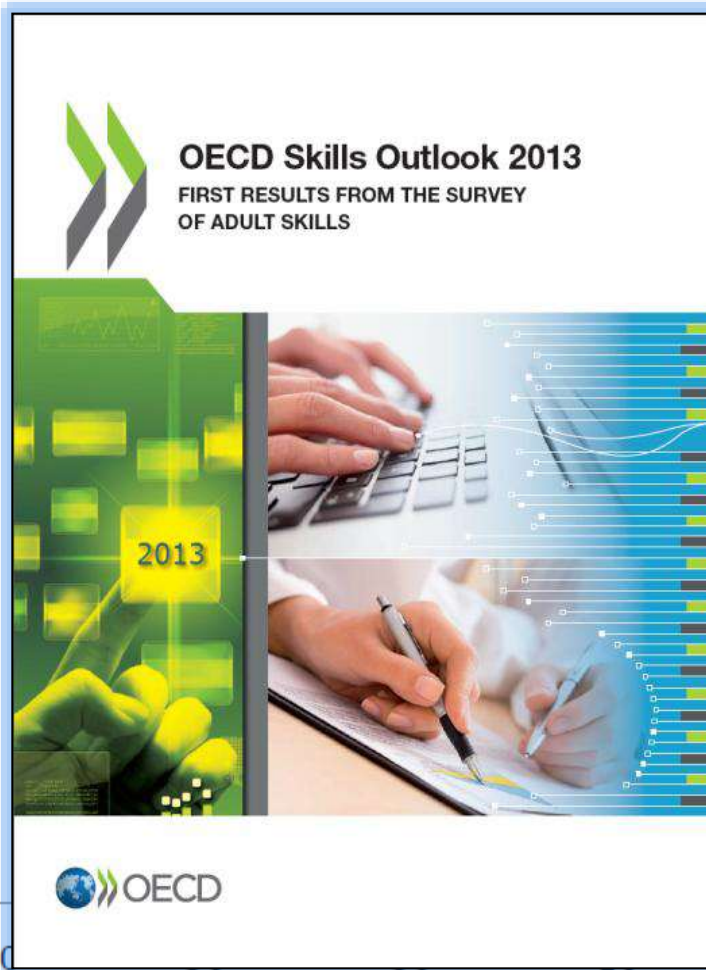
- ✓ *ICT is a great enabler*
- ✓ *ICT is also a great equalizer*
- ✓



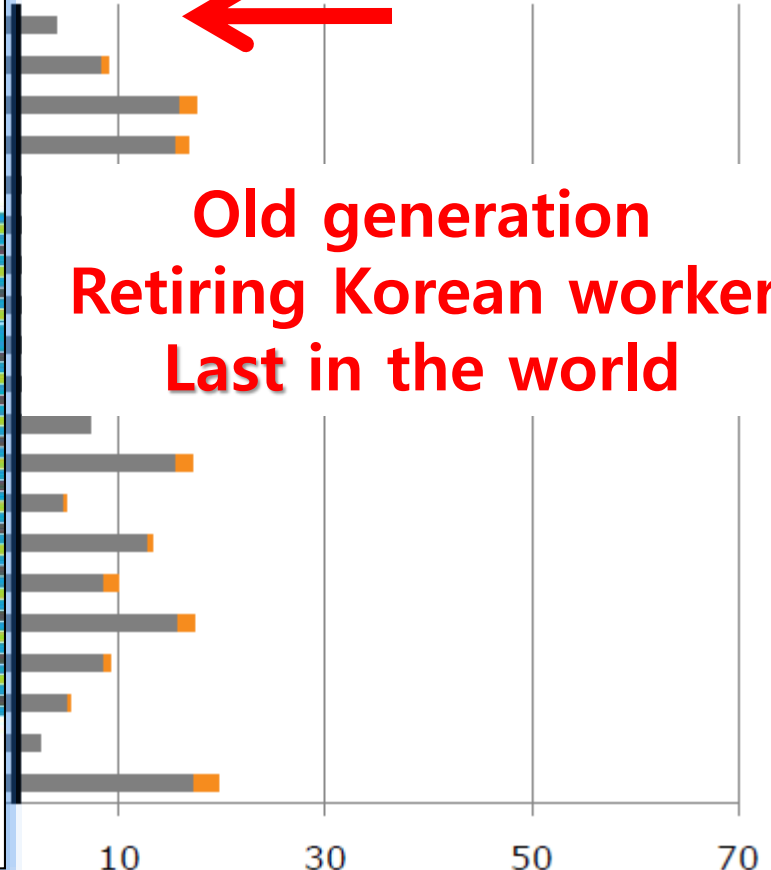
# Proficiency in problem solving in technology-rich environments



- Korea
- Finland
- Sweden
- Netherlands
- Flanders (Belgium)
- Norway
- Czech Republic
- Germany
- Canada
- Average
- Austria
- Australia
- Estonia
- Denmark
- Japan
- England/NI (UK)
- Slovak Republic
- Ireland
- Poland
- United States



Older adults (55-65 year-olds)



**Old generation  
Retiring Korean worker:  
Last in the world**

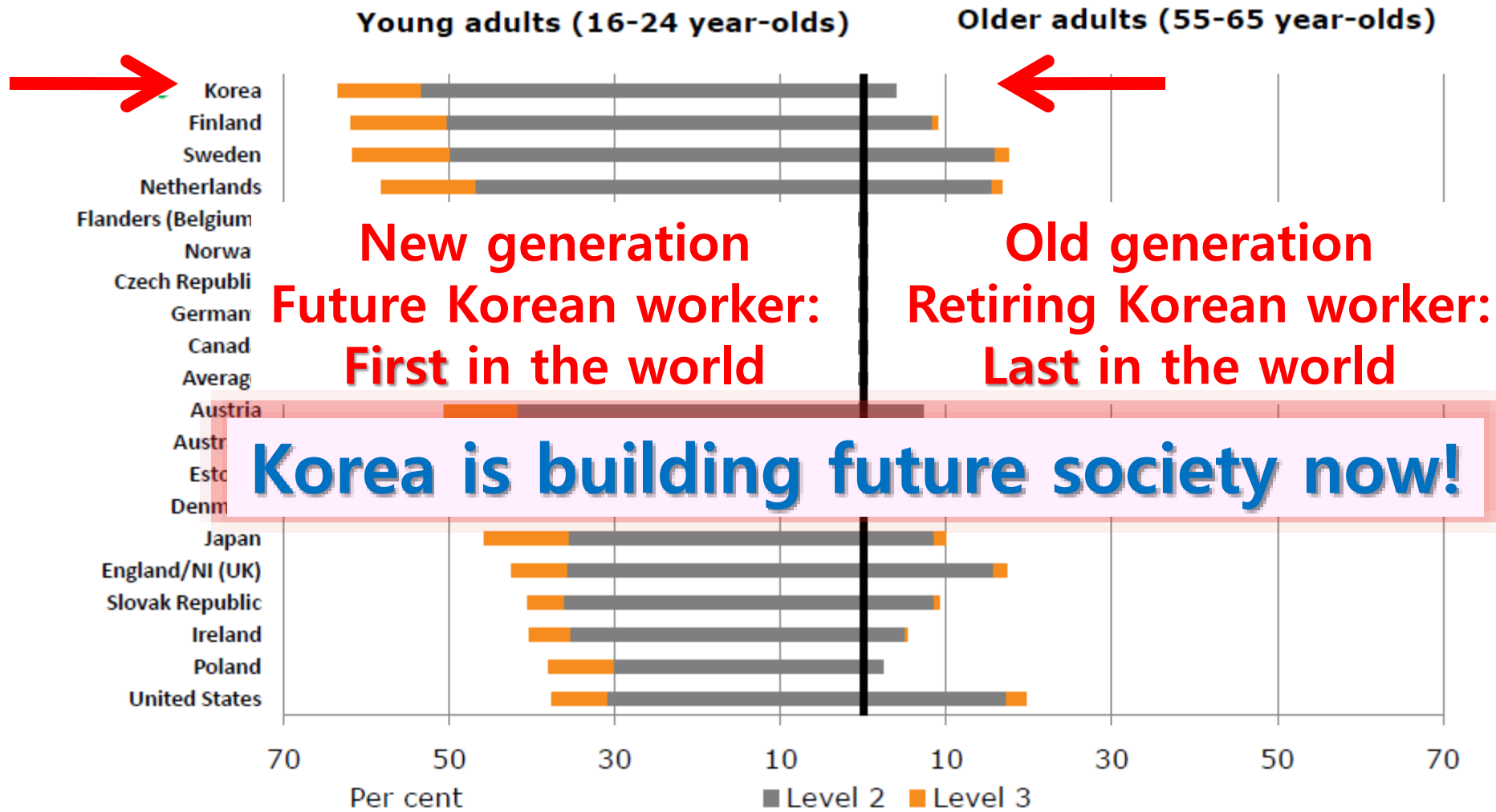
Per cent

■ Level 2 ■ Level 3





# Proficiency in problem solving in technology-rich environments



## 2

## Invest in technology

- ✓ *ICT is a great enabler*
- ✓ *ICT is also a great equalizer*
- ✓ *ICT is about nation building*



**Key to success is: Education**

**A word of caution!**





# A word of caution!

**Introducing ICT in classrooms is not sufficient**



The **most advanced** form of smart media reinforcing the **worst** form of teaching.



Oh, God. He says only one word... "next, next"



# The teacher teaches!





**The teacher teaches! But students learn???**



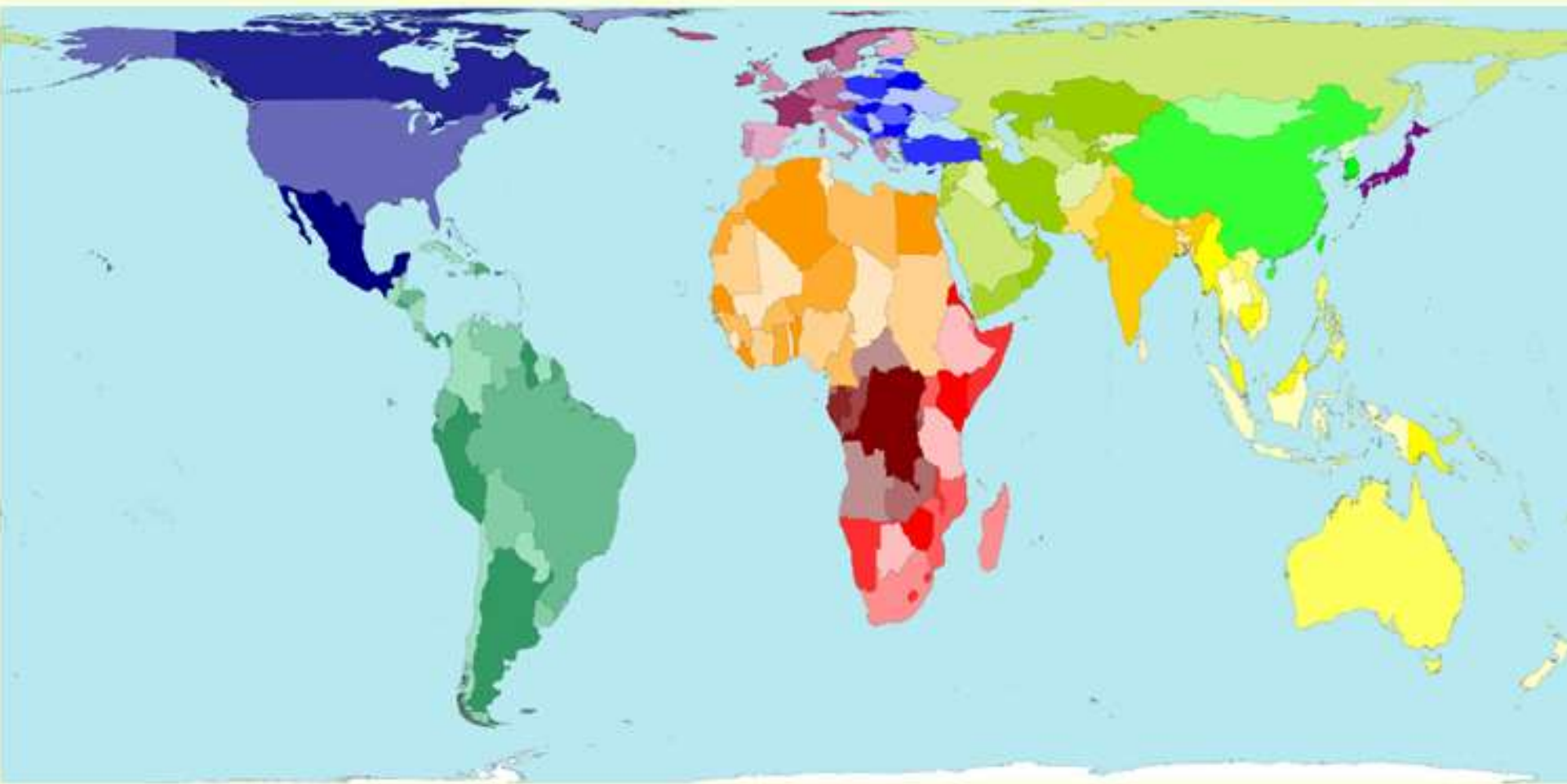
# The **dumbest use** of smart media

**No creativity!**

***Just more & faster***

# Another word of caution!

## The world map as we know





# Another word of caution!

World according to creativity (IP)

A stylized world map with vibrant colors and abstract patterns. The map is rendered in shades of blue, purple, pink, and green, with a textured, almost painterly appearance. The text 'Creators of ICT' is overlaid on the map.

**Creators of ICT**

**Consumers of ICT**

# We did it through teacher retraining!

The role of teachers needs to shift!  
unacceptable                      suitable



**Passive  
Unidirectional**



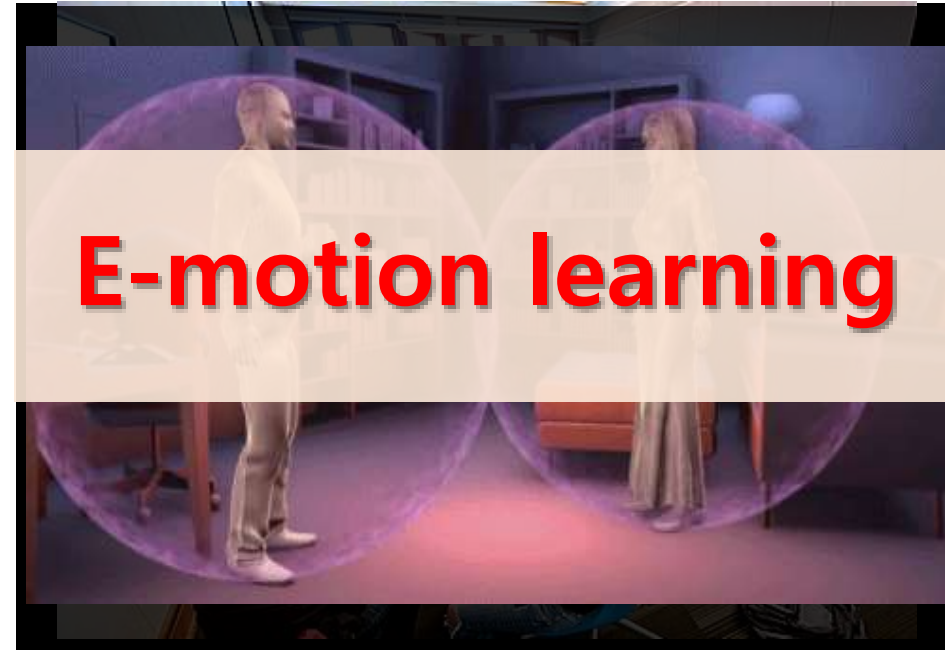
**Active  
Interactive**

# We did it through teacher retraining!

The role of teachers needs to shift!

Information transmission

Interpersonal relation



**ACCESSIBILITY** and  
to information  
& learning(?)

**CONNECTIVITY**  
to model  
& mentoring



# We did it through teacher retraining!

The role of teachers needs to shift!

Information transmission

Interpersonal relation

**TEACHER (RE)TRAINING**

every year, 25% of teachers  
attend workshop on ICT in education

**Teachers as a model of success!**

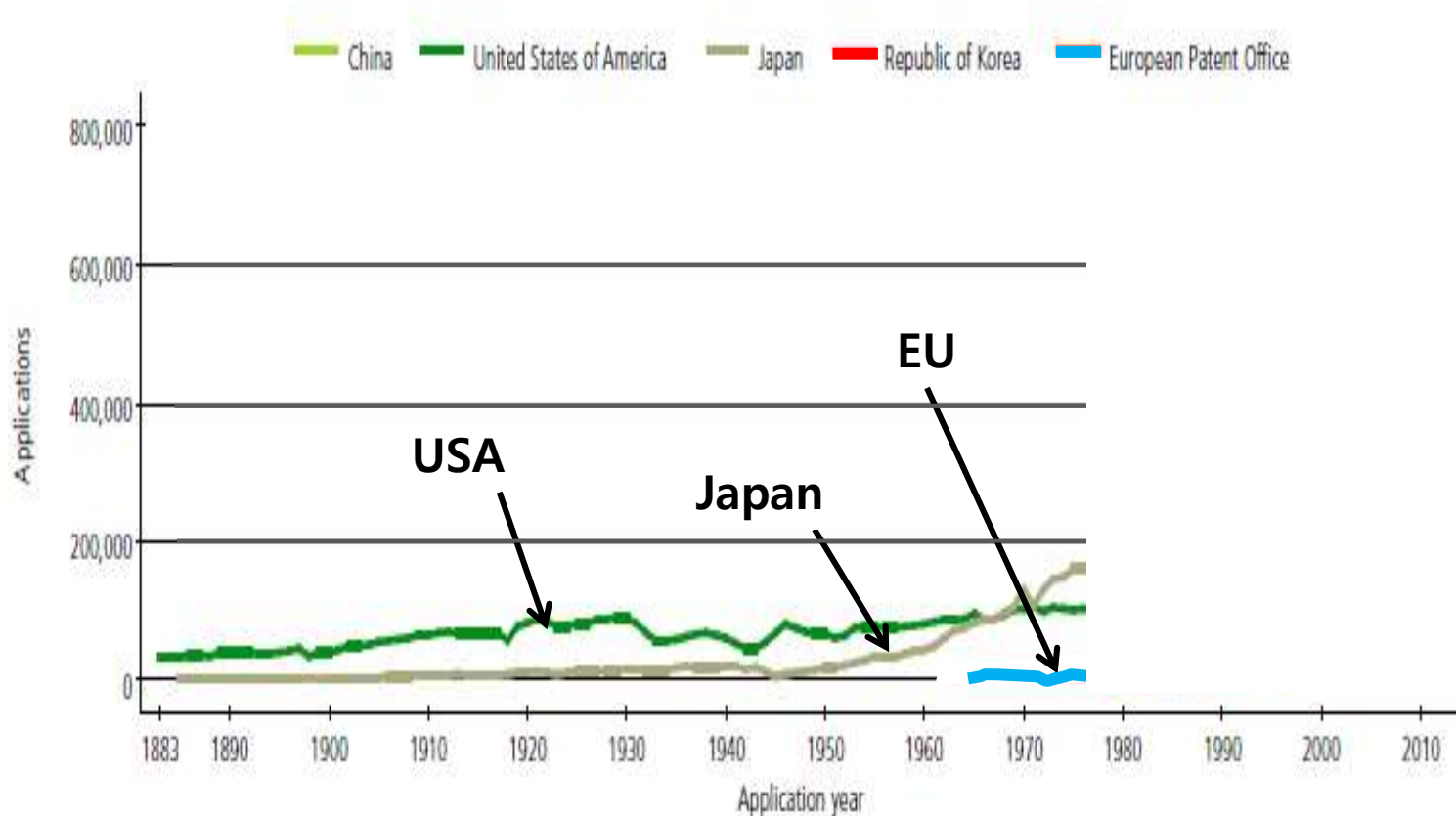
**ACCESSIBILITY** and **CONNECTIVITY**

to information  
& learning(?)

to model  
& mentoring

# Intellectual property (creativity)

Figure A.2.1.2 Trend in patent applications for the top five offices

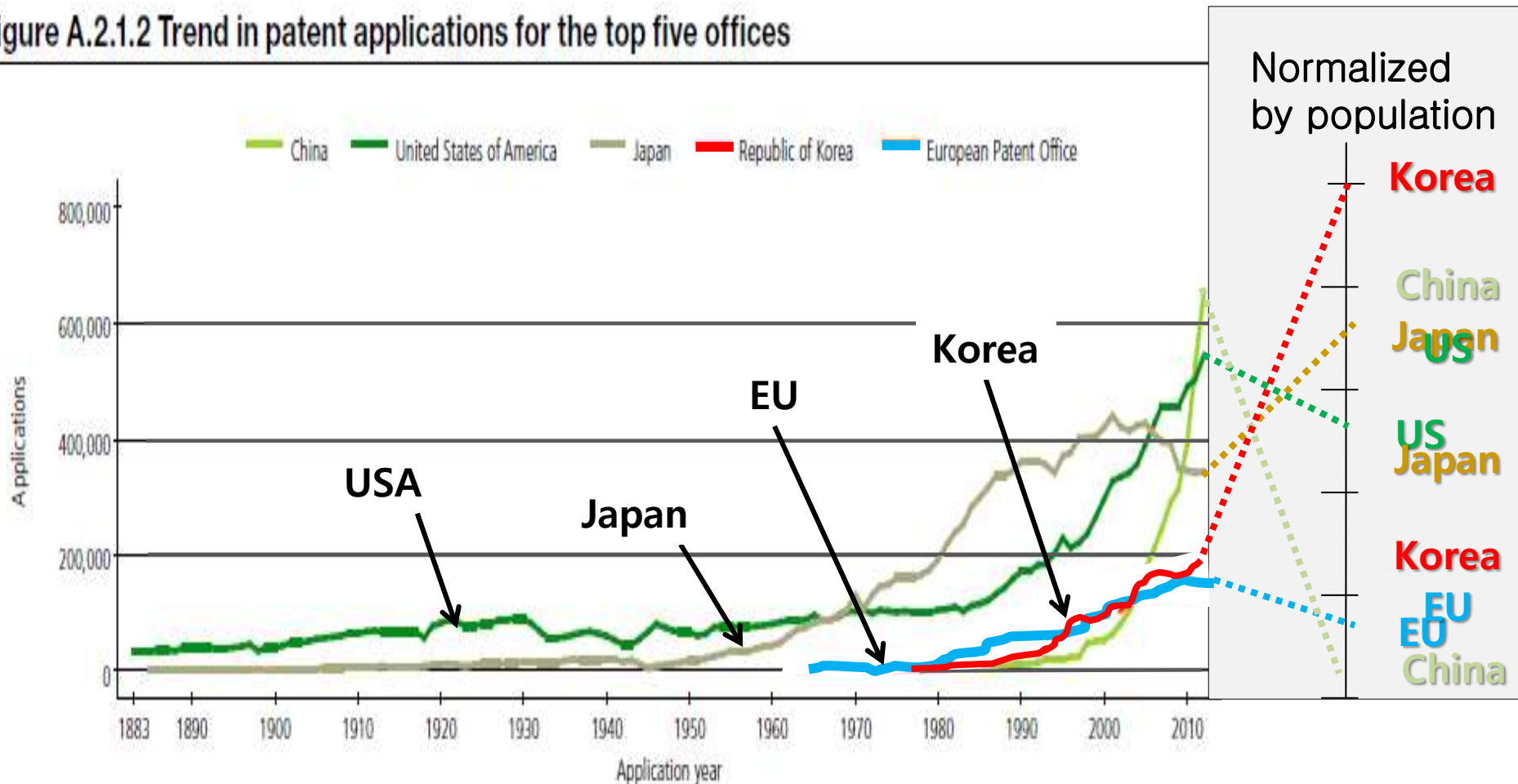


Note: The top five offices were selected based on their 2012 totals.

Source: WIPO Statistics Database, October 2013

# Intellectual property (creativity)

Figure A.2.1.2 Trend in patent applications for the top five offices



Note: The top five offices were selected based on their 2012 totals.

Source: WIPO Statistics Database, October 2013



# Key to success is: Education

## 3 Invest in teachers



# Key to success is: Leapfrogging

4

**Invest,  
not to do just more & faster,  
but in order to leapfrog!**



# Key to success is: Education

**3W learning**

**3S learning**

**3A learning**



**11,000 schools**  
**483,000 teachers**

**> \$\$\$**



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**Whenever**  
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**Same time**  
**Same place**  
**Same age**

**Anytime**  
**Anywhere**  
**Anyone**



# Key to success is: Leapfrogging

## 3W learning



## 3A learning



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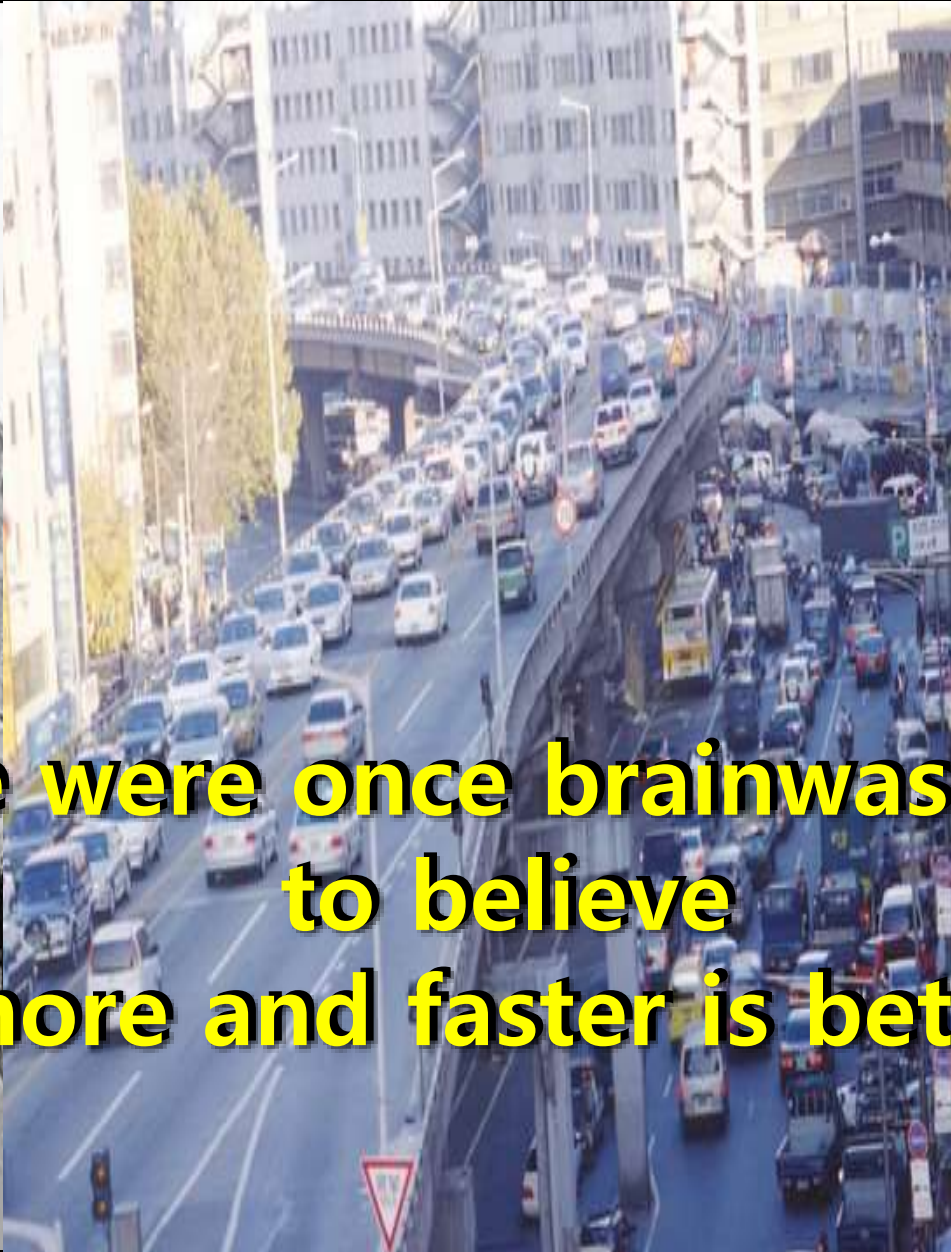
2020

Anytime  
Anywhere  
Anyone



# A second word of caution!

**We were once brainwashed  
to believe  
more and faster is better**



**Don't repeat the mistakes  
of other nations**

**Take advantage of  
your won strengths!**



**Decision was made by leaders 50 years ago...**

**B**uild national consensus  
**E**ducation as dream-making  
**S**uccess through technology  
**T**eachers are Nation Builders

**Whether to make the change or not**



# Korea did it **in spite of**

- ✓ **poverty**
- ✓ **corruption**
- ✓ **incompetence**
- ✓ **civil unrest**
- ✓ **geopolitical tension**

## **So can you!**