# A Glance of National Assessment of Education Quality in China

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# POLICY PRIORITIES OF EDUCATION IN NEW STAGE

# The Status of Chinese Compulsory Education

## **Access** to schools for all

- After 40 years of development, China has achieved the goal of the **9 year compulsory education**

## **High quality** education for all

- Currently, the **quality and equity** of basic education has become major concerns of the society

# The Status of Chinese Compulsory Education

## Public Expectation

### toward basic education system in China :

Education Quality

Students' Holistic Development

02

# KEY DECISIONS: ESTABLISHMENT OF NAEQ

# Policy Decisions

## Series of government's supreme documents emphasized the importance of developing the education assessment system

- "To enact the national standard of education quality"
- "To integrate sources for refining the monitoring and evaluation system"
- "To release the monitoring and evaluation reports regularly"

—— *2010-2020 Chinese Education Long-term Plan (2010)*

- "To enhance the national education supervision, entrusting social organizations to conduct educational assessment"
- "To push forward the separation of Management, Implementation and Evaluation

—— *The Third Plenary Session of the 18th Central Committee of the Communist Party Decision (2013)*

- "To revise and improve the education supervision, to enhance the social supervision"

—— *The Fifth Plenary Session of the 18th CPC Central Committee (2015)*

- "To implement supervision and assessment for all levels of education by the law"
- "To revise and improve the system of education supervision"

—— *Comments on Pushing Forward the Separation of Management, and Evaluation (2015)*

# National Assessment Center of Education Quality (NAEQ)

## Missions

- To construct standards for monitoring the quality of basic education
- To research and develop tools for monitoring the quality of basic education
- To implement the work of monitoring the quality of basic education nationwide upon the authorization of the Ministry of Education
- To support and guide work for the local governments on basic education monitoring

# Exploration: Pilot Assessments

## 8 years (2007-2014)

| | | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|
| **Assessment Contents** | | **Math, Mental Well-being, Contextual Information** | **Math, Mental Well-being, Contextual Information** | **Chinese, Science, Contextual Information** | **Chinese, Science, Contextual Information** | **English, Physical Education, Contextual Information** | **Math, Science, Mental Well-being, Contextual Information** | **Chinese, Mental Well-being , Contextual Information** | **Math, Physical Education, Contextual Information** |
| Sample Type and Size | Counties | 15 | 50 | 30 | 79 | 104 | 271 | 117 | 106 |
| | Schools | 295 | 900 | 450 | 1,398 | 1,675 | 4913 | 1,939 | 2,059 |
| | Principals | 295 | 900 | 450 | 1,398 | 1,675 | 4,868 | 1,939 | 1,911 |
| | Teachers | 295 | 5,961 | 3,711 | 8,575 | 5,899 | 48,642 | 20,348 | 18,500 |
| | Students | **14,009** | **34,910** | **18,900** | **56,760** | **64,265** | **190,104** | **82,304** | **64,288** |

# Establishment of Assessment System

**April 15th 2015**

## National Compulsory Education Quality Assessment System


| | | 2015 | 2016 |
|---|---|---|---|
| **Assessment Contents** | | **Math, Physical Education, Contextual Information** | **Chinese, Arts, Contextual Information** |
| Sample Type and Size | Counties | 323 | 325 |
| | Schools | 6476 | 6527 |
| | Principals | 6476 | 6527 |
| | Teachers | 65 thousands | 70 thousands |
| | Students | **191 thousands** | **192 thousands** |

**The 2017 National Assessment was successfully conducted on May 25th**

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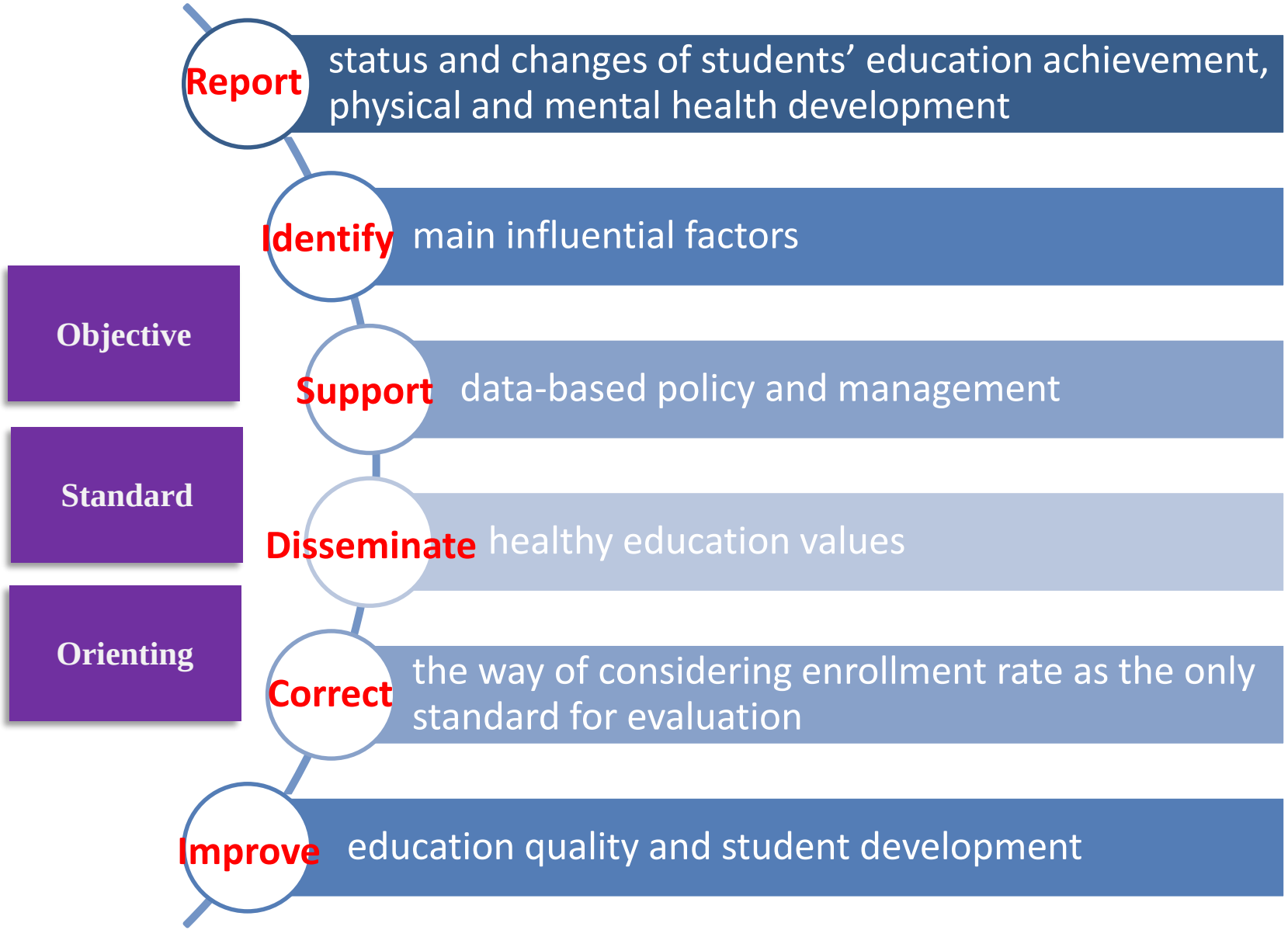
# NATIONAL STRATEGY FOR DATA PRODUCTION

# Assessment Purpose & Principle



# Assessment Subject & Content & Tools

## Grade 4 & 8 Students

- **Avoid the impact of test-oriented education**
- **Critical development period**
- **International experiences (e.g. NAEP, TIMSS)**

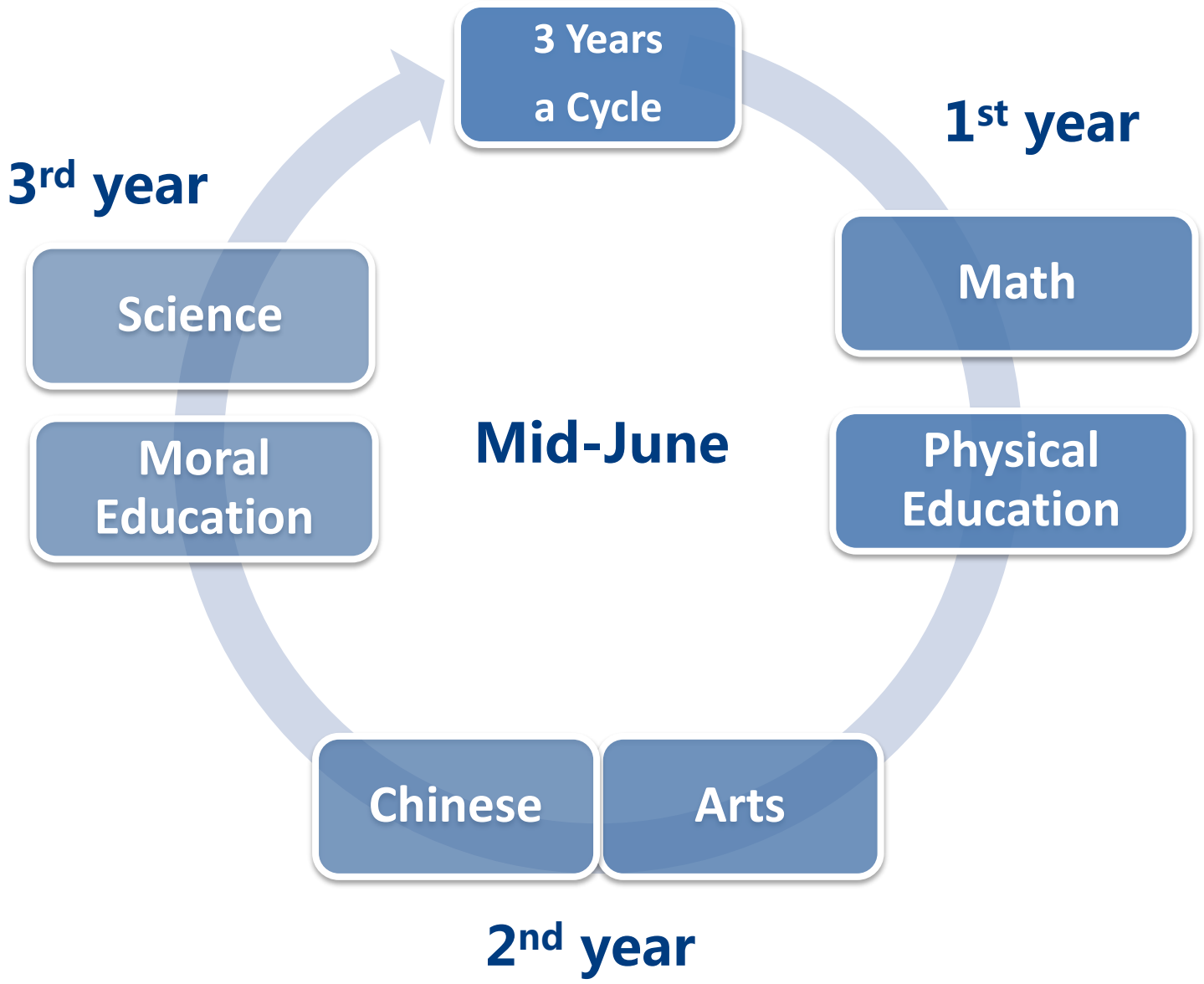
## Content

- **6 subjects: Math, Chinese, Science, P.E., Arts, Moral Education**
- **3 aspects:**
- **—knowledge & skills mastery**
- **—problem- solving ability**
- **—contextual information**

## Assessment Tools

- **Paper-and-pencil assessment**
- **Performance assessment**

# Assessment Cycles & Schedule

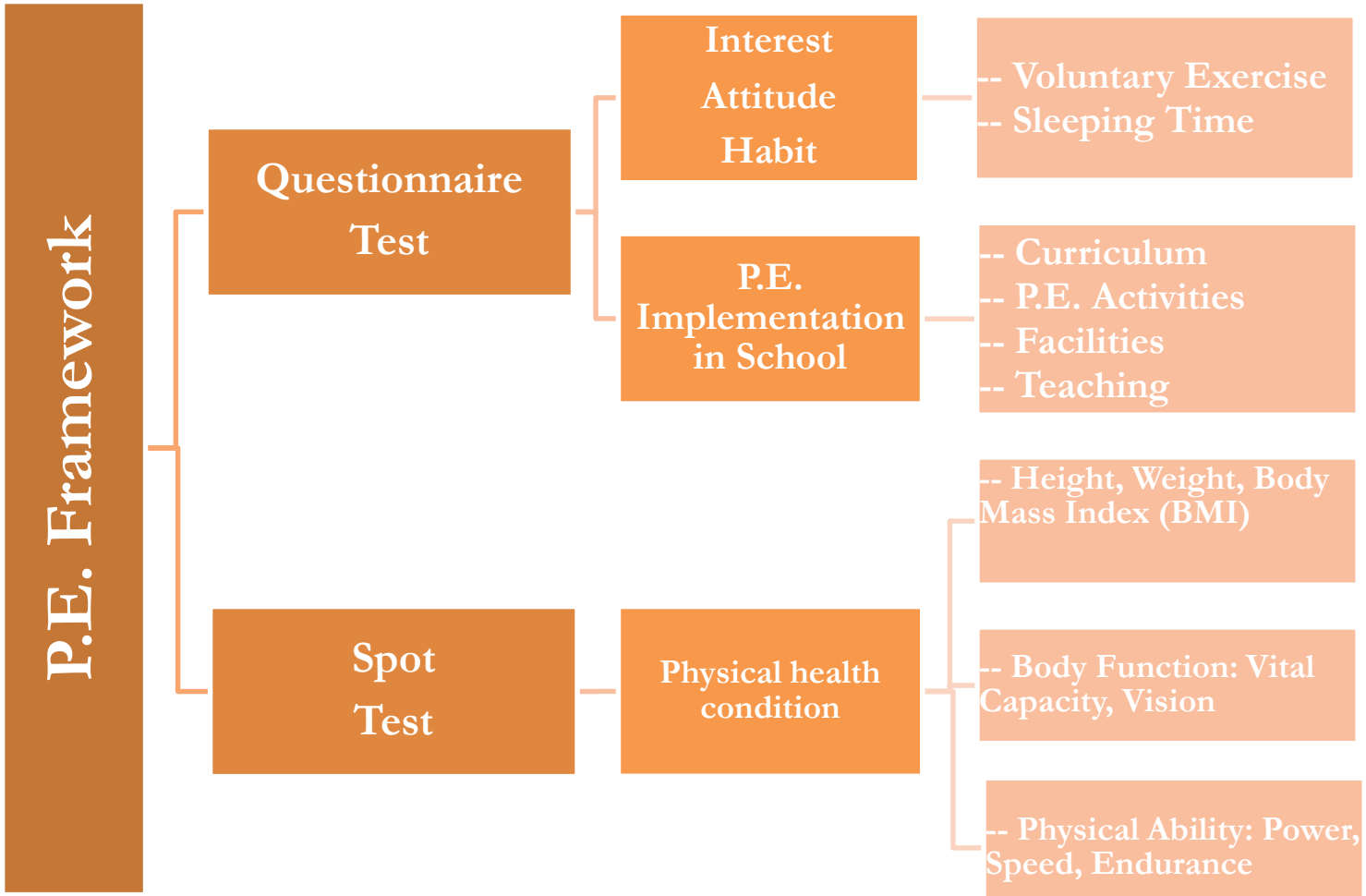


# Assessment Framework——Mathematics

## Mathematics Assessment Framework

| Academic performance | Emotions Attitudes | Contextual information | | |
|---|---|---|---|---|
| Operation | Interest | Class hours per week | Teachers' education background | Media equipment |
| Space | Confidence | Homework hours | Age | Internet usage |
| Data analysis | | | Teaching behaviors | |
| Reasoning | | | | |
| Solving | | | | |

# Assessment Framework——P.E.



# Assessment Framework——Arts



| | | |
|---|---|---|
| **Knowing &Understanding** | Knowledge and understanding of music & visual arts elements and terms;<br>Knowledge of the personal, historical and cultural characteristics of Chinese and foreign classic works. | |
| **Appreciation & Evaluation** | Identifying and evaluating the genres, forms, themes, styles, emotion of music and visual art works. | |
| **Performance &Creation** | Singing & Creating the simple melody or rhyme. | Drawing and reflecting upon their own artworks |

**Interests & Involvement in arts activities**

# Item Examples

- **Example 1 (Science): After a rainstorm, hydrops around tree roots (as shown in the picture), then, the hydrops will lead to the decrease of (  )**

**A. photosynthesis**

**B. transpiration**

**C. transportation capacity of the mineral salt**

**D. respiration of roots**

| Item Type | Content Dimension | Cognitive Dimension | | | Science Inquiry Dimension | | | AS |
|---|---|---|---|---|---|---|---|---|
| | | KNO | UND | APP | QUE | EVI | EXP | |
| Multi-choice item | Life science/ Biological metabolism | | √ | | | | | D |

# Example 2 (Science): an item in science test (NAEQ 2009)

A researcher brought a “10A 250V” socket from the supermarket, and did the following experiment:

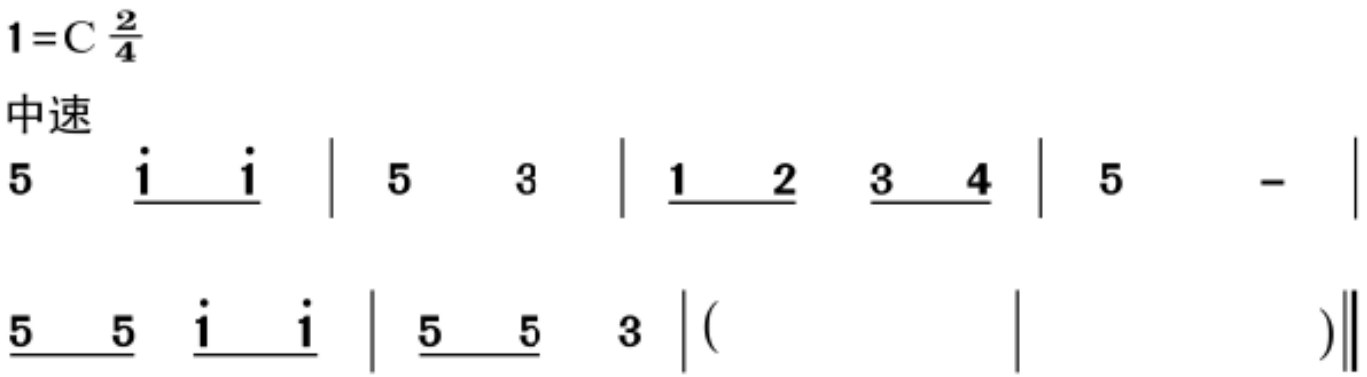
1. Plugged a microphone into the socket and turn the microphone on;
2. Used digital thermometer to measure the plug wire’s temperature;
3. Record the data every 40 seconds;
4. Repeat the experiment with electric cup, induction cooker and electric kettle

The data is shown below. According to the records, what result you will conduct?  and why?

| Temperature / Time(s) | Microphone (60W) | Electric Cup (400W) | Induction Cooker (1000W) | Electric Kettle (1500W) |
|---|---|---|---|---|
| 0 | 23.92 | 23.71 | 23.69 | 23.49 |
| 40 | 23.95 | 24.02 | 26.84 | 28.92 |
| 80 | 23.97 | 24.48 | 32.34 | 39.12 |
| 120 | 23.99 | 24.93 | 37.79 | 50.05 |

| Content Dimension | Cognitive Dimension | | | Science Inquiry Dimension | | | AS |
|---|---|---|---|---|---|---|---|
| | KNO | UND | APP | QUE | EVI | EXP | |
| Physical science/ Energy | | | √ | | | √ | see rating description |

- **Example 3 (Music): Please creating last two sections of the following melody, and making it complete and fluency**




- **Test point**: Creation—creating the melody
- **Grade**: Four

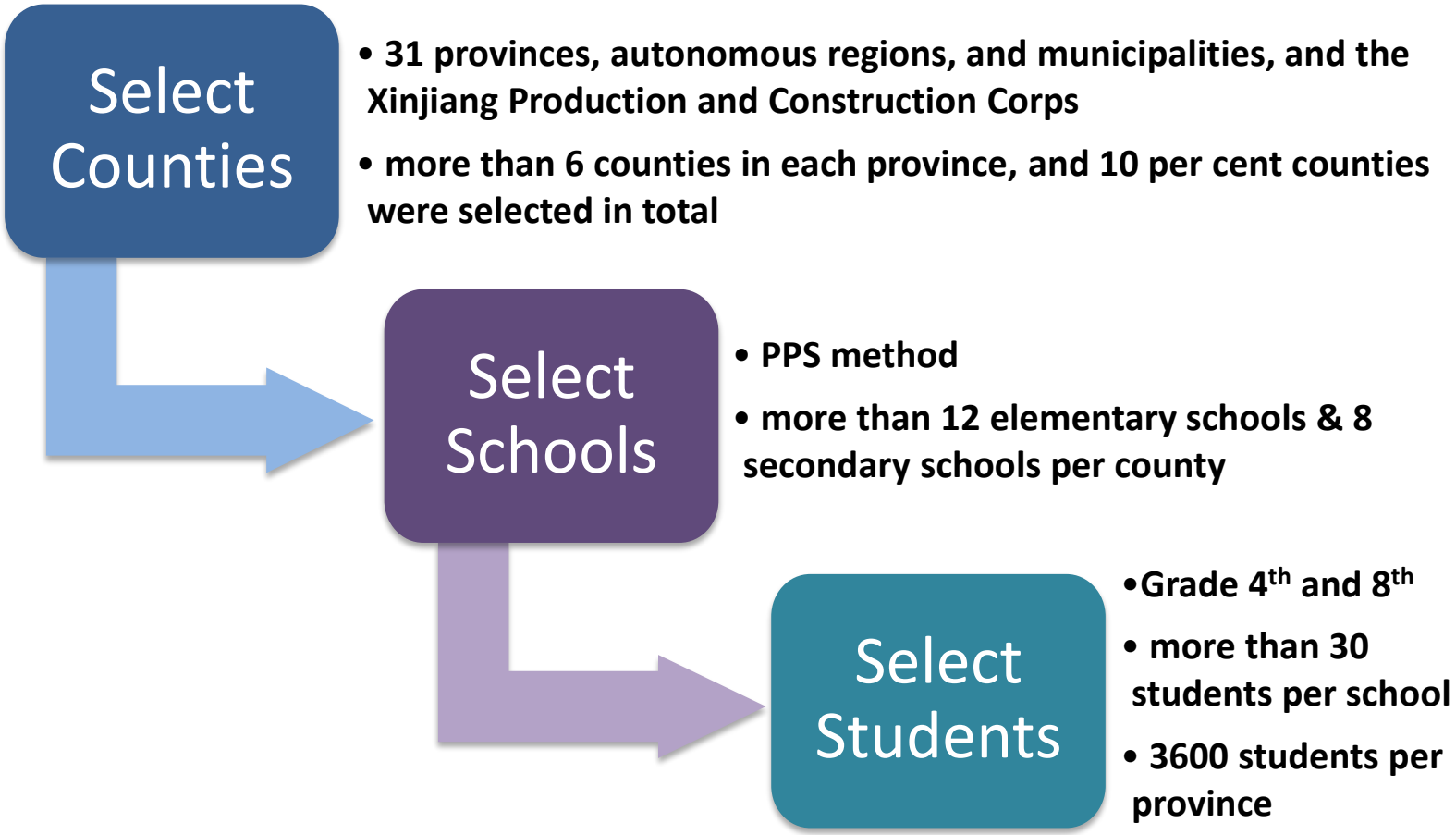
- **Example 4 (Visual Arts): Observe following two paintings, use your visual arts knowledge to describe their differences**

《Five Horses》(Part)
Song destiny, Li Gonglin

《Bonaparte Franchissant Le Grand-saint-bernard》
France, 1800-1801, Jacques-louis David

- **Test point:** Appreciation & Evaluation – describing and evaluating the features of Chinese and foreign works
- **Grade:** Eight

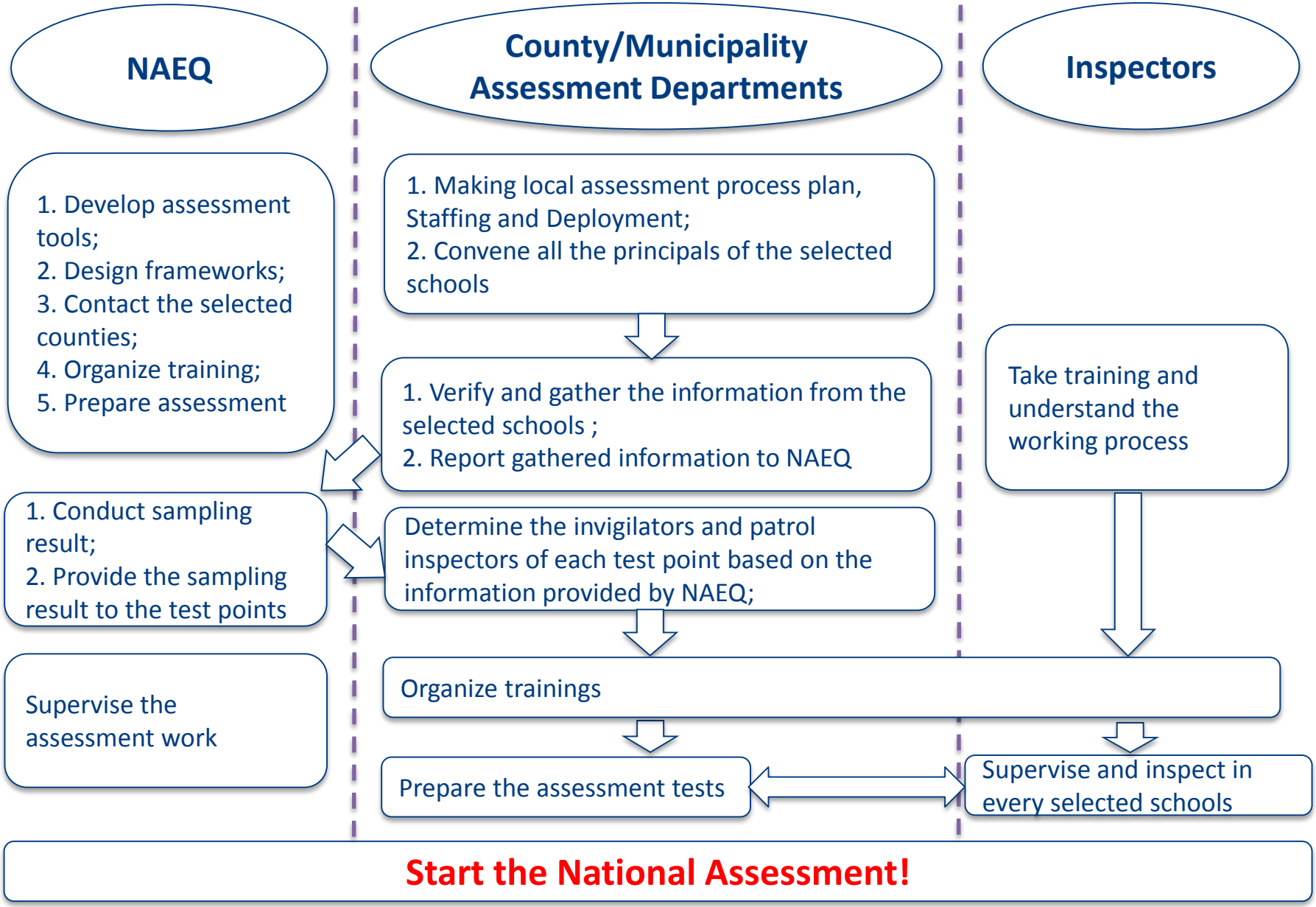
# Sampling Design




Sampling bias < 1% to represent the whole country

Sampling bias < 4% to represent almost all provinces

# Implementing Procedure

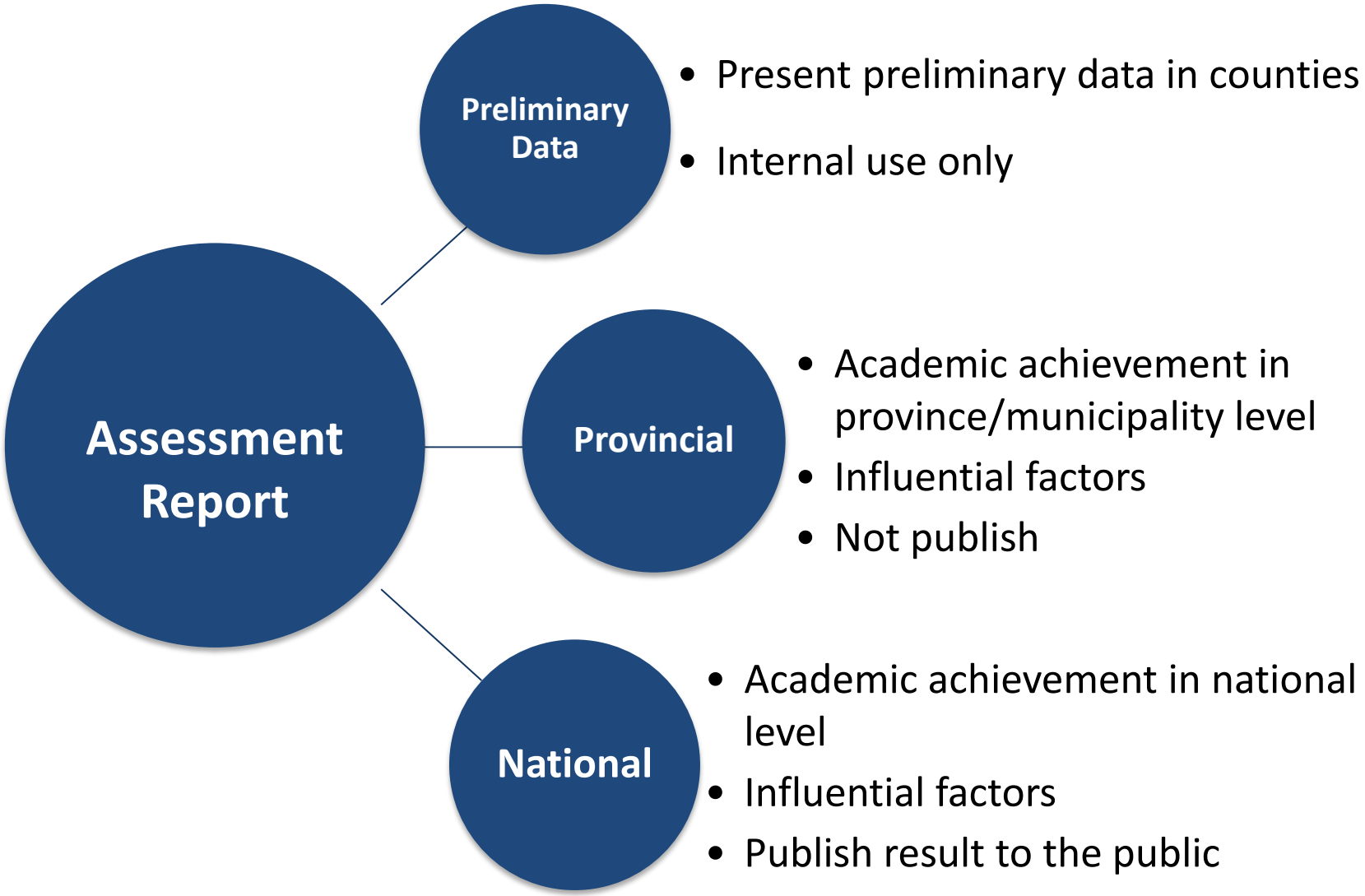


# Setting the Performance Standards

- **Two methods were considered:**
  - Angoff method
  - Bookmark method
- **Process**
  - Judgment panel including 15 persons with diverse backgrounds
  - Three-day meeting within each panel
  - Three stages were conducted for the whole process

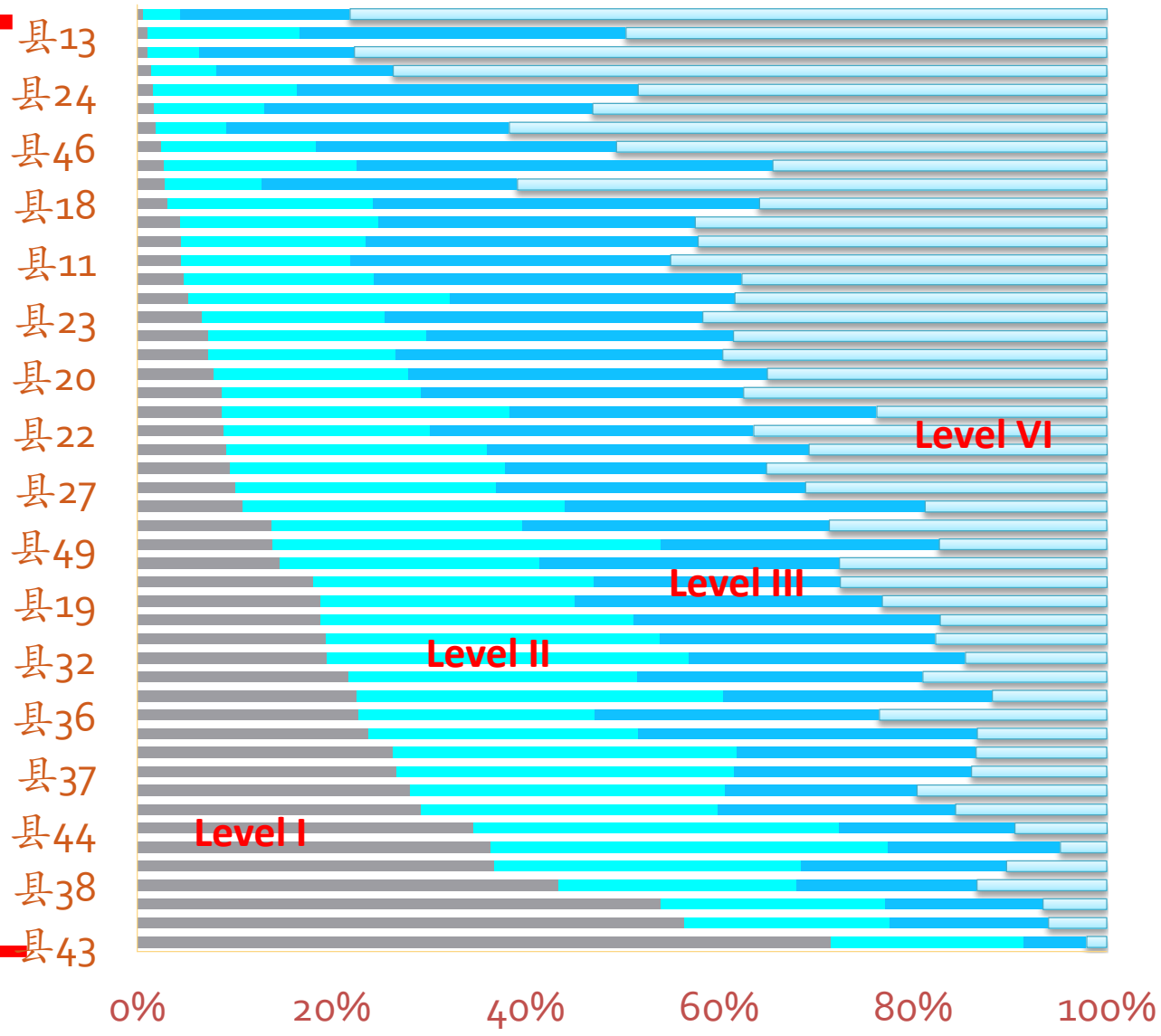
| | |
|---|---|
| Level IV | • Advanced |
| Level III | • Proficiency |
| Level II | • Basic |
| Level I | • Below Basic |

# Application of Assessment Reports



# Some Results for Example
## ——Differences among Counties

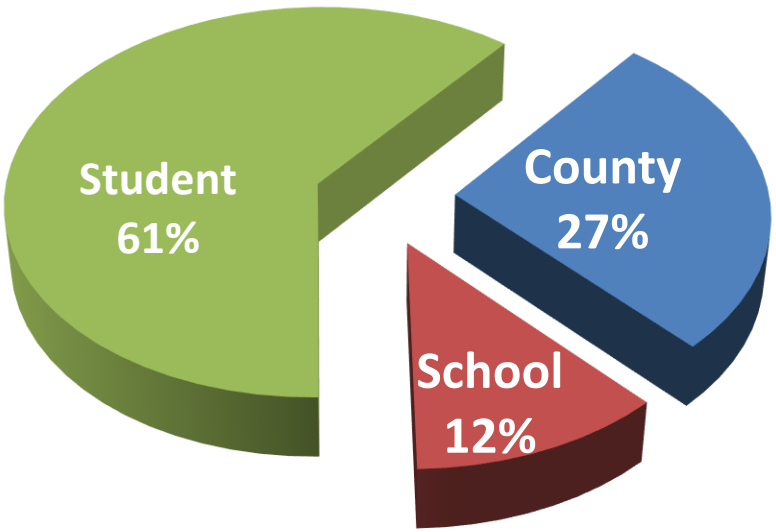
**Level IV** students in the best performed county: **78.1%**



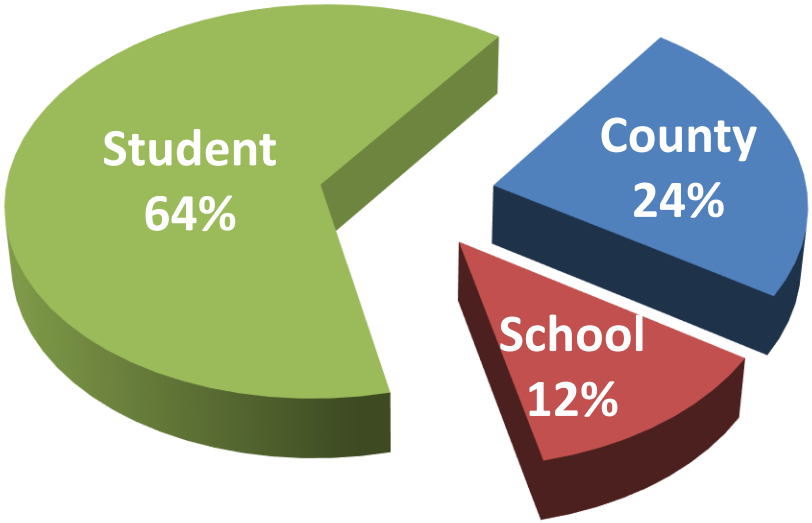

**Level IV** students in the poorest performed county: **2.1%**

# Some Results for Example
## ——Decomposition of Achievement Variation

4th Grade

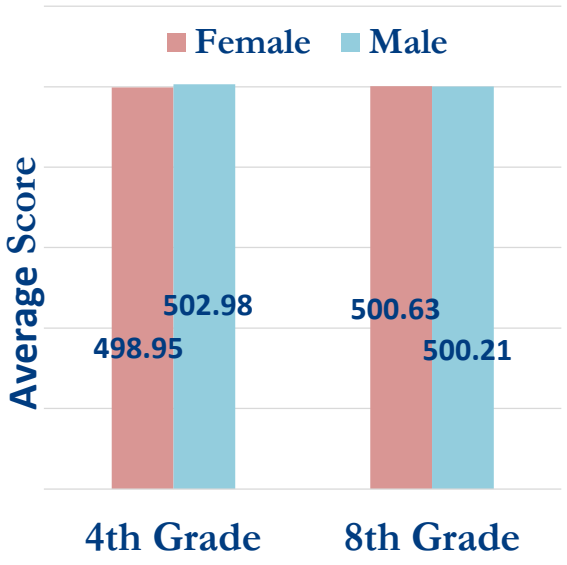



8th Grade



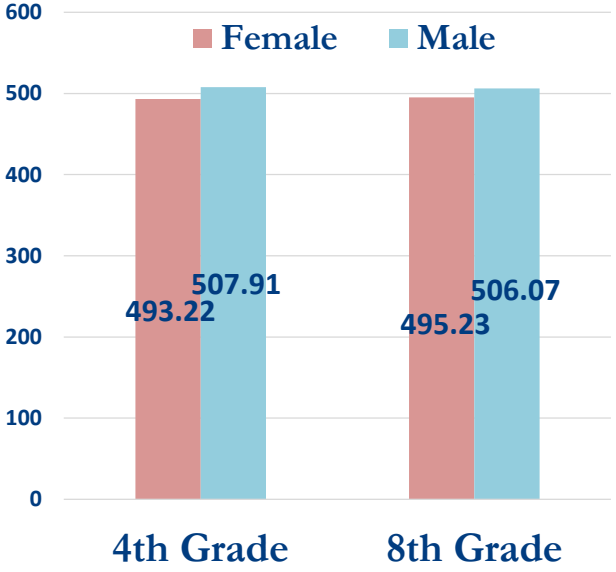
# Some Results for Example
## ——Overall Gender Differences

### Math



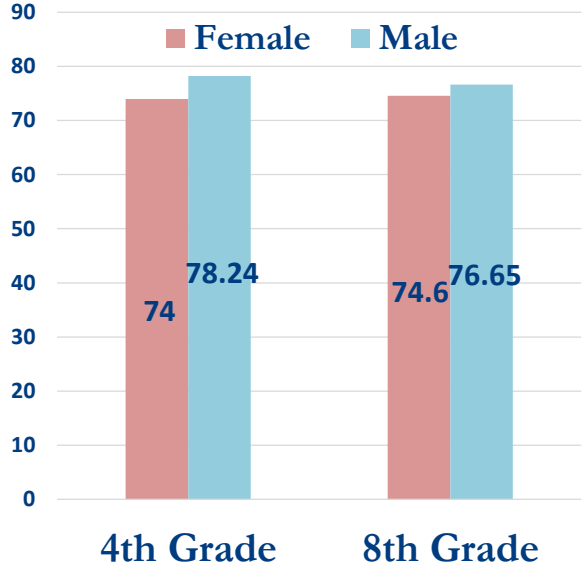

| | T value | Cohen's d |
|---|---|---|
| 4th Grade | 3.88*** | 0.04 |
| 8th Grade | -0.33 | N |

### Science




| | T value | Cohen's d |
|---|---|---|
| 4th Grade | 21.91*** | 0.15 |
| 8th Grade | 16.40*** | 0.11 |

### P.E.

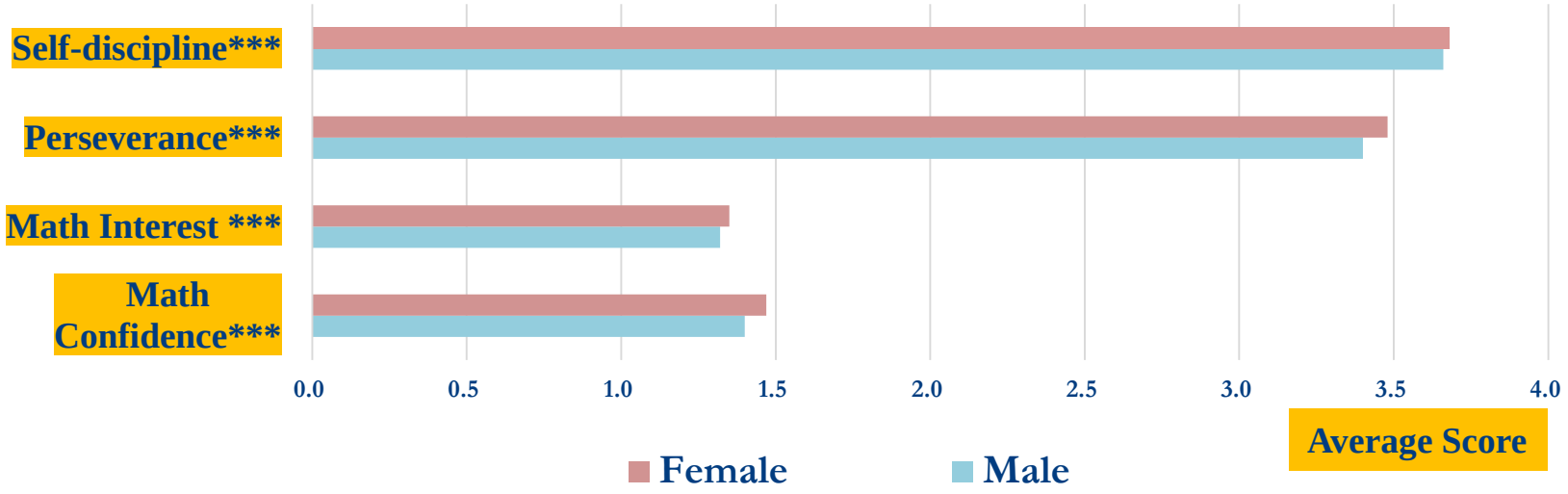



| | T value | Cohen's d |
|---|---|---|
| 4th Grade | 37.66*** | 0.48 |
| 8th Grade | 14.82*** | 0.23 |

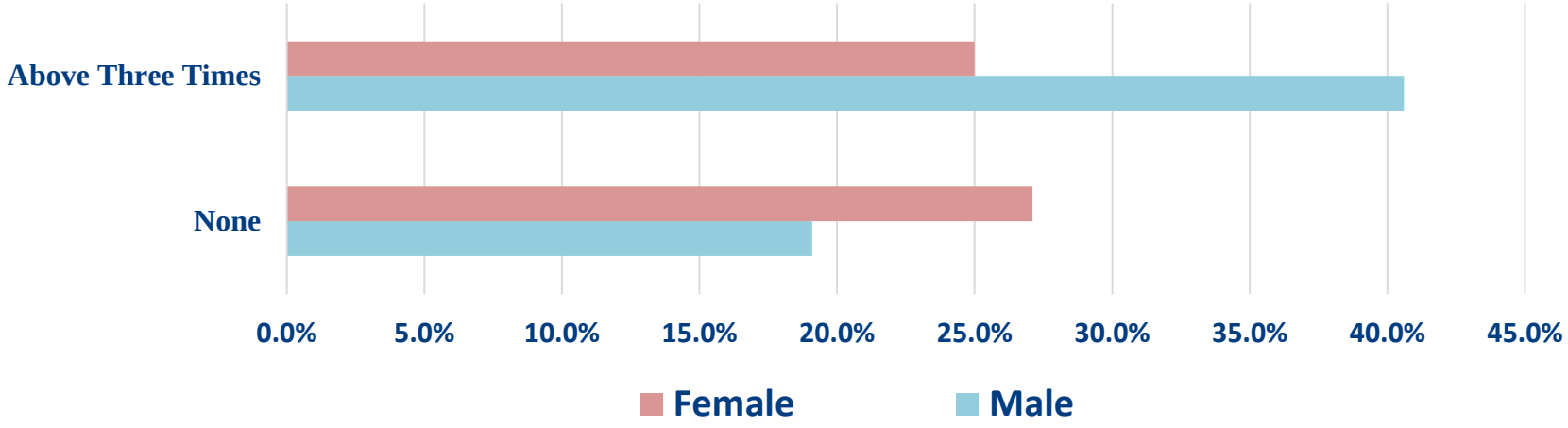
**No difference in Math**

**Boys perform better in Science & P.E.**

# Some Results for Example
## ——Influential Factors for Math & P.E.




**How many times do you take exercises per week, besides the P.E. classes?**



04

# INTERNATIONAL LINKING TRIAL

# Linking PISA 2012 & NAEQ

- 10 provinces attended PISA 2012 CHINA TRIAL SURVEY
- Equipercentile equating method
- Correlation > 0.97
- Mainland China ranked about $10^{th}$ in the 65 participating countries in PISA 2012

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# KEY CHALLENGES

# Debates Still Exist

- How to define the quality of education?
- Should the National Curriculum Standards be a guideline for developing the Assessment Standards?
- Should we establish the unified standards or diverse standards to reflect huge difference among different regions?

# THANK YOU!