A Glance of National Assessment of Education Quality in China

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1. Policy Priorities of Education
2. Key Decisions: Establishment of NAEQ
3. National Strategy for Data Production
4. International Linking Trial
5. Key Challenges
P0LICY PRI0RITIES 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
KEY DECISIONS: ESTABLISHMENT OF NAEQ
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”

- “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)
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)

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</tr>
</thead>
<tbody>
<tr>
<td><strong>Sample Type and Size</strong></td>
<td><strong>2007</strong></td>
<td><strong>2008</strong></td>
<td><strong>2009</strong></td>
<td><strong>2010</strong></td>
<td><strong>2011</strong></td>
<td><strong>2012</strong></td>
<td><strong>2013</strong></td>
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<tr>
<td>Counties</td>
<td>15</td>
<td>50</td>
<td>30</td>
<td>79</td>
<td>104</td>
<td>271</td>
<td>117</td>
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<tr>
<td>Schools</td>
<td>295</td>
<td>900</td>
<td>450</td>
<td>1,398</td>
<td>1,675</td>
<td>4913</td>
<td>1,939</td>
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<tr>
<td>Principals</td>
<td>295</td>
<td>900</td>
<td>450</td>
<td>1,398</td>
<td>1,675</td>
<td>4,868</td>
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<tr>
<td>Teachers</td>
<td>295</td>
<td>5,961</td>
<td>3,711</td>
<td>8,575</td>
<td>5,899</td>
<td>48,642</td>
<td>20,348</td>
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<tr>
<td>Students</td>
<td><strong>14,009</strong></td>
<td><strong>34,910</strong></td>
<td><strong>18,900</strong></td>
<td><strong>56,760</strong></td>
<td><strong>64,265</strong></td>
<td><strong>190,104</strong></td>
<td><strong>82,304</strong></td>
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</table>
Establishment of Assessment System

April 15th 2015

National Compulsory Education Quality Assessment System

The 2017 National Assessment was successfully conducted on May 25th

<table>
<thead>
<tr>
<th>Sample Type and Size</th>
<th>2015</th>
<th>2016</th>
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</thead>
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<tr>
<td>Counties</td>
<td>323</td>
<td>325</td>
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<tr>
<td>Schools</td>
<td>6476</td>
<td>6527</td>
</tr>
<tr>
<td>Principals</td>
<td>6476</td>
<td>6527</td>
</tr>
<tr>
<td>Teachers</td>
<td>65 thousands</td>
<td>70 thousands</td>
</tr>
<tr>
<td>Students</td>
<td>191 thousands</td>
<td>192 thousands</td>
</tr>
</tbody>
</table>

Assessment Contents:
- Math, Physical Education, Contextual Information
- Chinese, Arts, Contextual Information
NATIONAL STRATEGY FOR DATA PRODUCTION
Assessment Purpose & Principle

**Objective**
- **Report**: status and changes of students’ education achievement, physical and mental health development
- **Identify**: main influential factors
- **Support**: data-based policy and management
- **Disseminate**: healthy education values
- **Correct**: the way of considering enrollment rate as the only standard for evaluation
- **Improve**: education quality and student development

**Standard**

**Orienting**

**Support**

**Incorrect**
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

3rd year

- Science
- Moral Education

Mid-June

2nd year

- Chinese
- Arts

1st year

- Math
- Physical Education

3 Years a Cycle
Mathematics Assessment Framework

Academic performance
- Operation
- Space
- Data analysis
- Reasoning
- Solving

Emotions
- Attitudes
- Interest
- Confidence

Contextual information
- Teachers’ education background
- Age
- Teaching behaviors
- Media equipment
- Internet usage
- Class hours per week
- Homework hours
Assessment Framework —— P.E.

P.E. Framework

- Questionnaire Test
  - Interest
  - Attitude
  - Habit
  - Voluntary Exercise
  - Sleeping Time
  - Curriculum
  - P.E. Activities
  - Facilities
  - Teaching

- Spot Test
  - Physical health condition
  - Height, Weight, Body Mass Index (BMI)
  - Body Function: Vital Capacity, Vision
  - Physical Ability: Power, Speed, Endurance
Assessment Framework——Arts

Music

Knowing &Understanding
Knowledge and understanding of music & visual arts elements and terms;
Knowledge of the personal, historical and cultural characteristics of Chinese and foreign classic works.

Visual arts

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
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

<table>
<thead>
<tr>
<th>Item Type</th>
<th>Content Dimension</th>
<th>Cognitive Dimension</th>
<th>Science Inquiry Dimension</th>
<th>AS</th>
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<tbody>
<tr>
<td>Multi-choice item</td>
<td>Life science/Biological metabolism</td>
<td>KNO</td>
<td></td>
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<td>D</td>
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</table>
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?

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Microphone (60W)</th>
<th>Electric Cup (400W)</th>
<th>Induction Cooker (1000W)</th>
<th>Electric Kettle (1500W)</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>23.92</td>
<td>23.71</td>
<td>23.69</td>
<td>23.49</td>
</tr>
<tr>
<td>40</td>
<td>23.95</td>
<td>24.02</td>
<td>26.84</td>
<td>28.92</td>
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<tr>
<td>80</td>
<td>23.97</td>
<td>24.48</td>
<td>32.34</td>
<td>39.12</td>
</tr>
<tr>
<td>120</td>
<td>23.99</td>
<td>24.93</td>
<td>37.79</td>
<td>50.05</td>
</tr>
</tbody>
</table>
• Example 3 (Music): Please creating last two sections of the following melody, and making it complete and fluency

\[
1 = C \frac{2}{4}
\]

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

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

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

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

Grade: Eight
Select Counties
- 31 provinces, autonomous regions, and municipalities, and the Xinjiang Production and Construction Corps
- more than 6 counties in each province, and 10 per cent counties were selected in total

Select Schools
- PPS method
- more than 12 elementary schools & 8 secondary schools per county

Select Students
- Grade 4th and 8th
- more than 30 students per school
- 3600 students per province

Sampling bias < 1% to represent the whole country
Sampling bias < 4% to represent almost all provinces
Implementing Procedure

NAEQ

1. Develop assessment tools;
2. Design frameworks;
3. Contact the selected counties;
4. Organize training;
5. Prepare assessment

County/Municipality Assessment Departments

1. Making local assessment process plan, Staffing and Deployment;
2. Convene all the principals of the selected schools

Inspectors

1. Verify and gather the information from the selected schools;
2. Report gathered information to NAEQ

Determine the invigilators and patrol inspectors of each test point based on the information provided by NAEQ;

Organize trainings

Prepare the assessment tests

Supervise and inspect in every selected schools

Take training and understand the working process

Supervise the assessment work

1. Conduct sampling result;
2. Provide the sampling result to the test points

Start the National Assessment!
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

- **Levels:**
  - Level IV: Advanced
  - Level III: Proficiency
  - Level II: Basic
  - Level I: Below Basic
Application of Assessment Reports

- **Preliminary Data**
  - Present preliminary data in counties
  - Internal use only

- **Provincial**
  - Academic achievement in province/municipality level
  - Influential factors
  - Not publish

- **National**
  - Academic achievement in national level
  - Influential factors
  - Publish result to the public
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:
- Student: 61%
- County: 27%
- School: 12%

8th Grade:
- Student: 64%
- County: 24%
- School: 12%
Some Results for Example
——— Overall Gender Differences

No difference in Math
Boys perform better in Science & P.E.
Some Results for Example
———Influential Factors for Math & P.E.

- **Self-discipline***
- **Perseverance***
- **Math Interest ***
- **Math Confidence***

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

- **Above Three Times**
- **None**

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Female  | Male
---|---

Average Score
Linking PISA 2012 & NAEQ

- 10 provinces attended PISA 2012 CHINA TRIAL SURVEY
- Equipercentile equating method
- Correlation > 0.97
- Mainland China ranked about 10th in the 65 participating countries in PISA 2012
05 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!