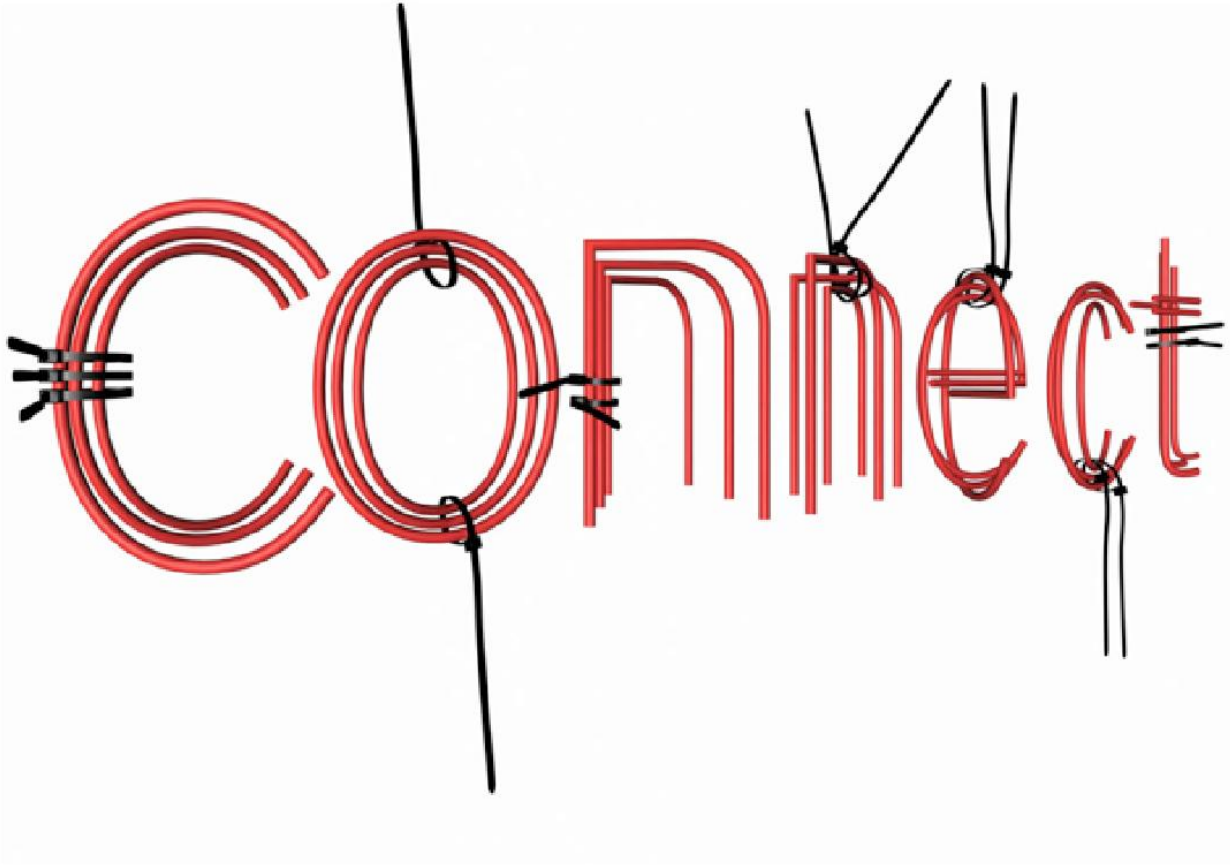

The challenges and opportunities for language literacy in science learning

Kusalin Musikul, Ph.D.
Director of Primary Science Division
IPST

Overview

- Background
- Current situation
- Recommendation

Language literacy is one of the keys success to live in the 21st Century

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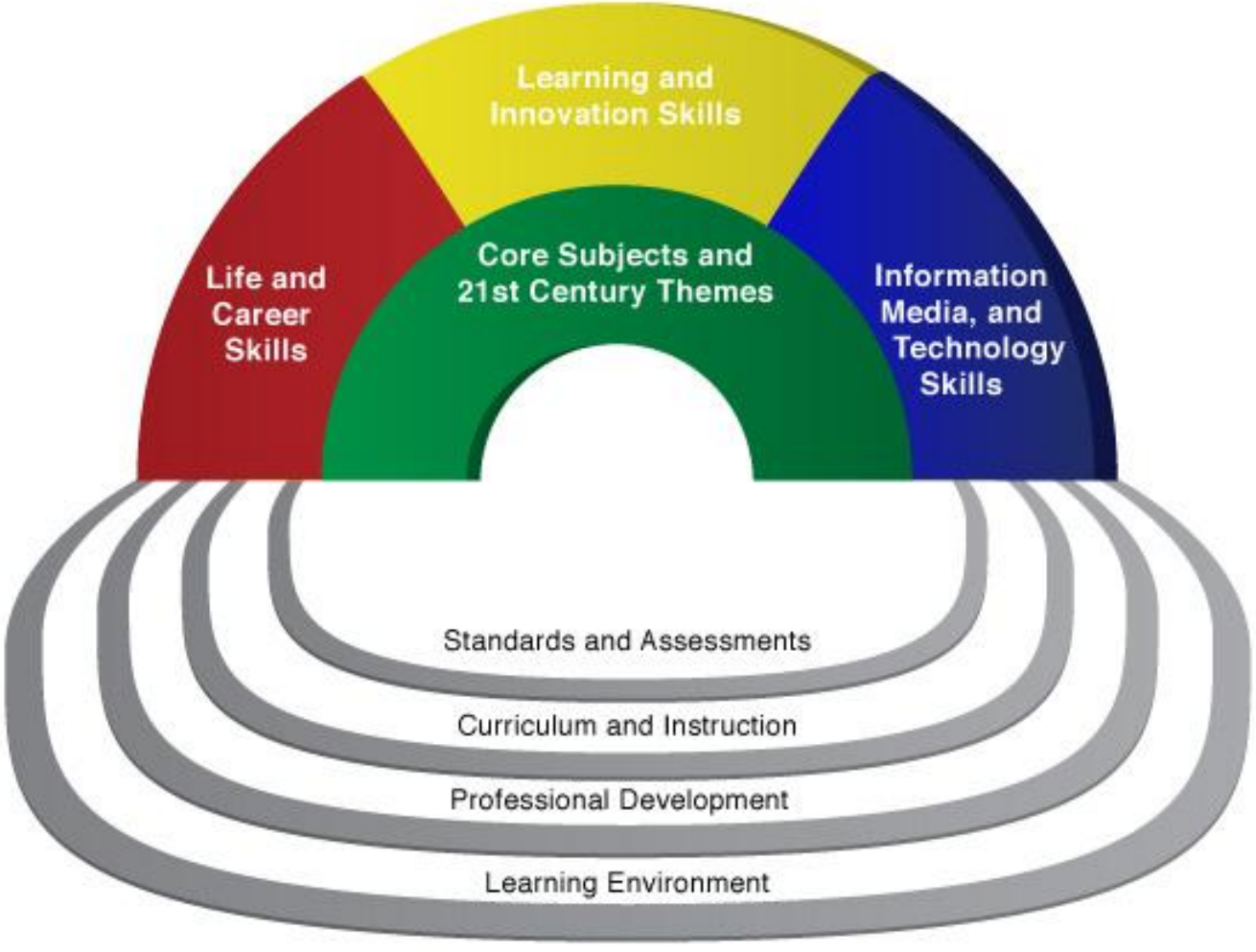
The Seven Cs – 21st Century Lifelong Skills

Seven Cs	Component Skills
Critical Thinking-and-Doing	Problem-solving, Research, Analysis, Project Management, etc.
Creativity	New Knowledge Creation, "Best Fit" Design Solutions, Artful Storytelling, etc.
Collaboration	Cooperation, Compromise, Consensus, Community-building, etc.
Cross-cultural Understanding	Across Diverse Ethnic, Knowledge and Organizational Cultures
Communication	Crafting Messages and Using Media Effectively
Computing / ICT Literacy	Effective Use of Electronic Information and Knowledge Tools
Career & Learning Self-reliance	Managing Change, Lifelong Learning and Career Redefinition

Framework for 21st Century Learning



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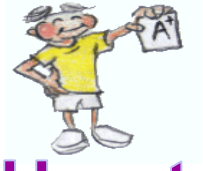
Head

Cognitive Domain

Hand

Psychomotor Domain



Heart

Affective Domain

Language literacy is a tool to learn other core subjects including Science

Reading Proficiency

- **Access and retrieval in both print and digital media**; involve finding selecting, and collecting information.
- **Integrate and interpret**; involve reading to make internal sense of text, understanding the relation between different parts of text, and determining the appropriate connection.
- **Reflect and evaluate**; involve drawing on knowledge, ideas, or values external to the text, relating experiences or knowledge to the text, and making judgment of the text.

Programme for International Assessment (PISA)

Science Proficiency

- **Understanding scientific questions**; involve identifying distinction of scientific and non-scientific questions
- **Explaining scientific phenomena**; involve making description, explanation and prediction of phenomena
- **Using scientific evidence**; involve handling empiric evidence and scientific reasoning.

Programme for International Assessment (PISA)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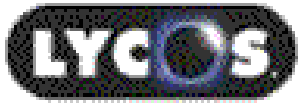
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“The working language of ASEAN shall be English”

(Article 34 in ASEAN Charter)

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AEC 2015 will bring a new era of economical cooperation to all 10 countries consenting to use English as the language for business.

Our students are living in the changing world

New global economy. (They are living in a

Trend of Thai students' performance in Science, Mathematics, and Reading Literacy

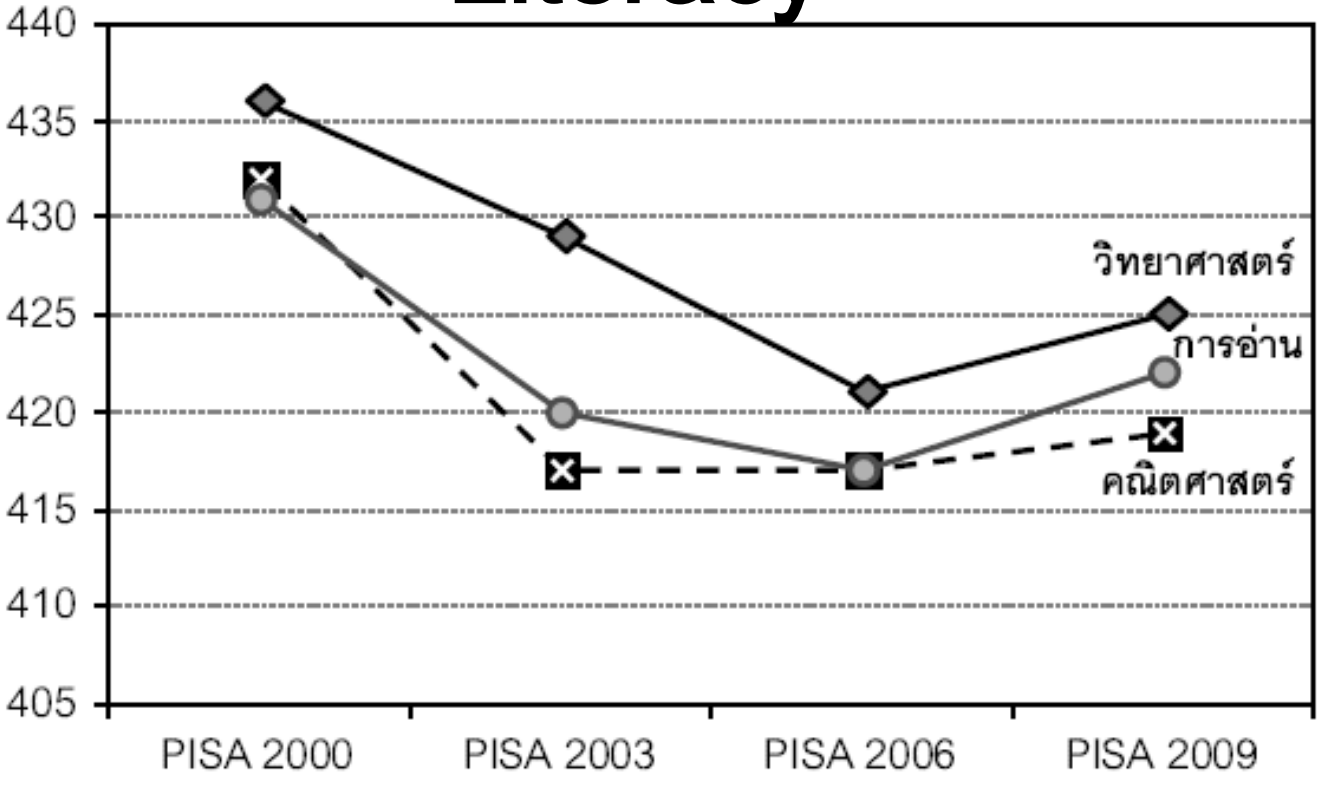

Figure 2 **Student proficiency in science**

Level	Lower score limit	Percentage of students able to answer questions at each level or above (OECD average)	What students can typically do at each level on the science scale
6	707.9	1.3% of students across the OECD can answer questions at Level 6	At Level 6, students can consistently identify, explain and apply scientific knowledge and *knowledge about science* in a variety of complex life situations. They can link different information sources and explanations and use evidence from those sources to justify decisions. They clearly and consistently demonstrate advanced scientific thinking and reasoning, and they demonstrate willingness to use their scientific understanding in support of solutions to unfamiliar scientific and technological situations. Students at this level can use scientific knowledge and develop arguments in support of recommendations and decisions that centre on personal, socio-economic, or global situations.
5	633.3	9.0% of students across the OECD can answer questions at least at Level 5	At Level 5, students can identify the scientific components of many complex life situations, apply both scientific concepts and *knowledge about science* to these situations, and can compare, select and evaluate appropriate scientific evidence for responding to life situations. Students at this level can use well-developed inquiry abilities, link knowledge appropriately and bring critical insights to situations. They can construct explanations based on evidence and arguments based on their critical analysis.

Programme for International Assessment (PISA)

4	558.7	29.3% of students across the OECD can answer questions at least at Level 4	At Level 4, students can work effectively with situations and issues that may involve explicit phenomena requiring them to make inferences about the role of science or technology. They can select and integrate explanations from different disciplines of science or technology and link those explanations directly to aspects of life situations. Students at this level can reflect on their actions and they can communicate decisions using scientific knowledge and evidence.
3	484.1	56.7% of students across the OECD can answer questions at least at Level 3	At Level 3, students can identify clearly described scientific issues in a range of contexts. They can select facts and knowledge to explain phenomena and apply simple models or inquiry strategies. Students at this level can interpret and use scientific concepts from different disciplines and can apply them directly. They can develop short statements using facts and make decisions based on scientific knowledge.
2	409.5	80.8% of students across the OECD can answer questions at least at Level 2	At Level 2, students have adequate scientific knowledge to provide possible explanations in familiar contexts or draw conclusions based on simple investigations. They are capable of direct reasoning and making literal interpretations of the results of scientific inquiry or technological problem solving.
1	334.9	94.8% of students across the OECD can answer questions at least at Level 1	At Level 1, students have such a limited scientific knowledge that it can only be applied to a few, familiar situations. They can present scientific explanations that are obvious and follow explicitly from given evidence.

Programme for International Assessment (PISA)

What IPST do to help our Children pursuing in the Current and Future World?

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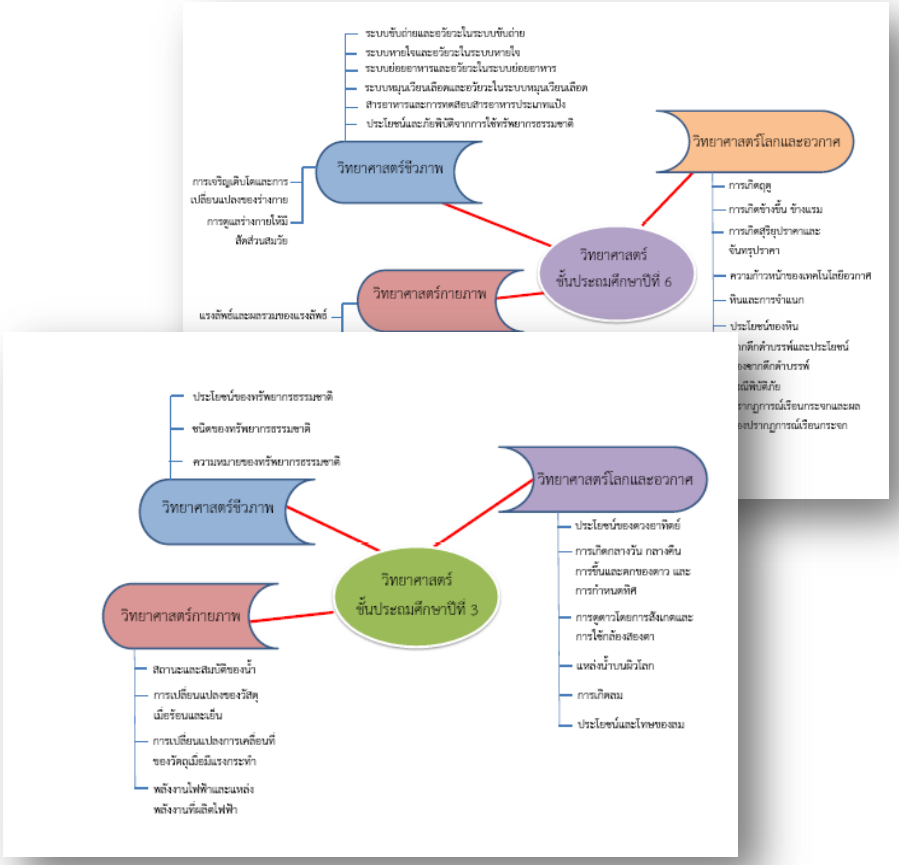
- To develop the 21st Century Standards
- To prepare future teachers through premium and super premium scholarships



- To research and develop the learning material promoting the learning of Science, Thinking skills and Reading literacy (STaR Project).

- To develop PD curriculum for Thai and foreign teachers who teach Science in bilingual classroom.

Recommendations

- While we are as part of the global community, we cannot deny all those significant trends that are surrounding us.
- we should concern the importance of language literacy not only Thai, but also English as a tool for learning and communication.

Thank You !