

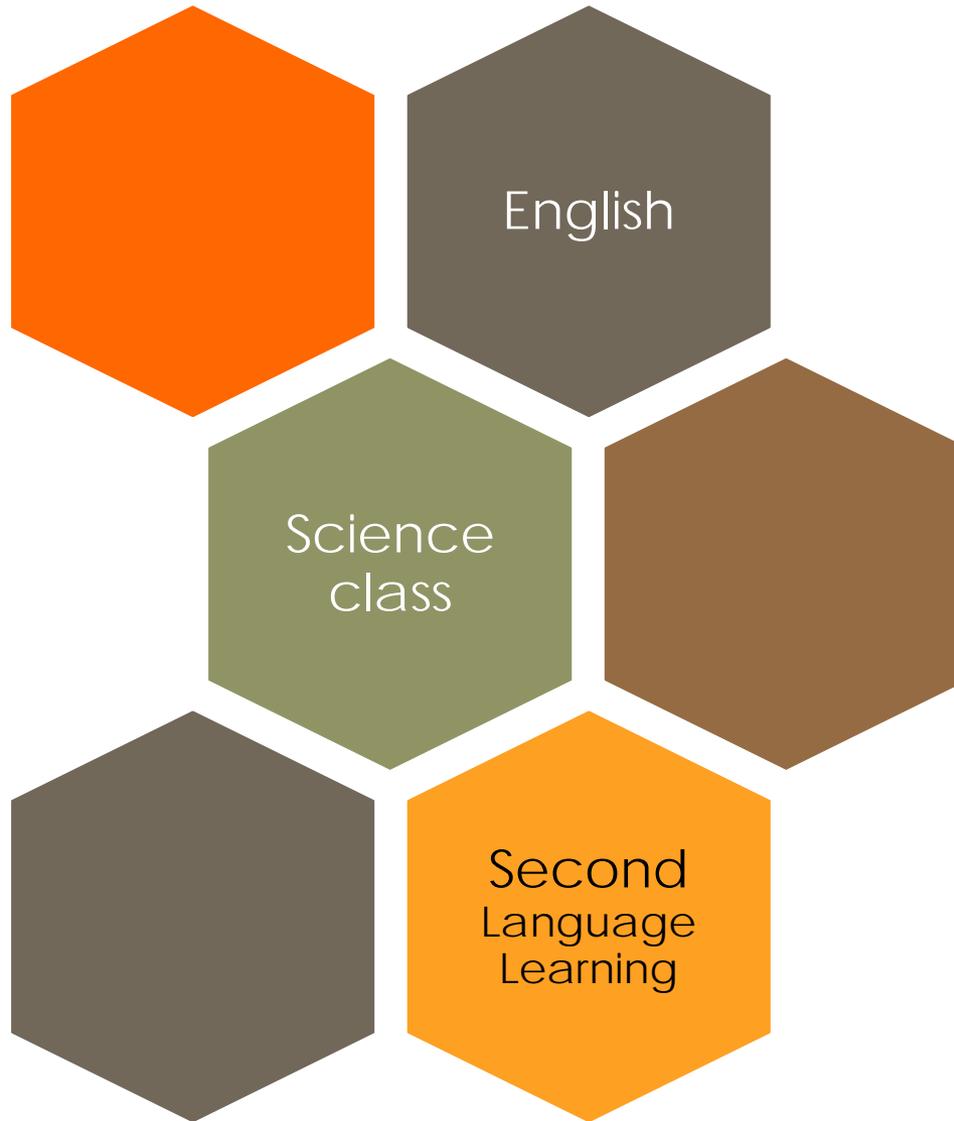


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**USING ENGLISH IN
SCIENCE CLASS
AS AN ATTEMPT
TO MAXIMIZING
INPUT IN SECOND
LANGUAGE
LEARNING**

Key words



Rationale

To face the challenges in Millenium 21, it is required to prepare Indonesian human resources.



It has been realized by Universitas Negeri Malang through its several lab schools that have been implementing content subjects in English as a medium of instruction since 2006

Rationale

The laboratory schools of Universitas Negeri Malang have some specialties:

1. Use a synergized curriculum of the National Curriculum of Indonesia and the International Framework.
2. The learners are taught through English as the medium of instruction in the school subjects, Science and Mathematics
3. The materials used are the teacher's own product.
4. The lower classes (1st-3rd grades) are taught in full English in the so-called 'International Class Program' (ICP in short).
5. The upper classes (4th-6th grades) are taught in bilingual system, i.e. in Indonesian and English.
6. Learners are prepared to be ready for the national as well as the international examinations

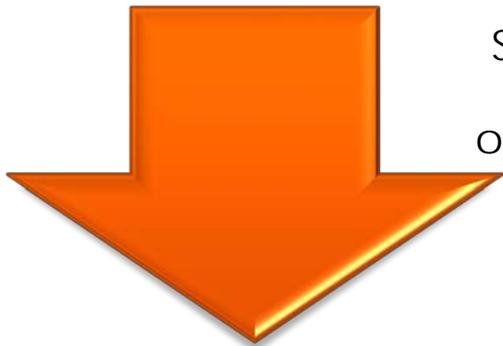
- To respond to the challenges above → the ICP has its own framework in which two subject matters – Science and Math are taught in full English and the subject of English is more enriched by English literature in simplified versions.
- Integration is now a key concept in modern era and can be accommodated within the **CLIL** educational approach.
- As supported by Benvenuto and Lastrucci (2008) , Yassin, Marsh, Tek, and Ying , (2009) , and Yassin, Marsh, Tek, and Ying (2010)

The aim of this study

(1) to examine the process of teaching and learning of Science through English

(2) to examine its impact of acquiring a second language

The Interconnection between SLA concept and CLIL Practices



Swain and Lapkin (1982), Marsh et al (2000), and Bournot-Trites and Reeder (2001)' observations show that **the second language does not negatively influence** the children ability in understanding the subejct.



The improvement of the language comes from supplying communicative and comprehensible input, and not from forcing and correcting production (Krashen, 1981).



- The idea of integrating content and language develops gradually as a piece of science in the area of education that is then so-called *Content and Language Integrated Learning* (CLIL).
- Interestingly, Coyle, Hood, & Marsh (2010) mention that CLIL is a dual-focused educational approach in which the teaching and learning process focuses not only on the content or subject and not only on language because the **targeted outcome is on both the content and language**.

Table 1. Blended Content for Science Framework

Science-based Topics	Competences
Biology	<p>Recognizing human senses and their functions</p> <p>Recognizing plants with their roots, leaves, stems, and flowers</p> <p>Recognizing the process of taking up water from roots to stems</p> <p>Recognizing the growth of plants in connection to temperature</p> <p>Exploring various healthy foods for healthy life</p> <p>Exploring physical activities which are good for health</p>
Physics	<p>Observing moving objects depending on the shape and size</p> <p>Exploring how force can change the shape of objects</p> <p>Exploring how force makes objects move and stop</p> <p>Exploring how force can make objects move fast, slowly or change direction.</p>
Chemistry	<p>Recognizing objects with magnet and with no magnet</p> <p>Recognizing the nature of things (solid, soft, shining)</p> <p>Selecting things based on the nature for particular purposes</p>

Rachmajanti and Anugerahwati (2014)

90 learners from the primary schools (Grade 1-6)

66% stated that the materials from modules were interesting to be learned

78.4 % learners admitted that they often obtained good score in English since they thought that English was easier than other subjects,

56.8 % learners also admitted that sometimes they got satisfactory scores in Math

60.8 % learners stated that they often reached good scores in Science

Descriptive Quantitative

- **The aim** : To describe the process of acquiring English through Science
- **The Subjects** : 2 teachers and 39 third graders (from 2 parallel ICP classes) of Primary Laboratory School of Universitas Negeri Malang. 1 Class as the subjects of **tryout**, the other class as the subjects of the **real study**

Instruments

Documents on the school guidelines

The framework of Science

A questionnaire

An interview guide for teachers

Classroom observation sheets

15 test items on Science

The interview and questionnaire outlining 36 questions on 6 basic elements:

(1) Activating prior knowledge,

(2) Guiding understanding,

(3) Focus on language,

(4) Focus on speaking,

(5) Focus on writing,

(6) Assessment, review, and feedback was analytically and elaborately presented.

A. The process of Teaching and Learning of Science in English

- | | |
|--|---|
| 1) Activating prior knowledge | : The teachers often activate the prior knowledge of both IIIA and IIIB differently due to the different learning characteristics they have |
| 2) Guiding understanding | : The learners of IIIA are much more active compared to IIIB, so that the variety of stimulating questions is different. |
| 3) Focus on language | : the teachers in both IIIA and IIIB never help learners notice the similarities and differences between English and <i>Bahasa Indonesia</i> |
| 4) Focus on speaking | : the teachers of Science in both IIIA and IIIB often encourage learners to speak |
| 5) Focus on writing | : the teachers of Science in both classes always encourage their learners to produce written product |
| 6) Assessment, review, and feedback | : the teachers of Science in both IIIA and IIIB always give feedback on the language of their learners |

The Result of Language Comprehension and Production In the Course of Tryout

High
achievers

92 to 79

(9 learners/47%)

Comprehend **all**
the meaning of
technical terms

Mid
achievers

78 to 66

(6 learners/32%)

Understood **most**
of technical
terms

Low
achievers

65 to 51

(4 learners/21%)

Understood **a
few** of technical
terms

In the Course of Real Study

High
achievers

95 to 81

(11 learners/52%)

Comprehend
most the meaning
of technical terms

Mid
achievers

80 to 66

(7 learners/33%)

Understood **some**
of technical terms

Low
achievers

65 to 50

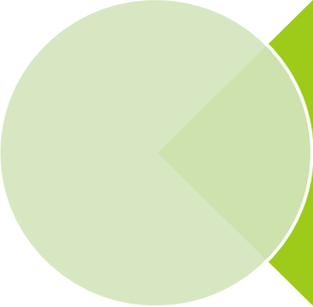
(3 learners/14%)

Understood **a few**
of technical terms

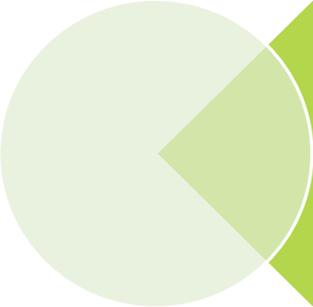
Based on the result of findings, we can put forward some points:

- Three levels of proficiency comprehend words, phrases, imperatives, declarative and interrogative statements on Science which are reflected in the way they gave responses.
- The learners in all levels undergo what Krashen (1981) called 'interlanguage'
- The learners have learned English through Science by using CLIL approach
- The learners should be exposed by a lot to language input before they are able to use the language

Conclusion



The teaching and learning process of Science in Primary Lab School of UM are conducted in English



The teachers in both IIIA and IIIB have adopted some pieces of CLIL principle aspects



The English-based Science instruction provided positive impact on the learners' language comprehension and language production

The teachers should

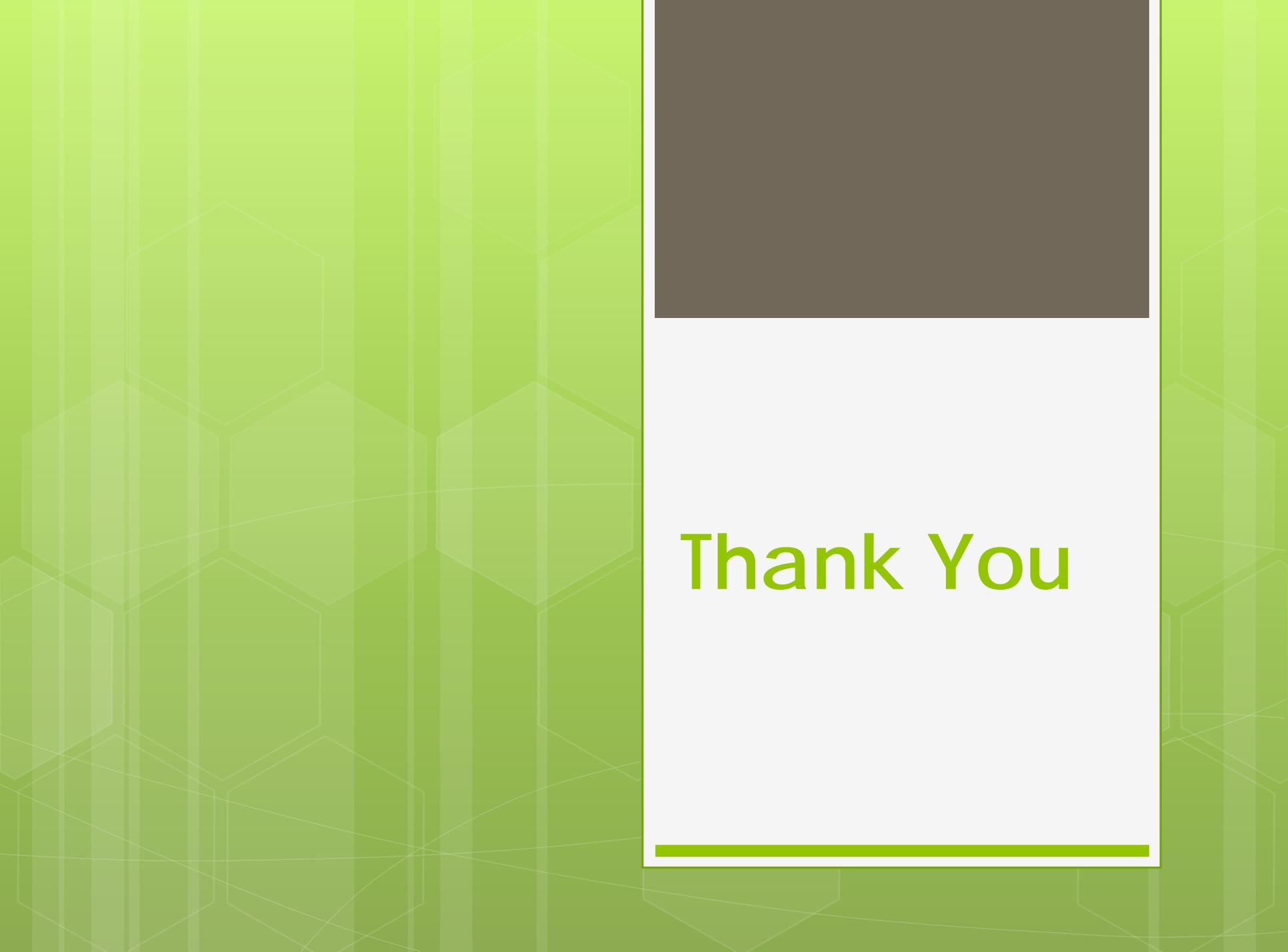
Make use of the mapping of language comprehension and production

Provide more intentional practices on the application of the linguistic features which mostly troublesome for the learners

Construct HOTS-based questions for Science

The school should

Conduct regular supervision, monitoring, and evaluation to promote the teachers' awareness that content and language are both prominent particularly for starter

The image shows a presentation slide. The background is a light green color with a pattern of faint, overlapping hexagons. On the right side, there is a white rectangular box with a thin black border. Inside this box, the words "Thank You" are written in a bold, green, sans-serif font. Above the text, there is a solid dark grey rectangular area. At the bottom of the white box, there is a thick, horizontal green bar.

Thank You