The Impact of Medium of Instruction on University Students' Content Learning in Japanese Higher Education

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Introduction and aims

This study, focusing on undergraduate students in Japan as primary stakeholders in EMI, aims to:

1. investigate whether medium of instruction has any influence on Japanese university students' content learning. (RQ1)
2. examine in what ways (if any) the implementation of EMI and JMI chemistry class differs (RQ2)
3. examine language-related challenges faced by Japanese medium instruction (JMI) and EMI students. (RQ3)
4. explore the relationship between students' English proficiency and content learning. (RQ4)

EMI in Japan

The 'Top Global University Project' (TGUP) A 10-year, multimillion dollar investment initiative (37 participant universities)

Over 40% of Japan's 781 universities offer EMI, almost 38% increase from 2008 (MEXT, 2015).

Table: Japanese universities offering subject classes taught in English by year (undergraduate programmes)

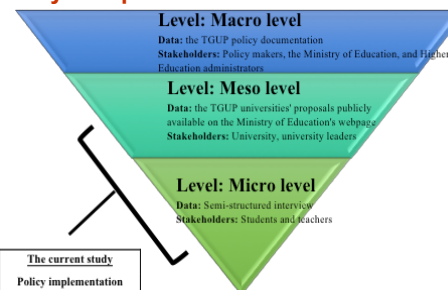| Year	Number of universities
2008	190
2009	194
2011	222
2012	241
2013	262
2014	274
2015	305

19 universities now offer sufficient classes in English to allow students to graduate without taking additional classes in Japanese (MEXT 2015).

Driving forces behind EMI

EMI is synonymous with internationalisation of higher education.

- **English proficiency** in addition to **content knowledge**
- intercultural understanding and **global awareness/citizenship**
- **Career opportunities**
- **Staff employment**
- Access to cutting-edge knowledge and increasing **global competitiveness** to raise **the international profile**
- **Student and lecturer mobility**

Reservation about EMI – gap between policy and practice

Source: Aizawa and Rose (2019)

The benefits of EMI are not guaranteed. EMI can present serious issues to all stakeholders (Olsen & Huckin, 1990).

1. Language used as the medium of instruction
2. Students' language proficiency
3. Students' language-related challenges
4. Teachers' language proficiency and training
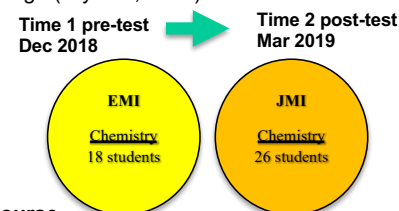
Method

Setting

- Private, bilingual university in Tokyo (TGUP funded)

Table: The number of classes taught in English

	2013	2016	2019	2023
Number of classes taught in English (A)	240	345	441	560
Number of classes at the university (B)	1,451	1,400	1,400	1,400
Proportion (A/B)	16.5%	24.6%	31.5%	40.0%

Design and participants

The pretest–posttest non-equivalent control group design (Bryman, 2008)

Time 1 pre-test Dec 2018 → **Time 2 post-test Mar 2019**

EMI
Chemistry
18 students

JMI
Chemistry
26 students

Course

	Condition of Chemistry course
Same	content, objective, teaching style, difficulty, textbook
Different	instructor, medium of instruction (English/ Japanese)

Data collection and procedure

RQs	Instruments & Data
RQ1	・Pre-post content tests ・Student and teacher interviews ・EMI students' final exam scores and final grades
RQ2	・Student and teacher interviews ・Classroom observations
RQ3	・Student and teacher interviews ・Questionnaire on challenges
RQ4	・IELTS scores ・Questionnaire on challenges ・Student and teacher interviews

Analysis

RQs	Analysis
RQ1	・A t-test of gain scores (within-subject) ・An independent-samples t-test (between-subjects) ・Qualitative content analysis
RQ2	・Qualitative content analysis
RQ3	・Descriptive statistics ・Qualitative content analysis
RQ4	・An independent samples t-test ・A linear/ multiple regression ・Qualitative content analysis

Findings

Score change within EMI and JMI

There is a **statistically significant difference between the pre-test and post-test scores** for both EMI and JMI students (Pre-test: Mean 2.763 for EMI, 2.560 for JMI, Post-test: Mean 9.75 for EMI, 9.22 for JMI).

Gain scores between EMI and JMI

There is **no significant difference between EMI and JMI students** (Mean 7.32 for EMI, 7.10 for JMI) ($t_{[41]}$ =.182; p =.856; d = .057).

Post-test and academic English challenges

There is a **correlation between the students' post-test scores and challenges** [r = 0.540, n = 17, p = 0.05]. (i.e. Lower performing students of the post-test face more challenges in EMI than their higher performing counterparts)

References

Aizawa, I. & Rose, H. (2019). An analysis of Japan's English as medium of instruction initiatives within higher education: the gap between policy and practice. Higher Education.

Bryman, A. (2008). Social research methods. Oxford: Oxford University Press.

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