

## ***English-medium Instruction in the University Context of Korea: Tradeoff between Teaching Outcomes and Media-initiated University Ranking***

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English-medium instruction (EMI) has become popular in universities in Korea. The trend, spurred by the media-initiated university rankings and the globalization policy of Korean universities, has been found to bring about several adverse effects. The purpose of this research was to investigate the perceptions of the implementation of EMI at a science and engineering university in Korea and the effects of EMI on content teaching and learning outcomes, and to suggest ways to maximize the advantages of the policy while decreasing its disadvantages. Questionnaires were administered to 41 faculty members, 439 undergraduate students and 403 graduate students of a university that has enforced the EMI policy since 2010. To examine in-depth the opinion and perception of the policy, structured interviews were also conducted with seven professors, ten undergraduate students and eight graduate students. The questionnaire and interview results show that the EMI policy implemented in an EFL context proved to be ineffective and unsuitable in delivering course content due to the limited English proficiency of professors and students. Professors and students also demonstrate strong opposition to the policy because it was imposed unilaterally by the university without their support and consensus. Suggestions from the perspectives of ESL/EFL practitioners are provided to minimize the side effects of the EMI policy in an EFL context.

**Key words: English-medium instruction (EMI), EFL context, Teaching and learning outcomes, Higher education in Korea**

## INTRODUCTION

The spread of English as a *lingua franca* has affected business, science and technology, education, culture, religion, language, and politics since the early 20<sup>th</sup> century, and its influence has now permeated virtually all fields of society worldwide. Globalization, internationalization and particularly the advent of the Internet have facilitated the use of English in every segment of life. Adopting English as a tool of teaching in an EFL context, especially at the university level, represents the power of the language in academia and internationalization or globalization spurred by the English language. This trend is clearly witnessed in countries where English has been learned and taught as a second or foreign language, and has thereby influenced higher education in these countries (Brown and Jones, 2007). One of the most notable phenomena is the implementation of English-medium instruction (EMI) in non-Anglophone countries in East Asia (Huang, 2006), Africa, the Middle East and Europe (Coleman, 2006), or those in expanding circles (Kachru, 1990). The increase of EMI in the expanding circles is attributable to academic and economic purposes in the belief that using English in higher education settings will help students acquire higher English proficiency, which, in turn, will secure a better, promising future career for them.

In Korea, several leading universities have recently adopted EMI, to avoid lagging behind the trend, but have not considered EMI's advantages and disadvantages. The adoption of EMI in higher education settings in Korea has been accelerated by the influence of media-initiated university rankings, one of the important criteria of which is the globalization index such as the percentage of English-medium classes and the proportion of international faculty and students. Since 1994, the *Joong-ang Daily News*, one of the most influential newspapers in Korea, has ranked universities, thus sparking competitions between them; *Chosun Ilbo*, another influential newspaper, has also started to rank universities in Korea. The influence of these news media on academia has been so great that major universities in Korea have struggled to receive good evaluations from them. Under these circumstances, the academia seemed to believe that EMI was the easiest and most effective way to boost the university ranking because other criteria such as the

supremacy of research and excellence in education cannot be attained in a short period of time.

The Korea Advanced Institute of Science and Technology (KAIST), a science and engineering university, announced in 2006 that all lectures, even courses on Korean history, Korean literature and foreign languages, should be given in English. Although EMI had been implemented in several universities for students whose majors were international relations or international business, KAIST was the first one to offer all lectures in English. Following KAIST's lead, another science and engineering university, Pohang University of Science and Technology (POSTECH), has adopted EMI. In the spring semester of 2010, about 88% of undergraduate courses and 95% of graduate courses at POSTECH were taught in English. However, the policy was implemented without consulting the faculty members and students.

On the surface, the EMI policy of the school seems to have run smoothly but our in-depth investigation of the policy has revealed numerous adverse effects mostly caused by the less than fluent English skills of the professors and students. These effects include a decline in learning outcomes, a reduction in the amount of discussion and the number of questions in class, and increasing anxiety. The top-down process by which the EMI policy was implemented has also damaged the pride and autonomy of the faculty members and led to resistance to the policy.

Facing these problems, EFL practitioners and instructors need to address the EMI policy from the perspective of English for specific purposes and/or academic purposes (ESP and/or EAP) and to propose ways to accommodate the opinion of the faculty and students about the policy.

## **LITERATURE REVIEW**

EMI has long been an important policy in Europe. Research on EMI (Jensen & Johannesson, 1995; Jochems, 1991; Jochems et al. 1994; Vinke, 1994; Vinke, 1995; Vinke & Jochems, 1993) was conducted in higher education settings in the Netherlands and resulted in a comprehensive study on the theme (Vinke, 1995).

Based on previous studies on the effect of foreign language proficiency on learning outcomes, Jochems (1991) claimed that teaching in a foreign language in the Netherlands will have considerable negative effects on learning outcomes, mainly due to the limited language proficiency of students and instructors. Jochems et al. (1994) also pointed out that using English as a language of instruction in the country might negatively affect teachers and students, thereby decreasing the quality of teaching and learning outcomes. Vinke's results agreed with the previous studies in that EMI would have overall negative effects on instruction outcomes. In particular, Vinke (1995) drew several conclusions based on the findings of a comprehensive, empirical, and in-depth study on EMI. First, adopting English for engineering education at university levels, compared to giving lectures in Dutch, had negative effects on the teaching and learning of course content due to linguistic limitations, an increase in workload, and anxiety. Second, the quality of teaching depended on instructors' experience and command of English. Experienced teachers with high English proficiency were less likely to have a negative experience from teaching engineering course in English than teachers with low proficiency. Third, switching from Dutch to English had a moderately negative effect on the teaching behaviors of teachers. Fourth, EMI in the country moderately reduced students' learning outcomes. In short, EMI in the Netherlands generally had a negative effect on instructors, students and teaching outcomes, although the effect was considered to be minimal.

In contrast, some studies have reported that adoption of EMI has positive effects. Jensen and Johannesson (1995) reported a positive effect of EMI on the influx of international students to the Technical University of Denmark, and claimed that the number of incoming foreign students has increased by 100% since the implementation of EMI at the university. They also added that both international and Danish students were satisfied with the professors' linguistic competence and that most Danish students reported that their English proficiency improved during the course. Based on these findings, Jensen and Johannesson concluded that the internationalization was progressing successfully. In Austria, Paseka (2002), conducting a study on EMI in a sociology class, reported the advantages of EMI. It helped both students and instructors participating in the project to become aware of

the significance of internationalization and English as an instruction tool. Along with the research on EMI and its effect on the quality of education, other investigations were conducted on ways to effectively implement EMI. Klaassen and Graaff (2001) showed that workshops for instructors in the Netherlands had a positive influence on the perceptions of EMI and Paseka (2002) suggested that systematic and structural assistance should be provided to make the implementation of EMI successful.

EMI research in Africa has been conducted to determine its effect on the use of African languages, language policy, and English proficiency. Brock-Utne and Holmarsdottir (2001) presented the choice of English as a medium of instruction and its effects on African languages in Namibia. Analyzing language policies of the country, they claimed that choosing English as a medium of teaching and the government's attempt to make English an official language of the country since its independence have reduced interest in local languages and has expelled them as a medium of publication. In South Africa, Heugh (2002) conducted a study on the effect of EMI on bilingual and multilingual education, and recommended that the mother tongue be used for the teaching in content courses. In southern Africa, Uys et al. (2007), investigating the effect of EMI on English proficiency, reported that content teachers failed to improve the English skills of their students due to the instructors' inability to meet the language-related needs of students, lack of teaching strategies for the promotion of the skills, and their limited language proficiency.

EMI has also been implemented and researched in Asian countries such as Turkey, Indonesia, Vietnam, Japan and Korea. Two studies conducted in Turkey (Kirkgoz, 2005; Sert, 2008) reported negative effects of EMI, such as students feeling distanced from their native language and culture, and ineffective delivery of course content. A study conducted in Indonesia (Ibrahim, 2001) pointed to the problems with teaching content in English, such as the limited English proficiency of teachers failing to increase English skills of the students. With these findings, Ibrahim proposed a partial EMI program, in which teachers and students were allowed to use their mother tongue in specific situations such as discussion sessions and questions. Manh (2012), analyzing several aspects of using EMI at higher education in Vietnam, predicts that it will neither lead to expected learning

outcomes of university students nor increase in their language proficiency. In Japan, EMI research has been mostly conducted on how EMI policies have affected the internationalization of universities. Tsuneyoshi (2005) and Manakul (2007) reported that EMI had a positive effect on the internationalization of Japanese universities, and led to diversification of the student body and increase in awareness of internationalization. However, complications related to the limited English proficiency of faculty members, shortage of faculty members to volunteer to teach in English, and the cultural gap between Japanese teaching style and Western teaching style also emerged.

Korea is actively pursuing EMI in an EFL context and considerable research on the issue has been produced. In 2008, the percentage of classes taught in English at Korea University, a major university in Korea, was as high as 34% and that of Seoul National University was about 12% (Kim, D. 2010). The percentage of EMI at the university where research for this article was conducted was about 25% in 2009 and increased to 88% for undergraduates and 95% for graduate students in the spring semester of 2010. In the midst of the rapid increase in EMI in Korea, in-depth investigations on the topic have also been conducted. Research on EMI in Korea has mainly dealt with its effect on content learning, and suggestions for the effective operation of EMI. Kang and Park (2004) reported that EMI for engineering education failed to both boost interest in the class and foster communication and did not foster communication between instructors and students. Investigating students' perceptions of EMI at a university, Lee (2007) also mentioned that classes given in English neither motivated interest in classes nor led to active discussions and questions. Bang's research (2007) on university students' perception of EMI endorsed the previous studies. She reported that understanding level of major classes taught in English was 2.85 on a five-point Likert scale, indicating that EMI negatively affected the understanding of course content. Kim, S. (2010) claimed that EMI did not even help increase the English proficiency of the students who took a college English course. Rather, it contributed to a decline in the quality of teaching and learning. Oh and Lee (2010) interviewed faculty members of a university in Seoul, and concluded that EMI led to ineffective delivery of course content and increased the time required to prepare lectures. In contrast, a

study (Park, 2007) of students taking an introductory English linguistic course showed a positive effect of EMI on content learning.

At the university at which the current study was conducted, two surveys (2004 and 2008) indicated that EMI had positive effects on content learning and motivation, and survey respondents supported the policy. The first of these surveys (Lee et al., 2004) with graduate students and faculty members of the university reported supportive responses to the policy. At that time, the EMI policy was recommended by the school, but not required. Survey participants' opinion of the rationale behind teaching classes in English was elicited; "to foster the global mindset of students" accounted for 41% of the responses, followed by "due to the presence of international students," (20.5%) "to develop English presentation skills of students," (15.4%) and "to follow the policy recommended by the school and department" (10.3%). Of the participants, 64.1% of the professors and 51.9% of the undergraduate students expressed satisfaction with the classes taught in English. Likewise, 56.4% of the professors and 63.6% of the graduate students wanted to expand the EMI policy at the graduate school. The other survey with faculty members and undergraduate students (Hong et al., 2008) was conducted when teaching classes in English still remained optional; its results were similar to those of the 2004 survey. Of the faculty members, 55.6% responded that they chose to teach their courses in English to foster a global mindset of the students and to increase their English proficiency. Responses "due to the presence of international students in class" and "to follow the recommendation of the school" accounted for 29.6% and 11.1%, respectively. Satisfaction with classes taught in English was high; 75% of professors and 36.8% of students expressed their satisfaction.

To summarize, research on EMI in different contexts and countries reported mostly negative effects on content learning due to the limited English proficiency of instructors and students, lack of discussion in class, and the pressure from using English. The findings are fully expected since the classes were taught in an EFL context, where the English proficiency of instructors and students were not good enough to teach and learn course content in English. Even in the case of the Netherlands, where the general English proficiency of people is reported to be higher than that of Asian countries (EF English Proficiency Index, 2012), research

on EMI (Jochems, 1991; Jochems et al. 1994; Vinke, 1994; Vinke, 1995; Vinke and Jochems, 1993) presented almost the same results as those from research done in Asian countries such as Korea and Japan. Research conducted in Korea (Bang, 2007; Kang & Park, 2004; Kim, D, 2010; Lee, 2007; Oh & Lee, 2010) resulted in the similar findings. In contrast, some research done in Europe (Jensen and Johannesson, 1995; Paseka, 2002) and Japan (Tsuneyoshi, 2005; Manakul, 2007) has shown the positive effects of the implementation of EMI, such as attracting more international students and contributing to the internationalization of universities. These studies, however, did not investigate the issues emerging in classes, such as the teaching and learning outcomes, lack of discussion from poor English proficiency of instructors and students, etc. Lastly, it must be noted that some reports (Hong et al., 2008; Lee et al., 2004) on EMI in Korea presented the positive views of the implementation of EMI on content learning and motivation. These findings could be obtained probably because the professor and student respondents had sufficient English proficiency to deliver and understand lectures well and the professors had volunteered to teach their classes in English.

Following the research framework cited above, the research presented here aims to investigate the perceptions of the implementation of EMI at a science and engineering university in Korea and the effects of EMI on content teaching and learning outcomes, and to suggest ways to maximize the advantages of the policy while decreasing its disadvantages. The research questions are stated as follows:

- 1) How is the implementation of EMI mandated by school perceived by professors and students?
- 2) How does teaching classes in English affect the understanding of course content?

In addition, this study aims to examine the impact of the forceful implementation of EMI on the attitudes of the professors and students towards the policy by comparing its results to those of the two previous surveys of EMI policy done at the same university.

## RESEARCH METHODS

The data of this research were collected through questionnaires with faculty members, undergraduate students, and graduate students. Structured interviews were also administered to gather more in-depth opinions on the teaching of classes in English and on the EMI policy of the university.

### Questionnaires

Separate questionnaires for faculty members and for students (both undergraduate and graduate) were developed in the Korean language. The questionnaire for faculty members was designed to examine the research questions. The major components of the questionnaire were from the previous two surveys done in 2004 and 2008 at the same university where the current research was conducted. Personal information about faculty members such as their education and teaching and research experience was also included to obtain the overall picture of them.

The following were the questionnaire items given to them: (1) motivations for teaching classes in English, (2) the intention to continue teaching in English if the EMI policy of the school is repealed, (3) time taken to prepare classes in English compared with those in Korean, (4) satisfaction level with classes taught in English, (5) the effect of classes taught in English on the delivery of course content, and (6) factors for effective classes taught in English. Out of the six questions, questions (1) and (2) were to investigate perceptions of the implementation of the policy at the university and questions (3), (4), (5) and (6) were designed to examine the effect of EMI on the teaching of course content.

The questionnaire for graduate and undergraduate students was developed to investigate the research questions, focusing on their perceptions of the implementation of the EMI policy at their university and its effect on the learning of course content. The following were the items given to them: (1) perceptions of the necessity of classes being taught in English, (2) perceptions of the university's motivation for implementing the EMI policy, (3) opinion of the expansion of

classes taught in English, (4) factors that make classes given in English difficult to understand, and (5) effects of classes given in English on learning outcomes. Questions (1), (2) and (3) were designed to examine the perceptions of the EMI policy implementation of the school and questions (4) and (5) aimed to uncover the effect of EMI on the learning of course content.

Information about the questionnaires was sent to all faculty members and students by email at the end of May, 2010. The data were collected from May 31 to June 15. The numbers of the faculty, undergraduate, and graduate student respondents were 41, 439, and 403 respectively, which accounted for 16.5%, 37.2%, and 25.3% of the population of each group. To ensure anonymity, the identities of respondents were not collected. The questionnaires are not included in this paper due to a lack of space but are available upon request.

### **Structured Interviews**

To obtain in-depth opinions of classes given in English, structured interviews were administered to seven faculty members, ten undergraduate students and eight graduate students.

The faculty members were randomly selected from the faculty telephone list and contacted by the researcher. Ten faculty members, one from each department of the university, were originally contacted; seven were finally interviewed. Interview questions, the same ones used in the faculty questionnaire, were emailed to the interviewees before the interviews to make them be fully aware of the questions. The interviews took from 20 to 75 minutes depending on the faculty member's motivation and interest in the EMI policy of the school.

All of the interviewed faculty members had experience studying, researching or teaching in English speaking countries such as the USA or England. Six faculty respondents out of seven had had previous experience (2 to 13 years) teaching classes in English before 2010. Of these six professors, five had taught in English in graduate courses where there were international students. Interviews were also given to undergraduate and graduate students with the same questions used in the student questionnaires. To obtain enough interviewees, an announcement was

posted on the university website. The same announcement was also made in the classes where the researcher taught. Interview questions, the same ones used in the student questionnaire, were emailed to the interviewees before the interviews to make them fully aware of the questions. The interviews took about 20-30 minutes.

Ten undergraduate students participated in the interview. Out of them only one student had experience studying in an English-speaking country, England. All of them have studied at the university more than two years; seven were juniors and three seniors. Eight graduate students were interviewed. None of them had studied or researched in an English-speaking country but they all had experience attending international conferences. The interviews for both faculty members and students were given in Korean and were recorded with their permission.

## RESULTS

### Questionnaire Responses

#### *Perceptions of the implementation of EMI*

##### Faculty

As to the motivation for teaching in English, more than half of the faculty respondents answered that they lectured in English to meet the EMI policy required by the school. In decreasing order of frequency, other answers were “to follow the globalization policy of the school,” “to boost the global mind-set of students” and “to boost students’ overall English proficiency.”

**TABLE 1**  
**Faculty Members’ Motivation for Teaching in English**

Motivation	Number	Percentage
To meet the requirement of the EMI policy enforced by the school	36	52.9
To follow the school’s globalization policies	15	22.1

To increase the global mind-set of students	9	13.2
To boost students' overall English proficiency	7	10.3
To feel more comfortable teaching in English	1	1.5
Total	68*	100

\* Total exceeds the number of participants because more than one response was allowed.

In terms of the intention to continue teaching in English if the EMI policy of the school were no longer enforced, more than half (53.6%) of the respondents indicated that they would stop teaching classes in English if the requirement were lifted. Only 24.3% said that they would continue to teach in English in that case, and 21.9% did not know how they would respond. This result implies that more than half of the professors did not support teaching in English mandated by the school.

**TABLE 2**  
**Intention to Continue Teaching in English**

Yes	No	Don't Know	Total
10(24.3%)	22(53.6%)	9(21.9%)	41(100%)

#### Students

The necessity of giving classes in English was affirmed by about 25% of the undergraduate respondents and 36% of graduate respondents. About 48% of the undergraduate students and 42% of the graduate students responded that classes given in English were not much needed or absolutely not needed.

**TABLE 3**  
**Necessity of Classes Given in English**

Category	Very much needed	Needed	Neutral	Not Much needed	Absolutely not needed	Total
Undergraduate	12 (2.8%)	95 (21.9%)	121 (27.9%)	82 (18.9%)	124 (28.5%)	434
Graduate	42 (10.6%)	100 (25.3%)	88 (22.3%)	73 (18.5%)	92 (23.3%)	395

In terms of the motivation for the implementation of the EMI policy, about one third of undergraduate and graduate respondents chose “to secure a high rank in university rankings” as the prime motivation for adopting the English-only lecture policy of the university (Table 4). The second most chosen response was “to promote the brand name of the school.” In contrast, the response “to attract international students and faculty members,” which was the claimed goal of the school policy, accounted for about 16% of all the responses of the undergraduate students and about 19% of those of the graduate students.

**TABLE 4**  
**Motivations for the Implementation of the EMI Policy**

Motivation	Undergraduates	Graduates
To secure a high rank in university rankings	281 (37.3%)	263 (31.8%)
To promote the brand name of the university	212 (28.2%)	254 (30.8%)
To attract international students and faculty members	117 (15.5%)	155 (18.8%)
To boost students' overall English proficiency	128 (17.0%)	134 (16.2%)
To increase the understanding of classes	15 (2.%)	20 (2.4%)
Total	753 (100%)*	826 (100%)*

\* Totals exceed the number of participants because more than one response was allowed.

As to the question of the expansion of classes given in English, about 67% of the graduate respondents and 60% of the undergraduate students expressed negative opinions, while only about 22% the undergraduate and graduate students supported the policy.

**TABLE 5**  
**Opinion to Expand Classes Given in English**

	Do not agree at all	Do not agree	Neutral	Agree	Absolutely agree	Total
Undergraduates	136 (31.6%)	122 (28.3%)	78(18.1%)	76(17.6%)	19 (4.4%)	431 (100%)
Graduates	152 (38.7%)	111 (28.2%)	44(11.2%)	60(15.3%)	26 (6.6%)	393 (100%)

*Effects of EMI on the teaching and learning of course content*

## Faculty

In terms of the preparation time for classes in English compared to those in Korean, 52.9% of the faculty respondents answered that it took longer to prepare in English than in Korean. The rest indicated that preparation time was the same in both languages. None responded that preparing classes took less time in English than in Korean. This result implies that more than half of the faculty members spent more time preparing classes in English than they did in Korean.

**TABLE 6**  
**Time to Take for Preparing Classes in English**

	Yes	No difference	Took shorter	Total
It took longer to prepare for classes in English than in Korean	21 (51.2%)	20 (48.8%)	0 (0%)	41 (100%)

As to the satisfaction level with classes taught in English, only 14.6% of the faculty responded that they were satisfied with the classes given in English. The major reasons for satisfaction were that the classes helped increase students' English proficiency, that classes given in English delivered course content better than those in Korean, and that thorough preparation of classes in English led to higher satisfaction. In contrast, nearly half of the respondents answered that they were dissatisfied (43.9%) or highly dissatisfied (2.5%) with classes given in English. Reasons given were that discussions between students and teachers and among students were repressed due to the students' inadequate English proficiency, that students asked fewer questions, and that delivering course content effectively was difficult due to the their inadequate English proficiency.

**TABLE 7**  
**Satisfaction with Classes Given in English**

Satisfaction level	Highly satisfied	Satisfied	So so	Unsatisfied	Highly unsatisfied	Total
	0 (0.0%)	6(14.6%)	16(39.0%)	18(43.9%)	1(2.5%)	41(100%)

As to the factors leading to successful and effective classes taught in English, 53.6% of faculty respondents considered English proficiency of professors “important,” and 36.6% of them considered it “very important.” Similarly, 63.4% of them considered English proficiency of students “important,” and 24.4% of them considered it “very important.” They thought that the English proficiency of professors and students played an important role in delivering and understanding course content.

**TABLE 8**  
**Factors Leading to Successful and Effective Classes Given in English**

Factor	Very important	Important	Neutral	Not that important	Absolutely not important	Total
English proficiency of professors	15 (36.6%)	22 (53.6%)	4 (9.8%)			41 (100%)
English proficiency of students	10 (24.4%)	26 (63.4%)	5 (12.2%)			41 (100%)
Enough references and supplementary materials	2 (4.9%)	12 (29.3%)	21 (51.2%)	5 (12.2%)	1 (2.4%)	41 (100%)
Adjustment of teaching speed considering students' English proficiency	10 (24.4%)	19 (46.3%)	9 (22.0%)	2 (4.9%)	1 (2.4%)	41 (100%)
Flexible use of Korean in classes	4 (9.8%)	13 (31.7%)	15 (36.5%)	3 (7.3%)	6 (14.6%)	41 (100%)
Awareness of English-medium instruction	9 (22.0%)	15 (36.6%)	9 (22.0%)	5 (12.2%)	3 (7.3%)	41 (100%)

## Students

Overall, both graduate and undergraduate students had negative opinions of the effectiveness of classes taught in English. The degree of participation and interest in classes was fairly low. More than 68% of the graduate and 60% of the undergraduate students indicated that class participation in the classes taught in English was lower than in those taught in Korean. Classes given in English also failed to attract students' attention; about 70% of the undergraduate students and 76% of the graduate students responded that interest in classes taught in English was lower or much lower than those given in Korean.

**TABLE 9**  
**Effects of Classes Taught in English on Variables Leading to Successful Learning Outcomes, Compared to Those in Korean**

Factor	Category	Very high	High	Neutral	Low	Very low	Total
Participation in class	Undergrad	7 (1.6%)	41 (9.5%)	122 (28.2%)	66 (15.3%)	196 (45.4%)	432
	Graduate	2 (0.5%)	28 (7.1%)	94 (23.7%)	77 (19.5%)	195 (49.2%)	396
Concentration in class	Undergrad	11 (2.5%)	38 (8.8%)	80 (18.4%)	42 (9.7%)	263 (60.6%)	434
	Graduate	6 (1.5%)	26 (6.5%)	65 (16.4%)	65 (16.4%)	235 (59.2%)	397

Similarly, the classes given in English helped neither to improve English proficiency of the students nor to increase their confidence in English (Table 10), which were the goals of the EMI policy of the school; 67% of the undergraduate students and 54% of the graduate students pointed out that classes taught in English did not help to improve their English proficiency. Students also indicated that classes in English did not help them to gain confidence in the language. More than 72% of the undergraduate students and 56% of the graduate students presented this view.

**TABLE 10**  
**Effects of Classes Taught in English on Improvement of English Proficiency and Gaining Confidence in English**

Factor	Category	Very high	High	Neutral	Low	Very low	Total
Improved English proficiency	Undergrads	7 (1.6%)	34 (7.9%)	101 (23.5%)	104 (24.2%)	184 (42.8%)	430
	Graduates	17 (4.3%)	52 (13.1%)	115 (29.0%)	100 (25.2%)	113 (28.5%)	397
Improved confidence in English	Undergrads	3 (0.7%)	32 (7.5)	82 (19.2%)	91 (21.3%)	219 (51.3)	427
	Graduates	16 (4.0%)	54 (13.6%)	102 (25.7%)	87 (21.9%)	138 (34.8%)	397

In terms of the reasons to make classes taught in English hard to understand, professors' limited English proficiency was the most frequently chosen reason, followed by their own limited English proficiency and difficult course content (Table 11).

**TABLE 11**  
**Reasons Why Classes Taught in English are Hard to Understand**

Causes	Undergraduates	Graduates
Professors' limited English proficiency	278 (31.6%)	221 (28.2%)
Students' limited English proficiency	229 (26.0%)	196 (25.0%)
Difficult course content	222 (25.3%)	205 (26.1%)
Professors' unorganized teaching and unpreparedness for class	108 (12.3%)	127 (16.2%)
Students' low level of intellectual abilities to understand course content	42 (4.8%)	35 (4.5%)
Total	879 (100%)*	784 (100%)*

\* Totals exceed the number of participants because more than one response was allowed.

## **Interviews**

### *Perceptions of the implementation of EMI*

#### Faculty

In terms of their intention to continue teaching in English, two professors responded that they would definitely continue teaching in English. Responses from the other five professors varied according to who would be in their classes. Three professors mentioned that they would teach in English only when foreign students were enrolled in their classes, and two professors responded that they would teach in English for graduate students only. These responses imply that the professors understand the significance of teaching in English for classes consisting of international students and graduate students, but that they would not agree to teach in English for classes of Korean undergraduate students. One professor mentioned,

When I was teaching an undergraduate course in English, half of the students were graduate students who had not taken the course during their undergraduate years. I found that the graduate students were generally better and faster in understanding my lecture than the undergraduates since I thought that the graduates had normally higher English proficiency and background knowledge about the course than the undergraduates. Facing this, I wondered whether I had to continue teaching in English for undergraduates. To be honest, I don't want to teach undergraduates in English unless the school urges professors to do so.

In terms of the opinion of the EMI policy mandated by the school, all of the professors, including two who expressed strong willingness to continue teaching in English, commented that the policy was implemented without the consensus of faculty members and thus provoked strong opposition. One professor mentioned,

How to deliver course content should be first considered when teaching.

Teaching in English should not be used as a way for public relations of the school. And even though I support the EMI policy of the school, having it mandated is not desirable at all. That's why there has been much objection to the policy from professors.

*Effects of EMI on the teaching and learning of course content*

Faculty

In terms of the effectiveness of classes taught in English, compared to those in Korean, five professors expressed negative opinions. Two professors were most harsh about their ineffectiveness, claiming that the percentage of delivering course content on their part and understanding it from the students' part seemed to be only 50%, if that of a class taught in Korean is assumed to be 100%. One professor, who had obtained his Ph. D. in the US and had taught in the US for three years as an assistant professor, mentioned,

Compared to classes given in Korean, the effectiveness of those taught in English is pretty low, say, about 50%. In particular, when I was explaining a new, difficult concept of Mathematics in English, I had a hard time. And it seemed to be also difficult for students to understand it. If I had taught my classes in Korean, I could have explained new concepts in different and various ways and made students better understand.

**TABLE 12**  
**Interview Results of Seven Faculty Respondents**

Question	Response	Number of respondents
Experience teaching classes in English before 2010	All classes	1
	None	1
	3-4 times	1
	Graduate classes only	2
	Only when foreign students are in class	2

Effectiveness of classes given in English, compared to those in Korean	Unsatisfactory	1
	50%	2
	70-80%	2
	Satisfactory; no difference	1
	Low for 1 <sup>st</sup> -2 <sup>nd</sup> year students, but okay for 3 <sup>rd</sup> -4 <sup>th</sup> year students	1
Intention to continue teaching in English	Yes	2
	No	1
	Only when foreign students are in class	2
	For graduate classes only	1
	Depending on students' opinions	1

### Students

Interviews with the graduate students and undergraduate students were analyzed in terms of the level of understanding classes taught in English compared to those in Korean, reasons that classes taught in English are difficult to understand, and problems with classes given in English. The major findings are presented in Table 13.

**TABLE 13**  
**Interview Results of Ten Undergraduate and Eight Graduate Students**

Question	Response	Undergraduate students	Graduate students
Level of understanding of classes given in English, compared to those in Korean	70%	5	1
	80%	3	3
	90%		1
	Varies by student	2	1
	No response		2
Causes of making classes taught in English difficult to understand ( <i>multiple answers allowed</i> )	Difficult course content	3	4
	Limited English proficiency of students	6	
	Limited English proficiency of instructors	1	1
	Limited English proficiency of both students and instructors	1	3

	Ineffective teaching & delivery skills of instructors	2	
	No comment	1	
Problems with classes given in English ( <i>multiple answers allowed</i> )	Lack of discussion & participation; passive towards asking questions (both students and instructors)	7	3
	Low understanding of course content	2	2
	Low level of concentration	1	
	Students with low English proficiency disadvantageous		1
	Unpreparedness of students and instructors		2
	Class quality lowered		1
	No comment	1	1

In terms of the level of understanding of classes taught in English, compared to those in Korean, reported levels of understanding ranged from 60% to 100% with most responses near 70%. Only one student reported little difference between classes given in Korean and English. He had studied in an English speaking county for six years during elementary school. However, he mentioned that his classmates seemed to have difficulty understanding classes given in English saying that:

In my case, I've not felt any difference between classes taught in Korean and in English because to understand Mathematics doesn't need a high level of English. However, it seems like my classmates experienced some difficulty understanding course content taught in English. I guess their understanding level of the classes is around 80%.

The graduate students showed similar opinions about the level of the understanding of the classes taught in English; the responses ranged from 50% to 90%, mostly around 80%, which is a bit higher than those of the undergraduate students.

As to the reasons classes given in English are difficult to understand, eight out of ten undergraduate respondents pointed to the limited English proficiency of professors and students alike. A student from Chemical Engineering commented that:

Professors in their fifties aren't usually fluent enough to deliver their lectures in English effectively. Their English sounds like Korean-style English, I mean, with a very strong Korean accent and limited use of vocabulary and sentences. In contrast, younger professors who have recently obtained their degrees are good enough.

However, one student identified his poor listening skills as the most critical reason for his difficulty understanding classes given in English:

Due to my poor listening skills, I had a hard time catching the major points of classes taught in English. If the classes were given in Korean, I would not have had to translate the content into English but those in English needed time to translate. This has made me fall a bit behind.

The graduate respondents' views of the reasons for making courses taught in English difficult to understand were similar to those of the undergraduates. Limited language proficiency of professors and students was indicated four times. Difficult course content was also commented four times, and lack of effective delivery skills was indicated twice. One student, a masters' candidate in Environmental Engineering, said,

The limited language proficiency of students and professors has made classes taught in English hard to understand. In particular, the major problem was caused from professors with poor English proficiency. These professors seemed not to have confidence in their English and this caused them not to be clear when they were talking.

As to the problems of classes taught in English, the main problems indicated by

the undergraduate students were lack of class participation such as few questions and unheated discussions, and a low level of concentration. In addition, a professor's unfavorable attitude towards questions asked in English by students was mentioned. A student from Electrical Engineering said:

A professor of the class I took last semester seemed not to encourage students to ask questions. It appears that he did not like to get questions from students. This is probably because he is not fluent enough to answer questions, in particular, unexpected questions in English.

The graduate respondents agreed with the undergraduates. They pointed to the low level of understanding of classes, lack of interaction and discussion between students and professors, and the disadvantage experienced by students with limited English proficiency. One student indicated

Students with low English proficiency are at a disadvantage since they do not completely understand classes taught in English. This is very unfair because one's English proficiency will have a great effect on the understanding of course content. I believe that if the classes I took had been taught in Korean, I would have understood them much better and got a better grade.

## **DISCUSSION AND CONCLUSION**

The results of the questionnaires and structured interviews with professors and graduate and undergraduate students of a science and engineering university in Korea present several important implications for running an EMI policy in an EFL context. Firstly, professors and students agree that classes taught in English are not as effective as those given in Korean. If classes in Korean represent the highest level of possible comprehension, classes in English tended to vary from not quite as effective to only half as effective. This was mainly caused by the limited English

proficiency of professors and students, followed by difficult course content. The findings of this research are consistent with those of the previous research on EMI conducted in EFL contexts in Europe, Indonesia and Korea. Research conducted in Europe (Jochems, 1991; Jochems et al., 1994; Vinke, 1994; Vinke 1995; Vinke & Jochems, 1993) has reported the negative effects of adopting EMI on learning outcomes due to the limited language proficiency of students and instructors. Research conducted in Asia (Bang, 2007; Ibrahim, 2001; Kang & Park, 2004; Kim, D. 2010; Kim S. 2010; Lee, 2007; Park 2007) has also presented similar results in that classes taught in English failed to boost the interest of the students and to encourage communication between students and instructors, thereby contributing to lower learning outcomes.

The findings of this research are strikingly different from the responses to the same questions observed in surveys conducted in 2004 and 2008 at the same university. In the 2004 survey, when teaching in English was of professors' own volition, 64.1% of the professors and 51.9% of the students expressed satisfaction with the classes taught in English. Likewise, 56.4% of the professors and 63.6% of the graduate students wanted to expand the EMI policy at the graduate school. In the 2008 survey, the satisfaction rate of classes taught in English was high. That is, 75% of professors and 36.8% of students expressed their satisfaction with them. Also, 74% of the professors responded that they would continue to teach in English. This support for the EMI policy increased to about 88% in the 2008 survey, when teaching in English was recommended by the school, but not required. However, the mandated EMI policy in 2010, which required all faculty members to teach in English, reduced their motivation to teach in English because doing so turned out to be less effective than teaching in Korean and reduced their autonomy.

This raises the question of whether the focus of university education should be on raising university rankings in the news media or improving delivery of course content. More than 65% of the graduate students and 62% of the undergraduate students who responded to the questionnaires expressed the opinion that the University implemented the EMI policy "to secure a high rank in university rankings" or "to promote the brand name of the school." Attribution of motivations to improve delivery of course content was infrequent. Only 16% of the

undergraduate students and 18% of graduate students suggested that the University's motivation was "to attract international students and faculty" and only about 2% of students in both categories suggested that it was "to increase the understanding of classes."

These responses indicate that students think that the university has imposed the EMI policy as a way to increase its university ranking. Their responses to the questions regarding educational outcomes show that they generally believed that implementing EMI reduced the quality of education. In the fierce competition for a high university ranking in Korea, the university's implementation of the policy is understandable because it is believed to attract more international students, post-doctoral fellows, researchers and faculty members, as has occurred in Denmark and Japan (Jensen & Johannesson, 1995; Manakul, 2007; Tsuneyoshi, 2005).

However, for the professors and students at POSTECH, English is a foreign language. As a result, they have difficulty teaching and understanding advanced content and abstract concepts in English. These disadvantages of EMI outweigh its advantages like the cases found in the Netherlands (Vinke, 1994; Vinke 1995; Vinke & Jochems, 1993). Moving a few steps up in a world university ranking does not compensate for the unsatisfied learning outcomes, unfairness to students with limited language proficiency, decrease in motivation for learning, and strong opposition to the EMI policy. The last point should be addressed in detail.

The EMI policy of the school was imposed by university authorities without support from its faculty members and students and possibly without careful consideration of its adverse effects. In this regard, the unilateral implementation of the policy attracted opposition because it intruded on the autonomy of professors. One professor interviewed had been teaching in English for 13 years, but criticized the forced implementation of the policy, claiming that it had hurt the pride of professors and elicited strong opposition. The responses to one of the questionnaire items support this opinion. About 52% of the professors indicated that they would not continue teaching in English if the university stopped enforcing the policy. Of the remainder, only about half would continue.

However, the policy is in place, so options must be sought to mitigate its adverse effects on educational quality. Because the limited English proficiency of professors

and students was indicated as the main cause of the poor teaching and learning outcomes of classes taught in English, and because most of the objections to the EMI policy have originated from the use of English in content courses, EFL practitioners and instructors at POSTECH have proposed ways to improve professors' and students' English abilities. This approach is in line with Paseka's (2002) suggestions to make the implementation of EMI successful in an EFL context.

As to the suggestions to reduce negative effects on educational outcomes, a program intended to improve the English proficiency of students should be developed. The program should consider the characteristics and benefits of English for specific purposes, more specifically English for scientific purposes. For example, when teaching reading, reading materials that present science and technology topics should be chosen or developed. When teaching writing, the curriculum could be made relevant to English for scientific purposes by teaching scientific writing and having students write about topics related to their majors. Such a program would help students to become familiar with writing styles, formats, and genres in their fields, thereby facilitating students' adaptation to the EMI policy.

To improve the overall English proficiency of students, the program should increase the number of English courses that undergraduate students are required to take. POSTECH has doubled the number of required English courses. Observations by English instructors who have been teaching at POSTECH for a long period of time suggest that this increase in the required number of English courses has increased students' English proficiency, but this effect has not been verified because the new program was initiated only three years ago.

Furthermore, for the EMI policy of the school to operate successfully, EFL instructors must work for and with content instructors. This research has pointed out that the professors' limited English proficiency has negatively affected the teaching and learning outcomes. Consequently, increasing professors' English proficiency would almost certainly reduce this problem. The suggestion, however, is unrealistic and impractical because the professors are very busy and spending time practicing English would interfere with their research and publishing. In addition, the high level of English proficiency necessary to effectively deliver course content cannot be attained in a short period of time. This fact will impose anxiety and

psychological burdens on professors. Under these circumstances, by providing content instructors with tips for effective instruction methods concerning English, EFL instructors could help them to feel less pressured by teaching in English and minimize EMI's side-effects. One possibility is that EFL instructors observe classes given in English and give feedback on the use of English, focusing on pronunciation, vocabulary, and sentence-level expressions. Then content instructors should practice to eliminate their English weaknesses. In doing so, they will reduce the time required to improve their English proficiency.

To summarize, this research has shown that the EMI policy implemented in an EFL context is ineffective in delivering course content due to the limited language proficiency of professors and students. The professors and students of the study also demonstrate strong opposition to the policy because it was imposed unilaterally by the University. The EMI policy of the school has negatively affected the sentiment of professors and reduced their autonomy. Under these circumstances, EFL instructors and practitioners should help to minimize the adverse side-effects of EMI by devising and implementing a new curriculum aimed to improve the English proficiency of students from an ESP perspective and by offering systematic services for content instructors.

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