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# Aeronautical Engineering Students' Perceptions of ESP as Preparation for EMI in Higher Education

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# Overview

- Introduction
- Methods
- Results
- Discussion
- Recommendations
- Conclusions
- References


Figure 1: University building, 27 June 2011

# 1. Introduction of the university

- Largest university of applied sciences in Austria
- Teaching university with research
- Focus on career fields
- 4 sites with main campus in Graz
- 5 000 students
- 17 000 graduates
- 750 employees

- 69 degree programmes
  - 28 at bachelor's level
  - 41 at master's level
- Variety of areas
  - Health sciences
  - Journalism, media, & design
  - Architecture & social work
  - Business & management
  - Engineering

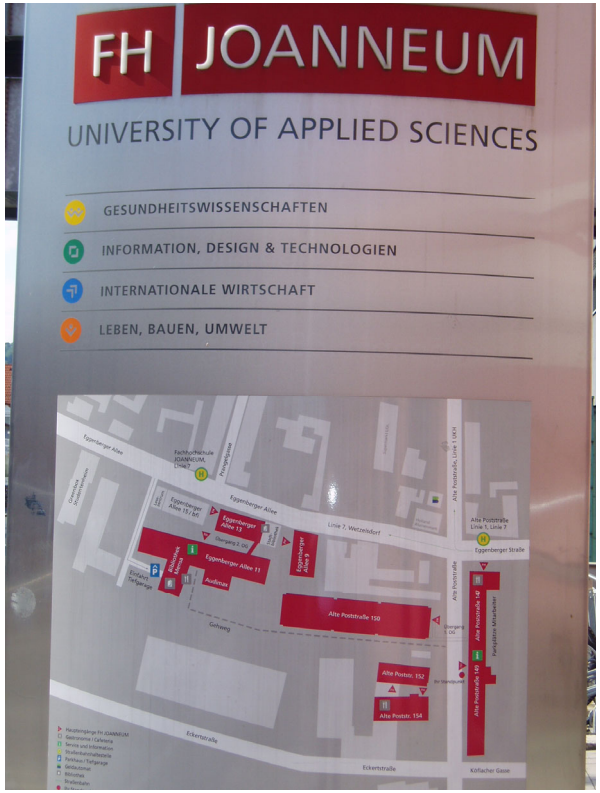


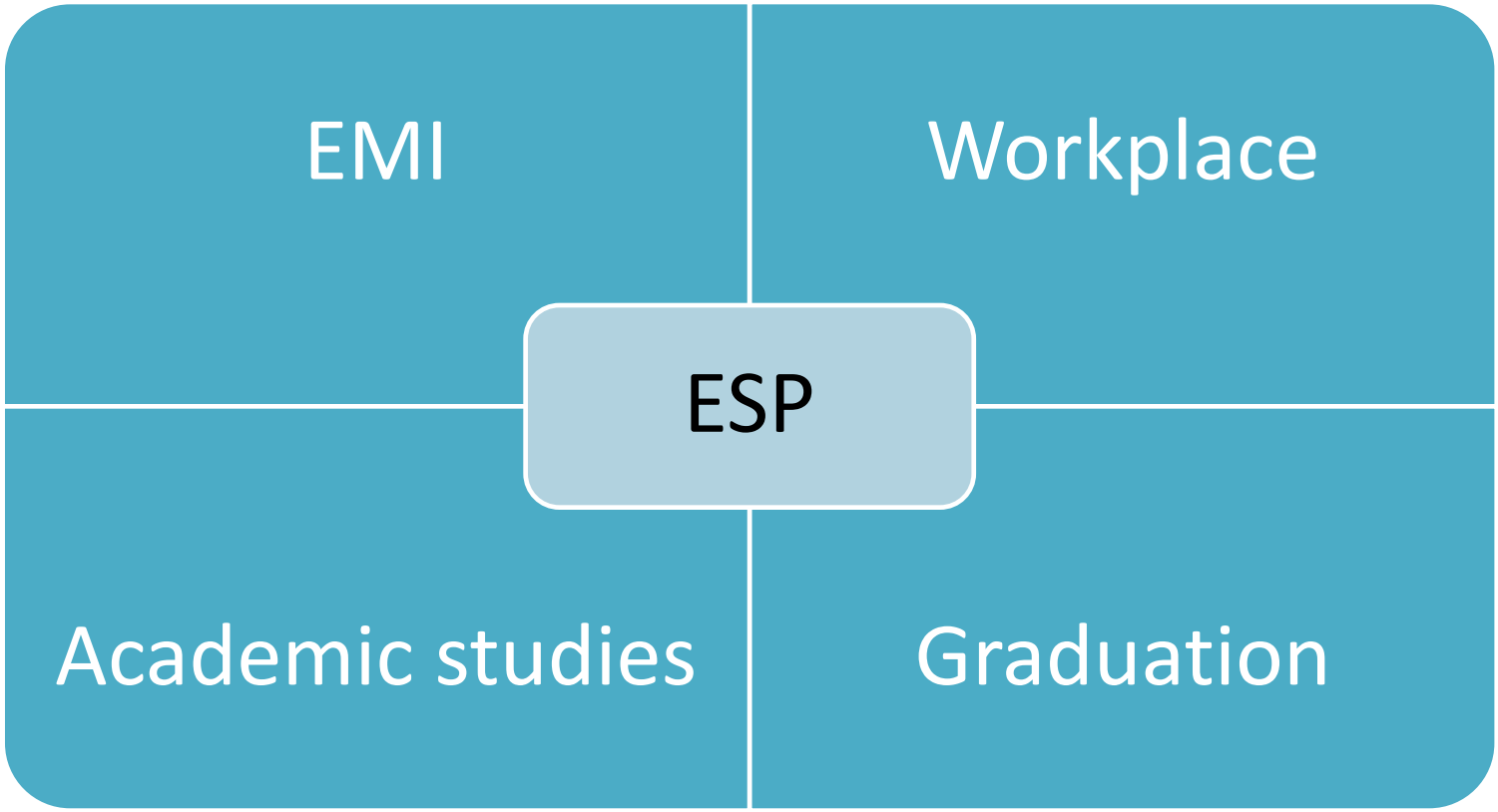

Figure 2: Graz campus map, 27 June 2011

# 1. Introduction of the Institute of Aviation


Figure 3: Aft-fuselage section of a Dornier 728, aviation laboratory, 27 June 2011

- BSc in Engineering (3 years)
  - 39 places/year, full-time
  - Aeronautical engineering
  - Instruction in German
- MSc in Engineering (2 years)
  - 25 places/year, full-time
  - Aeronautical engineering
  - Instruction in English (EMI)
- MSc in Air Traffic Management (2 years)
  - 16 places/biennial, in-service
  - Instruction in German & English
  - Costs € 3 900,-/term (4 x)
- Aviation laboratory

# 1. Introduction to tertiary ESP



# 1. Introduction: The need of ESP in EMI

Indications of students' linguistic problems in EMI

General English competence predicted academic language issues (Soruç et al., 2021)

Speaking and writing academic English as challenging (Kamaşak et al., 2021)

This study probes into student perceptions of ESP in EMI

# 1. Introduction to the ESP course in this study

- English for Aeronautical Technology
- Second year, undergraduate, 2 ECTS, 2 THW
- Technical writing, reading, & speaking
- Vocabulary & collocations

# 2. Methods

- Oxford placement test (2001) for General English
- Survey sheet with nominal & 5-point Likert-scale items
- IBM® *SPSS® Statistics* (2020) for descriptive data analysis

# 2. Methods

## Survey sheet items (Arnó-Macià et al. 2020)

- Demographic items
- Experiences with ESP regarding EMI
- Confidence when using English
- Self-assessment of English skills improvement

# 3. Results

Table 1: Descriptive statistics for biographical variables

| VARIABLE | *M* | *Mdn* | *SD* | *MIN* | *MAX* |
|---|---|---|---|---|---|
| **Age** (in years) | 21.5 | 21 | 1.9 | 19 | 27 |
| **English language study** (in years)[a] | 10.4 | 10 | 1.7 | 8 | 15 |
| **OPT score** (0 to 60) | 44.2 | 44 | 5.9 | 34 | 54 |

| VARIABLE | LEVEL | FREQUENCIES | PERCENT |
|---|---|---|---|
| **Gender** | Male | 24 | 92.3 % |
| | Female | 2 | 7.7 % |
| **Extracurricular English lessons** | Yes | 22 | 84.6 % |
| | No | 4 | 15.4 % |
| **EMI courses taken at university** | Yes | 1 | 3.8 % |
| | No | 25 | 96.2 % |

*Notes.* *N = 26*; *M* = arithmetic average; *Mdn* = median; *SD* = standard deviation; *MIN* = minimum in sample; *MAX* = maximum in sample
[a]Missing values because of nonresponse: *n* = 1

# 3. Results

Table 2: Students' perceptions of being prepared for EMI

| FEELING PREPARED FOR EMI | FREQUENCIES | PERCENT |
|---|---|---|
| Not much | 1 | 3.8 % |
| To some extent | 6 | 23.1 % |
| Rather well | 13 | 50.0 % |
| Yes, completely prepared | 5 | 19.2 % |
| *Missing* | 1 | 3.8 % |

*Note. N = 26*

# 3. Results

Table 3: Students' plans to take EMI in the future

| PLANS TO TAKE EMI | FREQUENCIES | PERCENT |
|---|---|---|
| Plans to take an EMI course | 15 | 57.7 % |
| No plans to take an EMI course | 11 | 42.3 % |

*Note. N = 26*

# 3. Results

Table 4: Students' perceptions of communicative confidence

| CONFIDENCE | FREQUENCIES | PERCENT |
|---|---|---|
| Improved confidence | 22 | 84.6 % |
| No improved confidence | 4 | 15.4 % |

*Note. N = 26*

# 3. Results

Table 5: Descriptive statistics for students' self-assessed improvement during the course

| ITEMS | Range | *MIN* | *MAX* | Mode | *Mdn* | *M* |
|---|---|---|---|---|---|---|
| **Vocabulary** | 2 | 3 | 5 | 4 | 4 | 4.00 |
| **Reading** | 3 | 2 | 5 | 4 | 4 | 3.77 |
| **Familiarity with technical English (written)** | 3 | 2 | 5 | 4 | 4 | 3.65 |
| **Familiarity with technical English (spoken)** | 4 | 1 | 5 | 4 | 4 | 3.54 |
| **Spoken interaction (dialogue)** | 3 | 2 | 5 | 3 | 3 | 3.15 |
| **Spoken production (monologue)[a]** | 3 | 1 | 4 | 3 | 3 | 2.92 |
| **Pronunciation** | 4 | 1 | 5 | 3 | 3 | 2.92 |
| **Listening** | 3 | 1 | 4 | 3 | 3 | 2.65 |
| **Grammar** | 3 | 1 | 4 | 2 | 2 | 2.42 |
| **Writing** | 3 | 1 | 4 | 2 | 2 | 2.19 |

*Notes.* *N = 26*; *MIN* = minimum in sample; *MAX* = maximum in sample; *Mdn* = median; *M* = arithmetic average
[a]Missing values because of nonresponse: *n* = 1

# 4. Discussion

Structured and systematic ESP can prepare students for EMI (Table 2)

Current ESP course achieved aims (Table 5) of developing

- Written & spoken technical English
- Vocabulary knowledge
- Spoken interaction

General English skills rated lower (not main focus in course)

ESP courses may be decisive in success or failure of EMI (cf. Bruton, 2017)

Boost in communicative confidence through ESP (Table 4)

# 4. Discussion

Voices for institutionalised language support (Kamaşak et al., 2021, p. 12)

Continuous language support in EMI (Soruç et al., 2021, p. 10)

English language specialists in EMI programme design (Little, 2017)

Socioeconomic importance of English (Gurney, 2018)

# 4. Discussion of limitations

Single tertiary setting

Single group of students

Small sample size

No generalisation

Figure 4: Graz International Airport, 31 May 2006

# 5. Recommendations

- ESP as integral part in EMI
  - Students profit from ESP
  - Programmes profit from ESP
- Involvement of ESP instructors
  - Curriculum design
  - International activities
  - Public relations events


Figure 5: Image from www.pixabay.com

# 6. Conclusions

- Merit in ESP course for students
- ESP as preparation for EMI
- Potential for interaction
- ESP may be decisive for careers
- ESP as high-stakes instruction
- Inspiration for further studies

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Figure 6: Directions at Graz International Airport, 12 March 2009

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