The relationship between language proficiency and academic attainment in higher education

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Language and literacy skills of home and international university students: How different are they, and does it matter?*

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Although international students experience lower attainment at university than home students, reasons are poorly understood. Some question the role of language proficiency as intrinsic language qualifications. This study investigated language and literacy of international students in the UK, comparing international students to home students.

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Invited talks and advice
UCL
University of Oxford
University of Warwick
University of Birmingham
University of Sheffield
Lancaster University
University of Portsmouth
King’s College London
University of the Arts, London
Internationalisation of higher education

Over 5 million international students in tertiary education (UNESCO, 2019)

Over 550,000 international students at UK universities
  18% of undergraduate students and 60% of full-time masters students are from outside the UK
  Over 120,000 Chinese students at UK universities (HESA, 2019-20 data)

Hugely important socially, academically and financially
  International students boost UK economy by over £20bn (HEPI/Caplan, 2018)
Academic achievement of international students in the UK

Educational outcomes for international students not as good as for home students:

They achieve fewer ‘good degrees’ (i.e. first or upper second class honours) compared to home students

(Morrison et al, 2005; HESA data for 1995-2000)

Chinese students

(Crawford & Wang, 2015; Iannelli & Huang, 2014; HESA data 1998-2009)

- Most likely to achieve a 2.2
  - A decline in 2.2s from 50% to 43%
  - A rise in 3rd from 14% to 21%
  - The odds of achieving a good degree in 2009: 32% of a home student
Language, literacy and academic success

Language and literacy skills: vital for success in any academic subject, at all levels of education

Limited mastery – diminishes the opportunity to learn + makes assessment difficult

School-age populations (monolingual and bilingual)

(August & Shanahan, 2006; Hakuta, Butler & Whitt, 2000; Kieffer, 2008; Preevo, Malda, Mesman & van Ijzendoorn, 2016)

International students in HE

(Elder & von Randow, 2008; Read & Hayes, 2003)

Vocabulary knowledge – particularly predictive of academic success

(Daller & Phelan, 2013; Daller & Xue, 2009; Qian, 2002; Roche & Harrington, 2013)

Reading comprehension and writing – explain additional variance

(Harrington & Roche, 2014; Trenkic & Warmington, 2019)
How different are language skills of international & home students?

How different are these skills on arrival?
How long does it take to close the gap?
Where is the threshold after which language proficiency stops being a barrier to academic achievement?
Trenkic & Warmington (2019)

Comparison of two groups of university students:
Chinese EFL students, B2/C1 CEFR level (IELTS 6.5-7.5)
British home students (ENS)

Study design:

<table>
<thead>
<tr>
<th>Time 1</th>
<th>Time 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov/Dec 2014</td>
<td>May/June 2015</td>
</tr>
<tr>
<td>63 Chinese, 64 British students</td>
<td>59 Chinese, 52 British students</td>
</tr>
</tbody>
</table>

Measures:
A battery of cognitive and linguistic measures
Academic success: weighted average score across 120 credits
number of failed credits
Measures and main results (Trenkic & Warmington, 2019)

General cognitive ability
Non-verbal intelligence

Linguistic measures

Vocabulary:
  Receptive and productive

Sentence processing:
  speed and accuracy

Text reading:
  reading rate, comprehension

Text writing (summarisation):
  writing rate, number of content points recalled, spelling error rate

Phonological measures
  Phonological retrieval (rapid naming, digits)
  Elision (say ‘cup’ without /k/)

No difference between groups

<table>
<thead>
<tr>
<th></th>
<th>British</th>
<th>Chinese</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>19.14 (3.93)</td>
<td>20.08 (3.45)</td>
</tr>
</tbody>
</table>

Very large group differences
Results: Nation’s Vocabulary size test (receptive)

Chinese students had significantly smaller receptive vocabulary size compared to British students (effect size: 4.7 SDs) …

... and it took them considerably longer to access this knowledge (effect size: 2.9 SDs)
Results: vocabulary (expressive)

There were large differences in expressive vocabulary size between the Chinese and the British students at both T1 and T2.

T1: 2.9 SDs

T2: 2.2 SDs
Results: all linguistic measures

Very large differences between home students and Chinese international students arriving with B2/C1 level of proficiency in English

No catching up on any of the measures
  Group differences were just as large at the end of the year as they were at the beginning (and sometimes larger)

Context: far greater difficulties with reading and writing than those reported on the same tests for home students with dyslexia

→ A striking disadvantage

Q: Do these findings generalize to other groups of international students?
Mackiewicz (PhD in progress)

Comparison of three groups of university students:
- British home students (ENS)
- Chinese EFL students
- EFL students with European L1s

**Study design:**

<table>
<thead>
<tr>
<th>Time 1</th>
<th>Time 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn / Winter 2019</td>
<td>Autumn / Winter 2020</td>
</tr>
</tbody>
</table>

- 59 ENS
- 60 EFL with European L1s
- 58 EFL with Chinese L1s

- 48 ENS
- 50 EFL with European L1s
- 49 EFL with Chinese L1s

**Measures:**
A battery of cognitive and linguistic measures
Preliminary analyses (Mackiewicz, in progress)

No group differences on general cognition
(non-verbal intelligence; working memory)

Significant differences on linguistic measures between home students and international students (ENS >* EFL)

Two main patterns at the start:
ENS > EFL with European L1s > EFL with Chinese L1s
[ENS = EFL with European L1s] > EFL with Chinese L1s

The main pattern 1 year later:
All groups make similar gains
No closing of the gap for the EFL Chinese group
But the group of students with European L1s closes the gap on some measures
Sample of results (Mackiewicz, in progress)

**Vocabulary size**

- **ENS**
- **EFL with European L1s**
- **EFL with Chinese L1s**

**Reading comprehension**

- **ENS**
- **EFL with European L1s**
- **EFL with Chinese L1s**

**Grammar**

- **ENS**
- **EFL with European L1s**
- **EFL with Chinese L1s**
Large online survey (N=1,151)

Comparison of four groups of university students:
  - EFL – from China, N=150
  - EFL – from elsewhere, N=269
  - ENS – from the UK, N=623
  - ENS – international students, N=118

English vocabulary (LexTALE)
So how different are language skills of international & home students?

Very different for some subpopulations but not all

Chinese students face particularly large linguistic challenges

Trenkic & Warmington (2019); Mackiewicz (in progress); Shi (in progress)

Students with European L1s (Mackiewicz, in progress)

- stronger English skills than Chinese students
- perform undistinguishably from British students on tasks measuring grammar, writing (total number of words, spelling) and phonological skills
- Make larger linguistic gains during their studies (text comprehension)

→International students = a diverse bilingual community

Findings on one subpopulation do not necessarily generalise to other subpopulations
Where do the differences between EFL groups stem from?

• Language proficiency before / upon arrival
  • Typological distance between L1 and English
    Vs.
  • Approaches to English language teaching in the local context
  • Exposure to English outside of school (TV, entertainment, travel)
  • Approaches to English language testing (Hu & Trenkic, 2019; Trenkic & Hu, 2021)

• Gains made during the studies
  • Typological distance between L1 and English
    Vs.
  • Level of English skills on arrival
  • Exposure to and use of English in daily life (e.g. the number of compatriots on the course, social preferences)
Language skills and academic success in HE

Which linguistic measures on arrival correlate with academic achievement? (Trenkic & Warmington, 2019)

Chinese EFL students:
- Vocabulary size, $r=.409$, $p<.001$
- Expressive vocabulary, $r=.439$, $p<.001$
- Reading comprehension, $r=.381$, $p<.01$
- Written summarisation, $r=.365$, $p<.01$
- Elision, $r=.285$, $p<.05$
- Reading accuracy, $r=.260$, $p<.05$
- Spelling, $r=-.252$, $p<.05$

British students:
- No measure correlated significantly with academic achievement
Predictors of Chinese students’ academic success

English skills on entry – strongly linked to academic success

- Vocabulary T1: $\beta = .44^{**}$
- Processing speed T1: $\beta = -.26^*$
- Phonological processing T1: $\beta = .04$
- Higher literacy T1 composite: $\beta = .34^{**}$
- Spelling errors T1: $\beta = -.23^*$
- Non-verbal ability: $\beta = .07$

Academic success: 51%

Explanation:
- 16.81% contribution from Vocabulary T1
- 6.30% contribution from Processing speed T1
- 4.16% contribution from Spelling errors T1
- 9.55% contribution from Higher literacy T1 composite

Note: The asterisks denote statistical significance levels: 
$^*$ for $p < .05$ and $^{**}$ for $p < .01$.
Predictors of British students’ academic success

Home students’ language skills – not predictive of their academic success

- Vocabulary T1: $\beta = .06$
- Processing speed T1: $\beta = .05$
- Phonemic awareness T1: $\beta = .10$
- Spelling errors T1: $\beta = -.26$
- Higher literacy T1 composite: $\beta = -.02$

- Non-verbal ability: $\beta = .05$

Academic success $11\%$
Summary and implications

Language skills seem to constrain academic success only when they are below a certain threshold of proficiency

→ This threshold is not aligned with the minimum language entry requirements
Where is the threshold after which language stops being a barrier to academic performance?

IELTS test scores guidance for educational institutions

<table>
<thead>
<tr>
<th>Band score</th>
<th>Linguistically demanding academic courses</th>
<th>Linguistically less demanding academic courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.5 – 9.0</td>
<td>Acceptable</td>
<td>Acceptable</td>
</tr>
<tr>
<td>7.0</td>
<td>Probably acceptable</td>
<td>Acceptable</td>
</tr>
<tr>
<td>6.5</td>
<td>English study needed</td>
<td>Probably acceptable</td>
</tr>
<tr>
<td>6.0</td>
<td>English study needed</td>
<td>English study needed</td>
</tr>
<tr>
<td>5.5</td>
<td>English study needed</td>
<td>English study needed</td>
</tr>
</tbody>
</table>

IELTS test scores and academic success in Trenkic & Warmington (2019)

![Bar chart showing average mark by IELTS on arrival]
Is CEFR level B2/C1 sufficient for successfully pursuing university education?

It depends on the definition of success:

YES – if success = ‘pass’
   all bar one Chinese students in Trenkic & Warminton (2019) got the qualification

NO – if success = achieving what one is academically capable of;
   B2/C1 level is a barrier for learning and for academic performance

→ International students are often capable of doing much better than their language abilities allow them to

→ Systematic disadvantage – needs addressing
Recommendations

➔ Universities should be cautious when setting the language entry criteria so as not to compromise the educational experience and outcomes of international EFL students.

➔ The sector should make students aware that reaching the minimum English proficiency criteria set by their programme is unlikely to be sufficient to enable them to perform to the level of their ability.

➔ Allowing study and assessment accommodation (extra time; access to dictionaries) for students accepted with proficiency levels that do not indicate full readiness to study in English.
Recommendations

Universities / HESA should collect the language background and English proficiency data, so that better informed analyses and decisions could be made.

Funding for research on effective interventions for language and literacy skills development in the university context.
Thank you!

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