



Stockholm
University

Thinking About EMI Do We Need Everything Everywhere All At Once?

John Airey





Stockholm
University

Overview of the workshop

A story about a mouse

Learning in English

Teaching in English

Disciplinary differences

A tool for disciplinary needs analysis

Everything everywhere all at once?

Questions and comments



Stockholm
University

Benefits of a second language

Many benefits of using a second language (English)

(Airey 2003)

Textbooks

Academic papers

Exchange students

Overseas lecturers

Job market

Benefits of a second language

My research work has grown from an interest in whether there are also negative effects.

What happens to **disciplinary teaching and learning** when Swedish students are taught in English?

First let's look at learning in our first language.



Stockholm
University

Learning in our first language

Language is not passively reflecting some pre-existing conceptual structure, on the contrary, it is actively engaged in bringing such structures into being.

Halliday & Martin (1993:8)

Almost all of what we customarily call 'knowledge' is language, which means the key to understanding a subject is to understand its language.

Postman & Wiengartner (1971:103)



Stockholm
University

Learning in our first language

Learning any subject depends on learning the language in which the knowledge of that discipline is construed.

Lemke (1990)

Disciplinary learning can be viewed as a form of discourse change.

Wickman & Östman (2002)

So:

Learning in our first language

The relationship between disciplinary learning and our first language is by no means straightforward.

Learning is intimately linked to language.

All learning can be viewed as language learning **even in a monolingual setting**. (Airey 2012)

From this perspective every university lecturer is a teacher of a disciplinary discourse.



Stockholm
University

Learning in a second language

But what happens to student learning when two (or more) languages are involved in a course?



Stockholm
University

Disciplinary learning in English

Very few international studies had examined **content learning outcomes** of being taught in L2 at **university level**.

E.g. Klaassen (2001), Neville-Barton & Barton (2005), Gerber *et al* (2005).

All had found negative correlations.



Stockholm
University

Disciplinary learning in English

Klaassen's (2001) study of Dutch engineering masters students perhaps most interesting.

Found a negative correlation

But:

Disappeared after a year

Klaassen suggests that students had **adapted** to English-medium instruction



Stockholm
University

Disciplinary learning in English

Quote:

“My achievements in the English-medium masters programme are entirely my own credit and are unrelated to the performance of the lecturers in this programme”

Klaassen (2001:182)



Stockholm
University

Disciplinary learning in English

Raises a number of questions:

What is it specifically that students initially find problematic?

How do the students compensate for the language switch?



Stockholm
University

Disciplinary learning in English

Do all students have this strategic ability or are certain groups disadvantaged by second-language teaching?

Can the lecturers do anything to help their students cope with the language shift?

Etc, etc.

The study

3 Parallel courses in English and Swedish

Videoed two lectures – one in each language

In total 22 students at two universities

Each student interviewed individually ~ 1.5 hrs

Students were asked to explain the **same disciplinary concepts** in both languages

Selected video clips used to **stimulate recall**

What happens when students learn in English?

Two results:

Explaining disciplinary concepts
Student learning patterns



Stockholm
University

Explaining disciplinary concepts

Students speak on average 45% slower in their English descriptions

But:

For most students, the quality of their descriptions in both languages is similar and independent of the teaching language

Note: **NOT** the same as saying the teaching language doesn't matter



Stockholm
University

Explaining disciplinary concepts

However:

A small number of students did have **serious problems** describing disciplinary concepts in English

(3 of 22)

All three were first year students

Never been taught in English before

Adapt or drop out?



Stockholm
University

Student learning patterns

Students report **no difference** in their learning when taught in Swedish or English

However, during stimulated recall students do report a number of **important differences**



Stockholm
University

Results – learning patterns

When taught in English

- Students **ask and answer fewer questions**
- Important finding



Stockholm
University

Results – learning patterns

When taught in English

Students **who take notes** have difficulty following the lecture

The success of these students appears to depend on doing **extra work outside class**



Stockholm
University

Results – learning patterns

Students **adapted** their study habits...

Only asked questions after the lecture

Stopped taking notes in class

Read sections of work before class

Simply used the lecture for mechanical note-taking

Airey and Linder (2006; 2007)

Recommendations

The following are **seven recommendations** for lecturers based on my results and my own experience:

1. Discuss the fact that there are differences when lectures are in a second language.
2. Create more opportunities for students to ask and answer questions in lectures.
3. Allow time after the lecture for students to ask questions.



Stockholm
University

Recommendations

4. Ask students to read material before the lecture.
5. Give out lecture notes in advance or follow a book
6. Exercise caution when introducing new material in lectures
7. Give as much multi-representational support as possible.



Stockholm
University

One extra recommendation

8. Don't use lectures!

Use seminars, group work, etc. instead

Or make lectures available online
(Flipped classroom)

Teaching in English

Klaassen (2001)

Examined the relationship between lecture intelligibility, language competency and pedagogical approach.

Student-centred lecturing much more important than the lecturer's language competence.

Suggests a threshold level of TOEFL 580 (approximately equal to level C1 on the Common European Framework)

Below this level language training may be necessary.

Klaassen (2001:176)

Thøgersen & Airey (2011)

What happens when people change their lecture language?

Same lecturer gives same lecture 5 times

» English (2)

» Danish (3)

Unique dataset

Authentic data



Stockholm
University

Research interest

Interested in **comparative fluency** of the lecturer in English and Danish.

How can we compare fluency?

Earlier work with students suggests people **speak more slowly** and **pause more** in a second language

(Hincks 2010; Airey 2010)



Stockholm
University

Speech rate

Well known measure of language production is words per minute (wpm) used for judging typing speed.

When comparing across languages better to use **syllables per second** (sps).

(Hincks 2010; Airey 2010)



Stockholm
University

Pausing

Pauses can be for:

Breathing, phrasing, dramatic effect or hesitation.

(Chambers, 1997)

Difference between L1 and L2 pausing is taken to be due to hesitation.



Stockholm
University

Mean length of runs

A related measure is **mean length of runs** (MLR)

(Kormos & Dénes, 2004; Towell, Hawkins, & Bazergui, 1996).

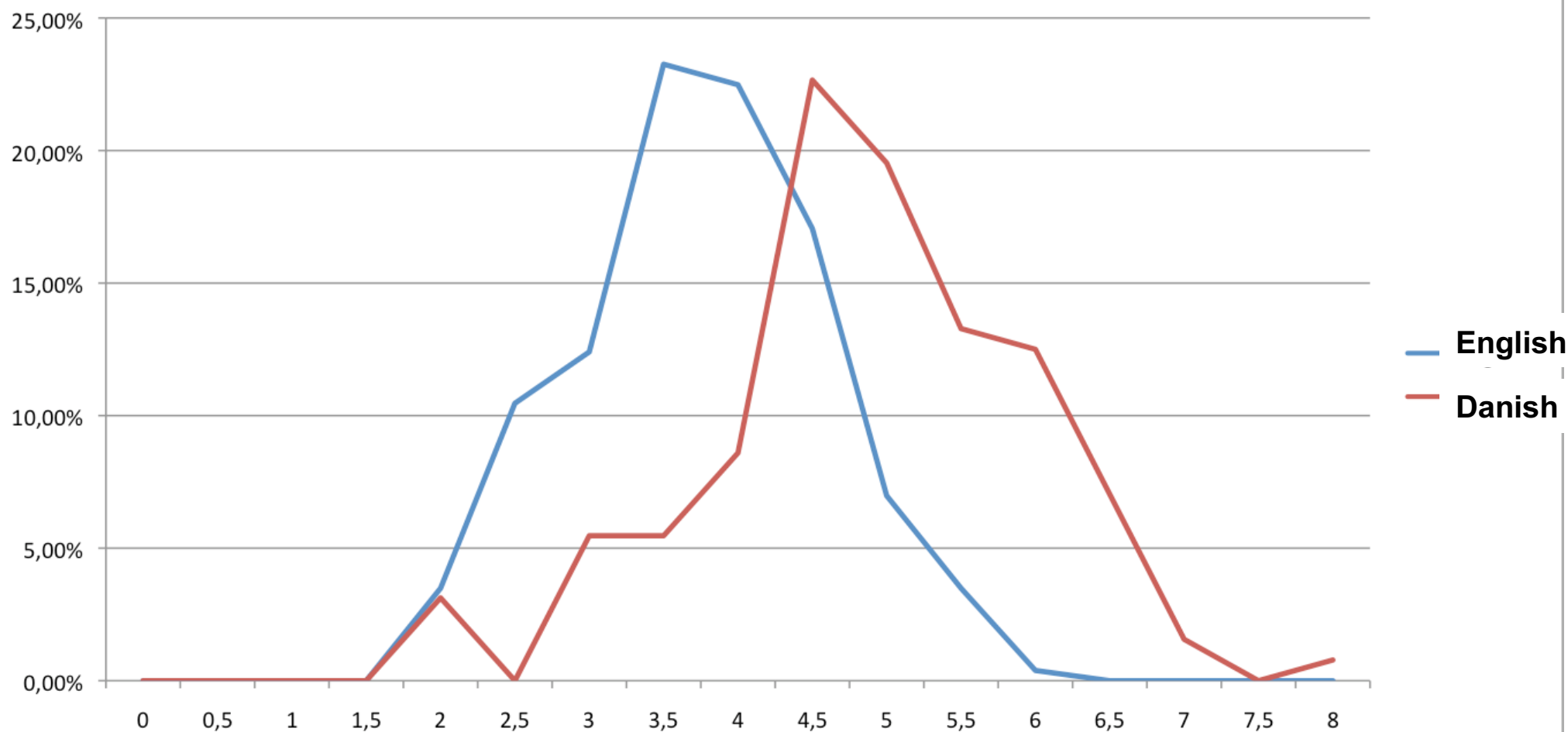
The amount said between pauses.

Ran the soundfiles using a script to find pauses.



Stockholm
University

Articulation rate [normalised]



Adapted from Thøgersen & Airey (2011)



Stockholm
University

Results

The same lecture section takes longer (21.5%)

Lecturer speaks more slowly in English (23%)

Lecturer has shorter runs (30%)

However:

Disciplinary content is very similar

Lecturer adopts a more formal style in English



Stockholm
University

Where next?

Questions:

Is this true for all lecturers?

Is this true for all languages?

Is this true for all subject areas?



Stockholm
University

Data collection

18 lecturers at two Swedish universities

Video

1. Ten-minute mini-lecture in Swedish
2. Ten-minute mini-lecture in English
(on the same subject)

Two types of results:

1. Lecturer reflections

Airey (2011a)

2. Comparison of pairs of videos of the same lectures given in Swedish and in English



Stockholm
University

Lecturer reflections

Nine themes

Short notice

No training

More preparation

Less detail

Less flexibility

Less fluent

No correction

Few differences

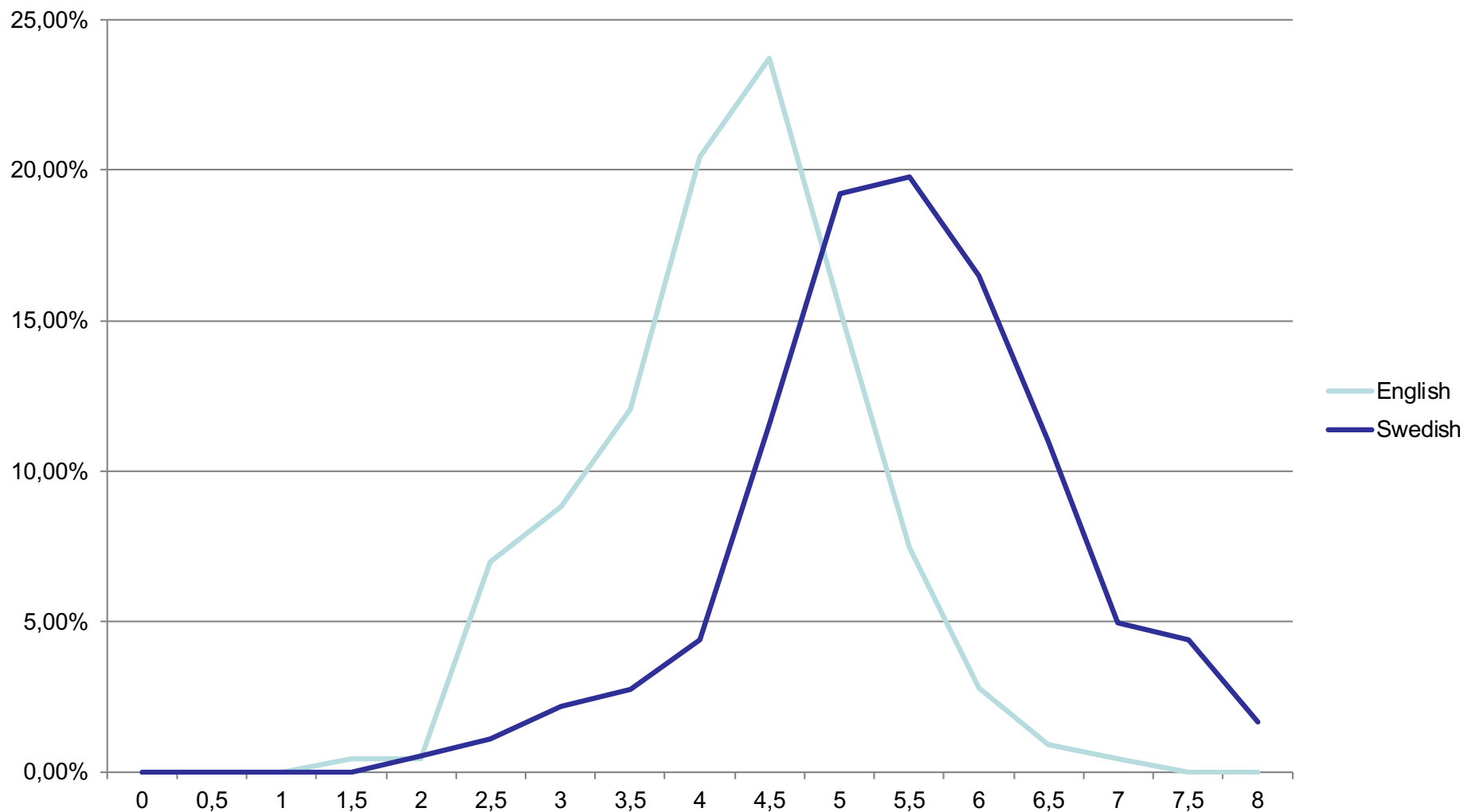
Confidence boost



Stockholm
University

Comparison of matched pairs

Articulation rate in syllables per second [normalised]



John Airey 20th April 2023



Stockholm
University

Three types of lecturer

1. Structured no change in English

Two options:

- lecture is longer
- the end of the lecture is cut off

2. Structured works differently in English

Three options:

- Choose to miss out some content
- Cover all content but have less redundancy
- Cover all content but in less depth

3. Free structure

- presents different information (but probably would in L1)
- shorter



Tentative conclusions

1. Lecturers probably **need more time** to do the same job in English
2. Some lecturers might be able to rationalize and “work more effectively” (Pedagogical effects?)
3. Lecturers who tend to be less structured (more student centred?) may have problems changing to English. (cf Klaassen 2001)
 - Places greater demands on language ability.
 - May be pragmatic to change style to a more structured approach.

Disciplinary differences

Knowledge is created quite differently in the natural sciences than the humanities.

Science tries to build one coherent model of the world—knowledge has to be agreed.

Humanities we have many worldviews knowledge is disputed and contested.

Leads to different approaches to language:



Stockholm
University

Disciplinary differences

Sciences: knowledge is the same whichever language you use.

Humanities: language is how we create and dispute knowledge.



Stockholm
University

Disciplinary differences & English

These differences will affect disciplinary attitudes to English language use.

Prediction:

**Least objection
to English**

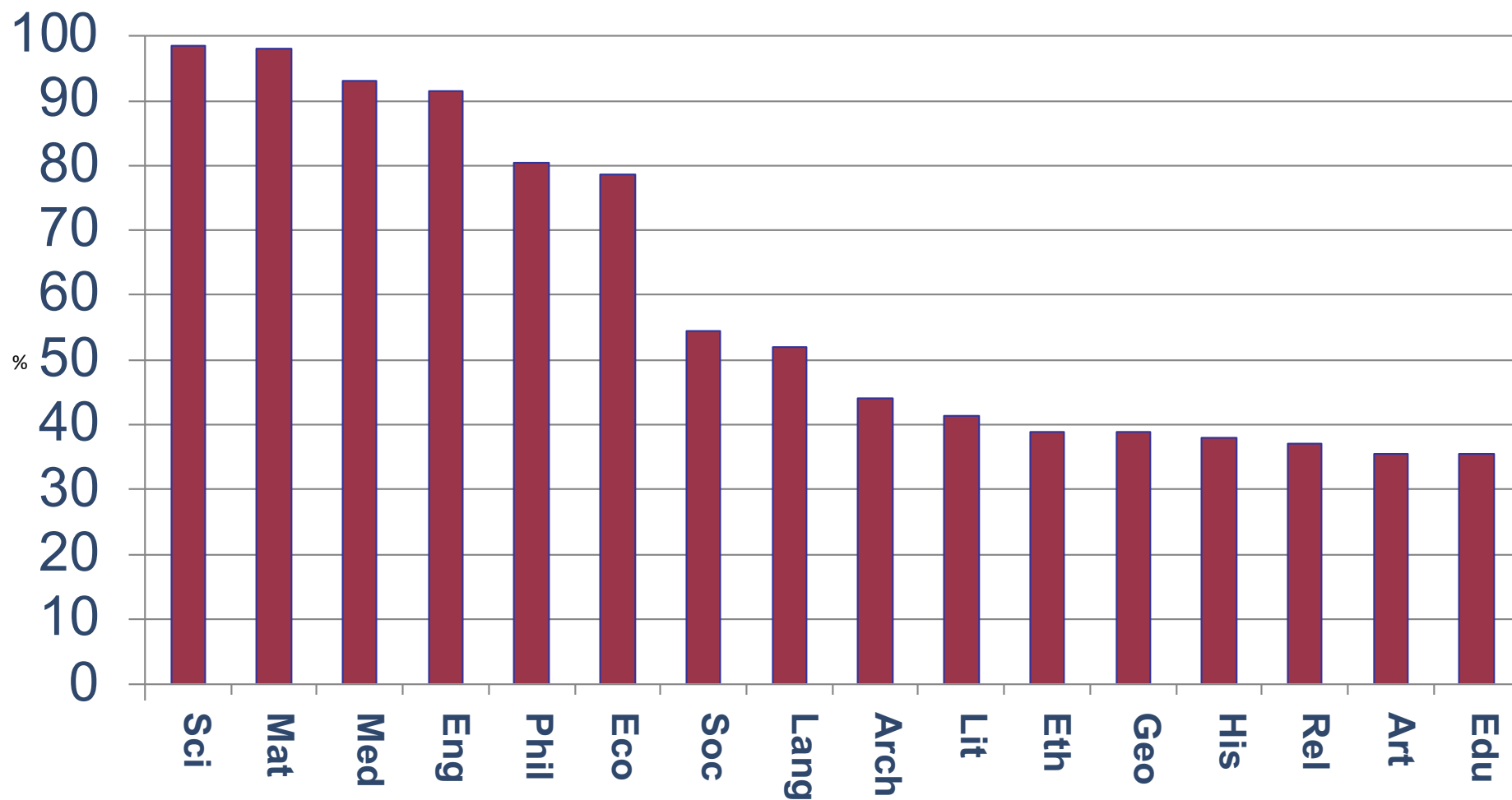
**Most objection
to English**

← Natural sciences Social sciences Humanities and Arts →



Stockholm
University

PhDs in English

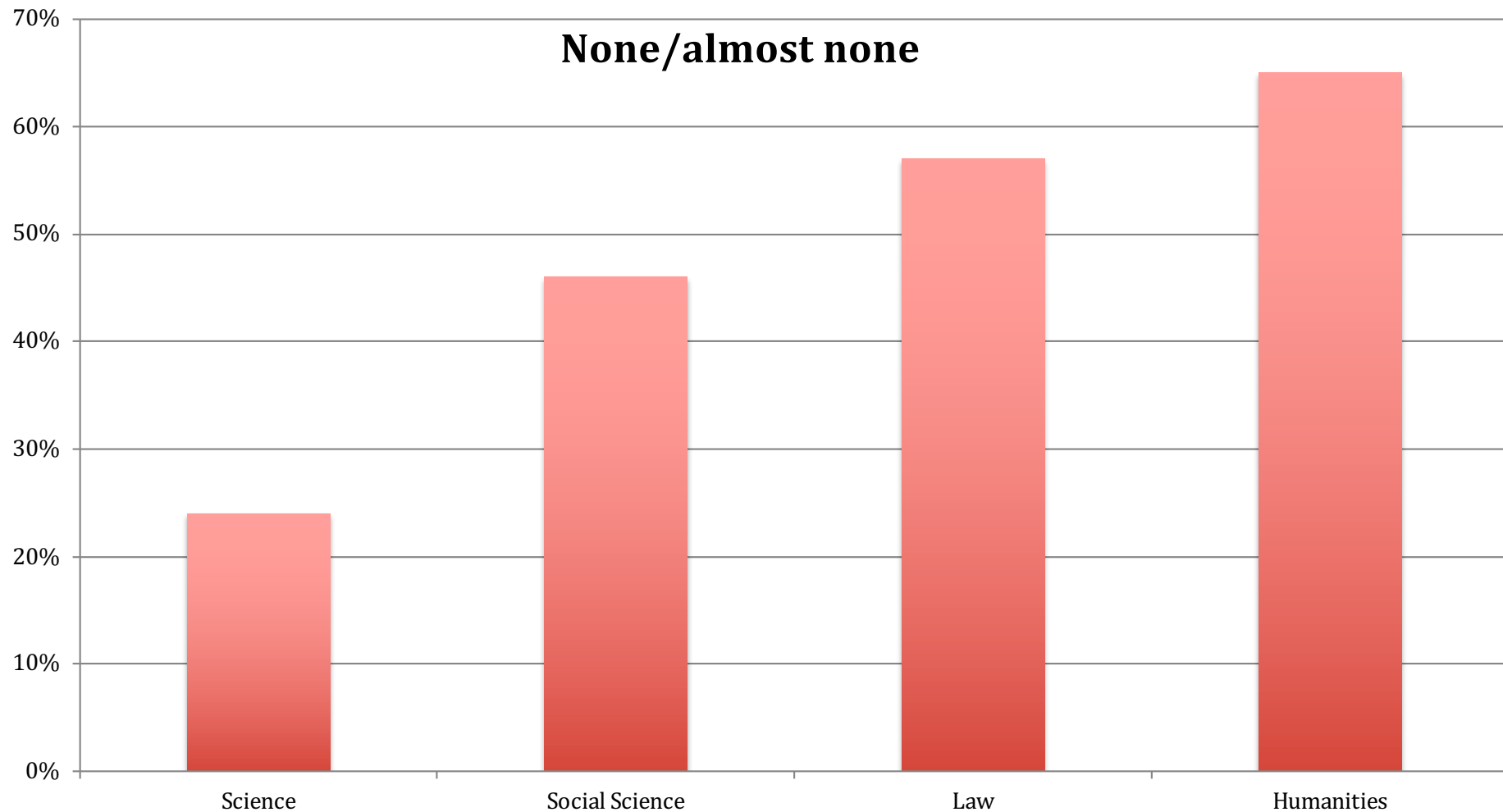




Stockholm
University

Disciplinary differences

How much of your teaching is in English?



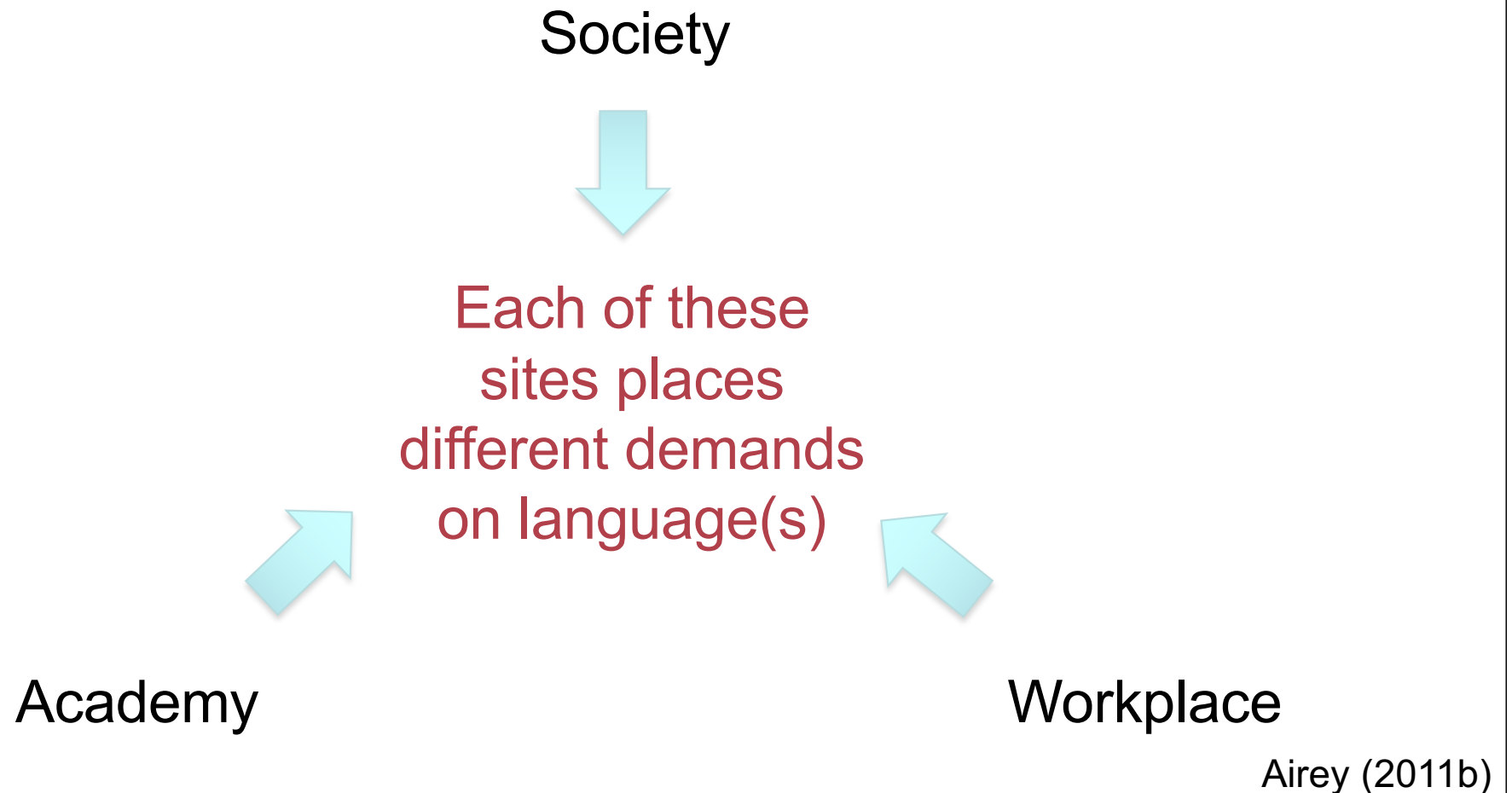
Each discipline has its own knowledge structure.
These knowledge structures **do not appear to be language-neutral.**

I suggest each discipline fosters disciplinary literacy for three sites: **Society, Academy and Workplace.** Airey (2011b)



Stockholm
University

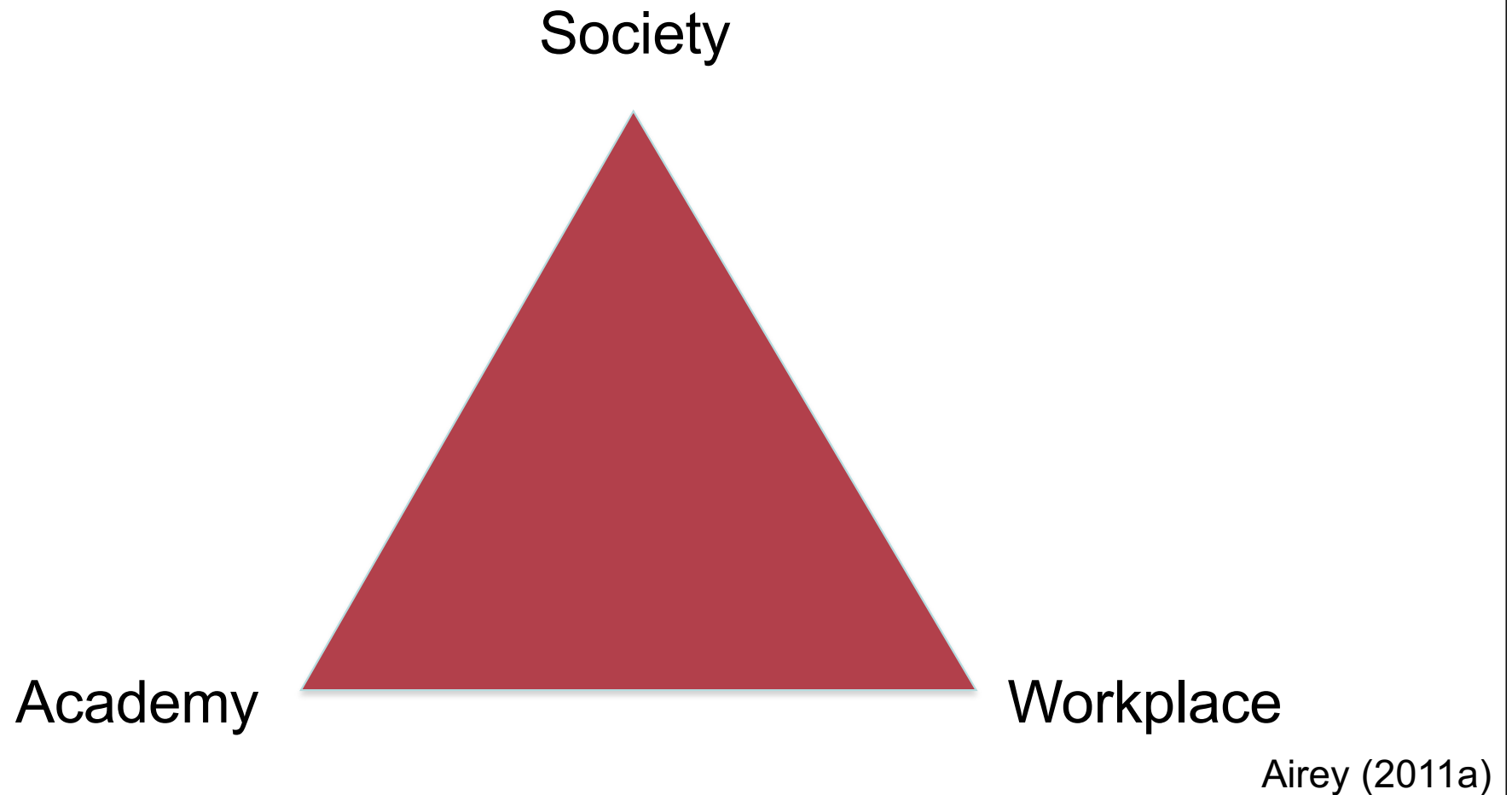
Disciplinary Literacy Triangle





Stockholm
University

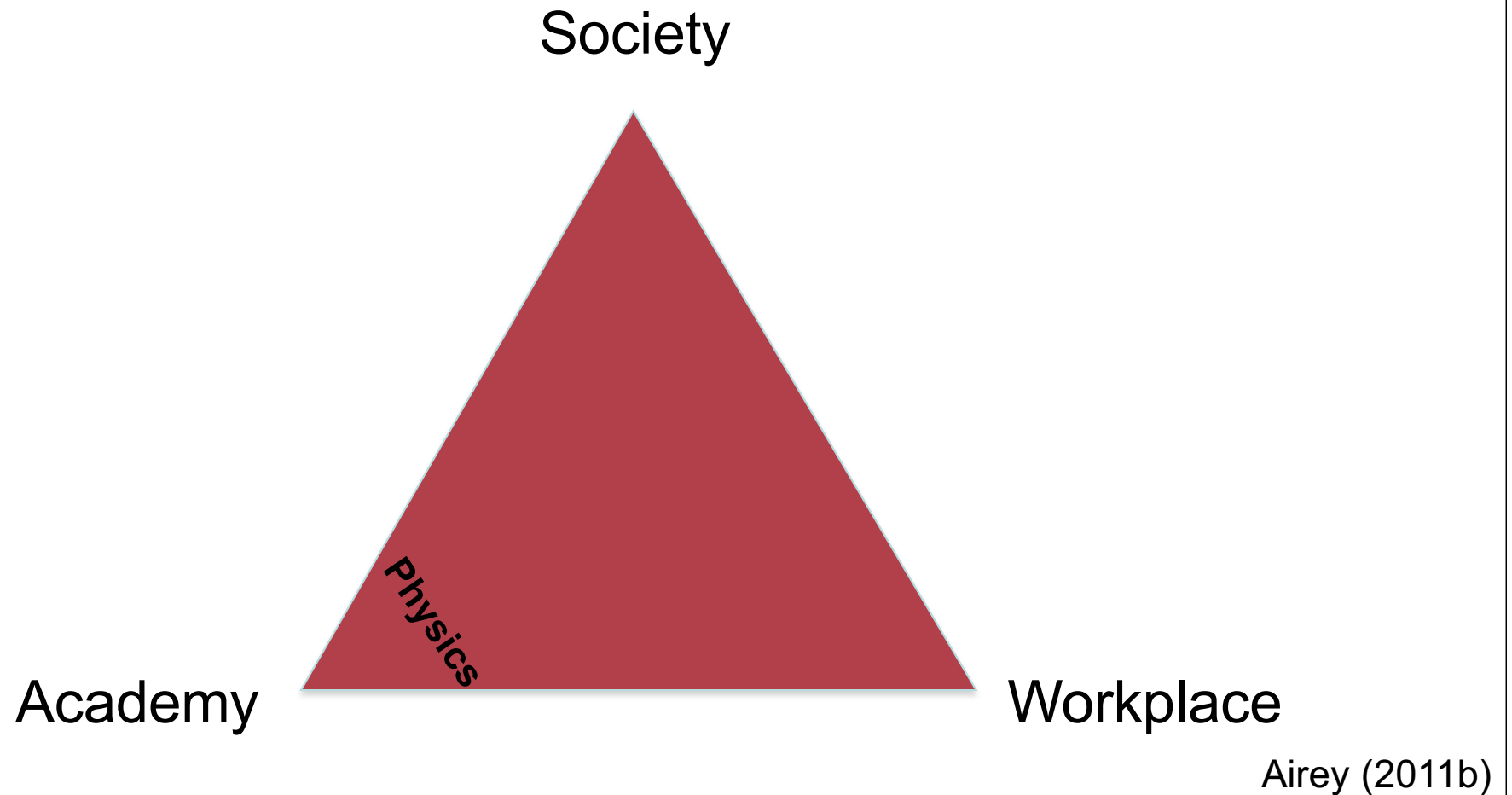
Disciplinary Literacy Triangle





Stockholm
University

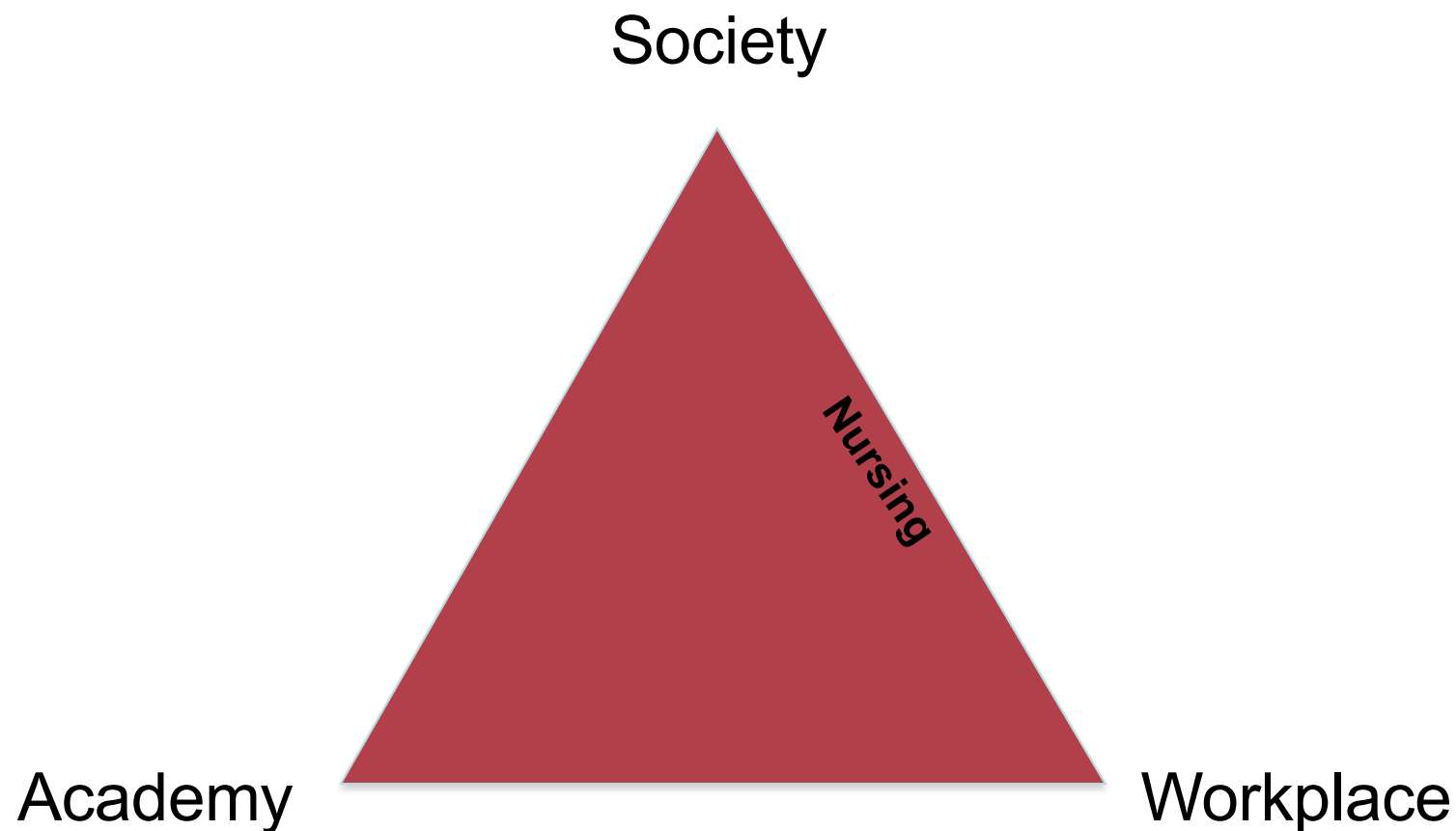
Disciplinary Literacy Triangle





Stockholm
University

Disciplinary Literacy Triangle



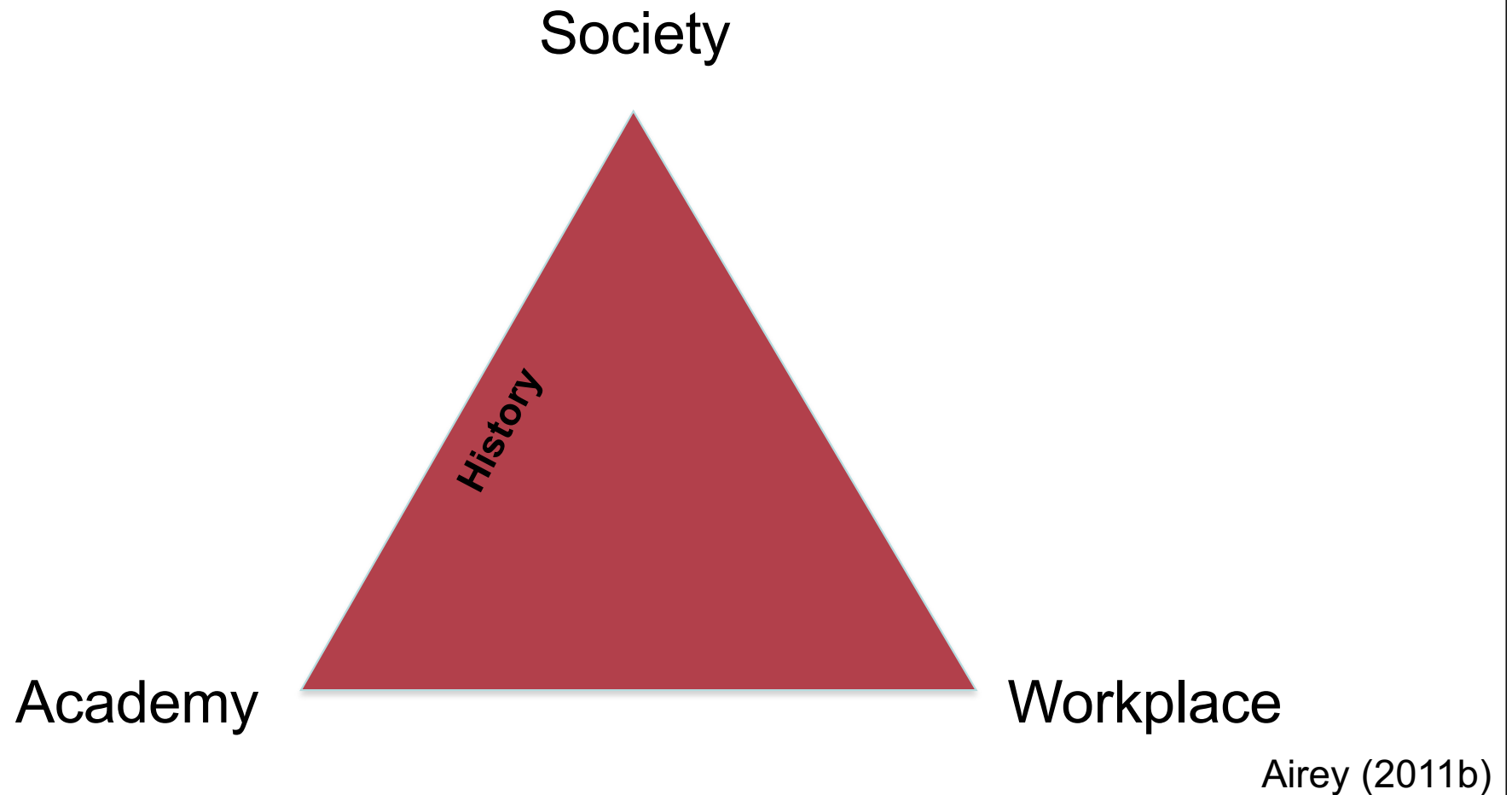
Airey (2011b)

John Airey 20th April 2023



Stockholm
University

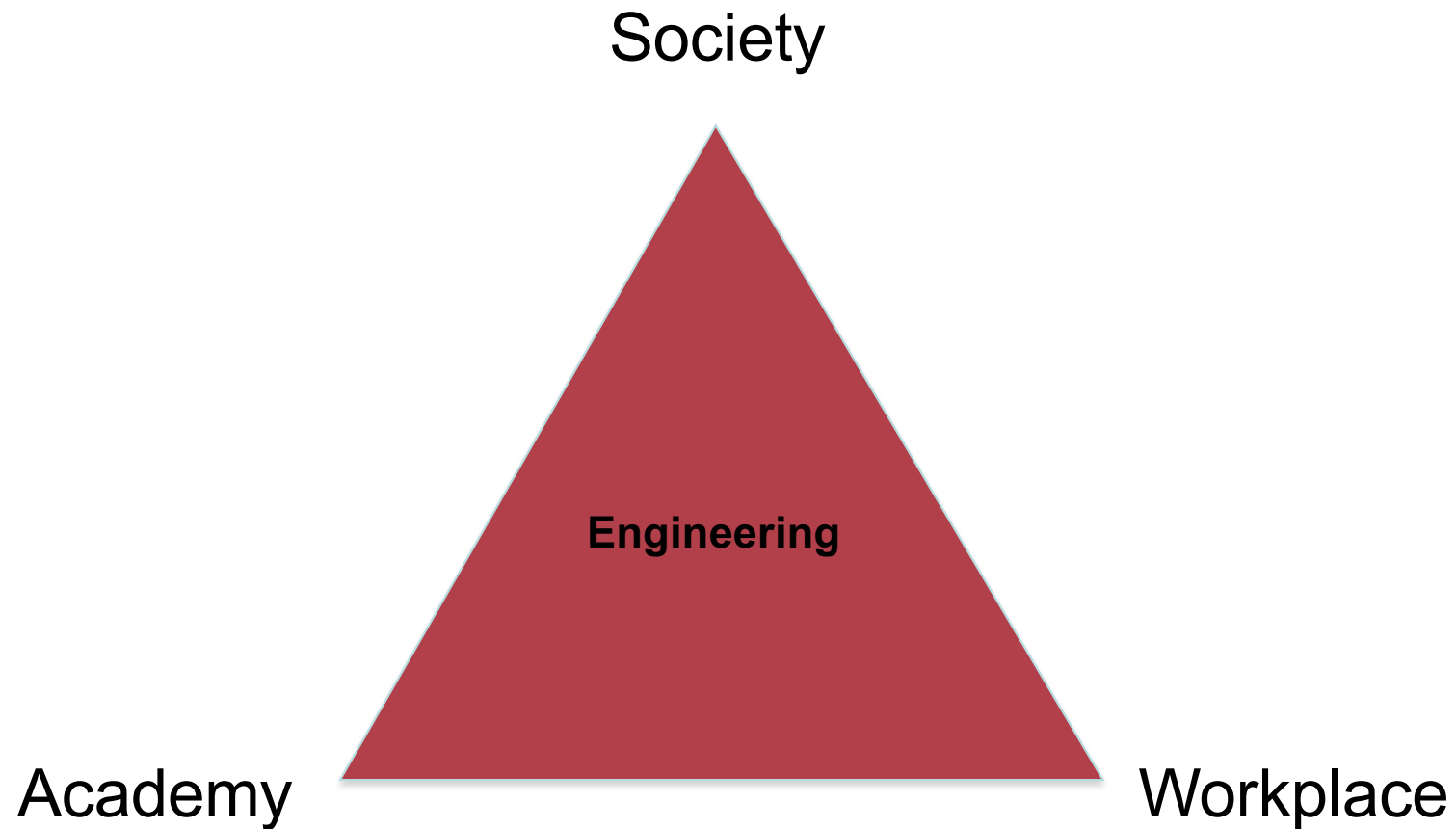
Disciplinary Literacy Triangle





Stockholm
University

Disciplinary Literacy Triangle



Airey (2011b)

John Airey 20th April 2023



Stockholm
University

But what about a second language?

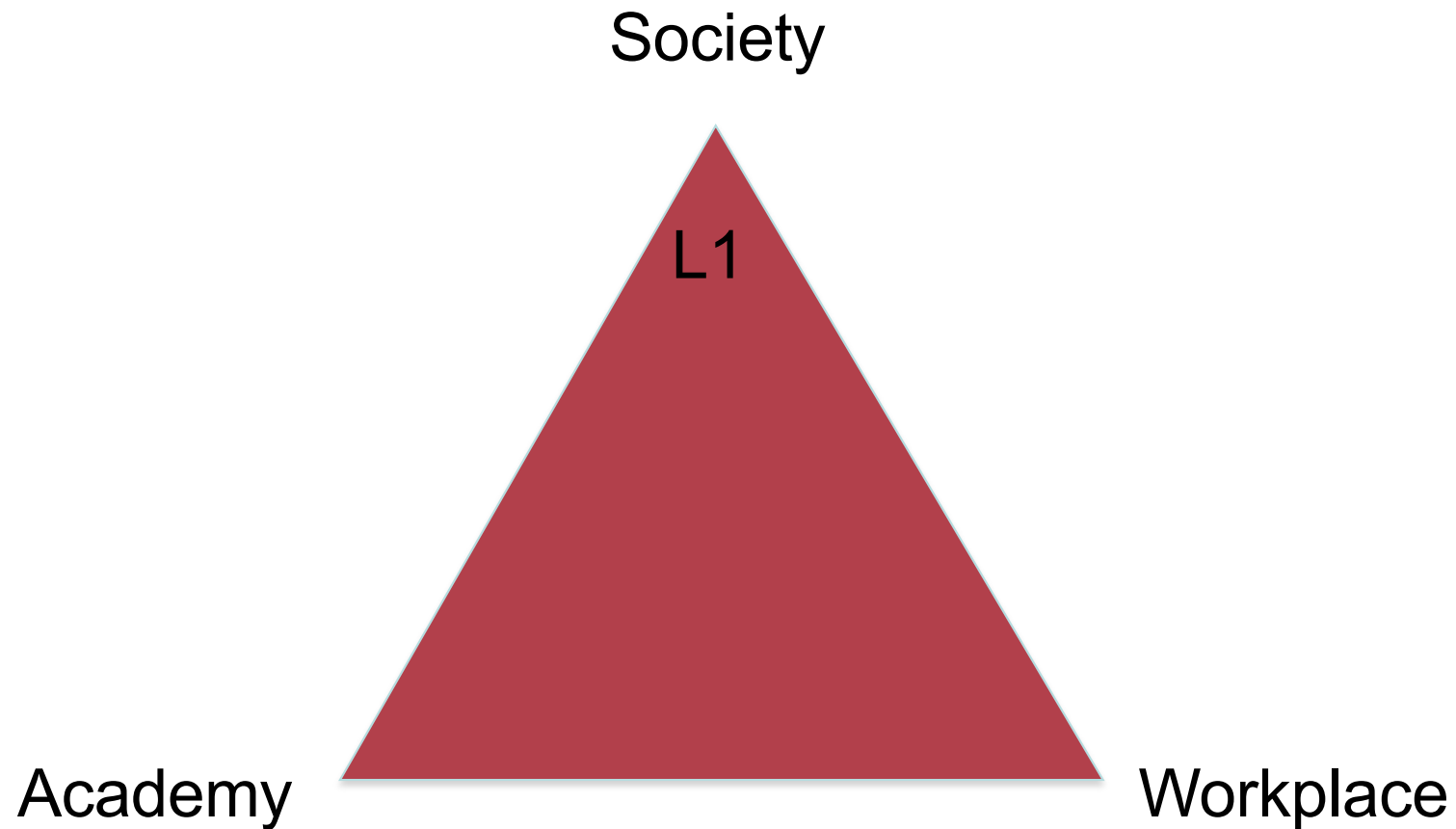
Unlikely that disciplinary literacy will entail the same needs in a second language.

We need a separate disciplinary literacy triangle for our second language...



Stockholm
University

Disciplinary Literacy Triangle



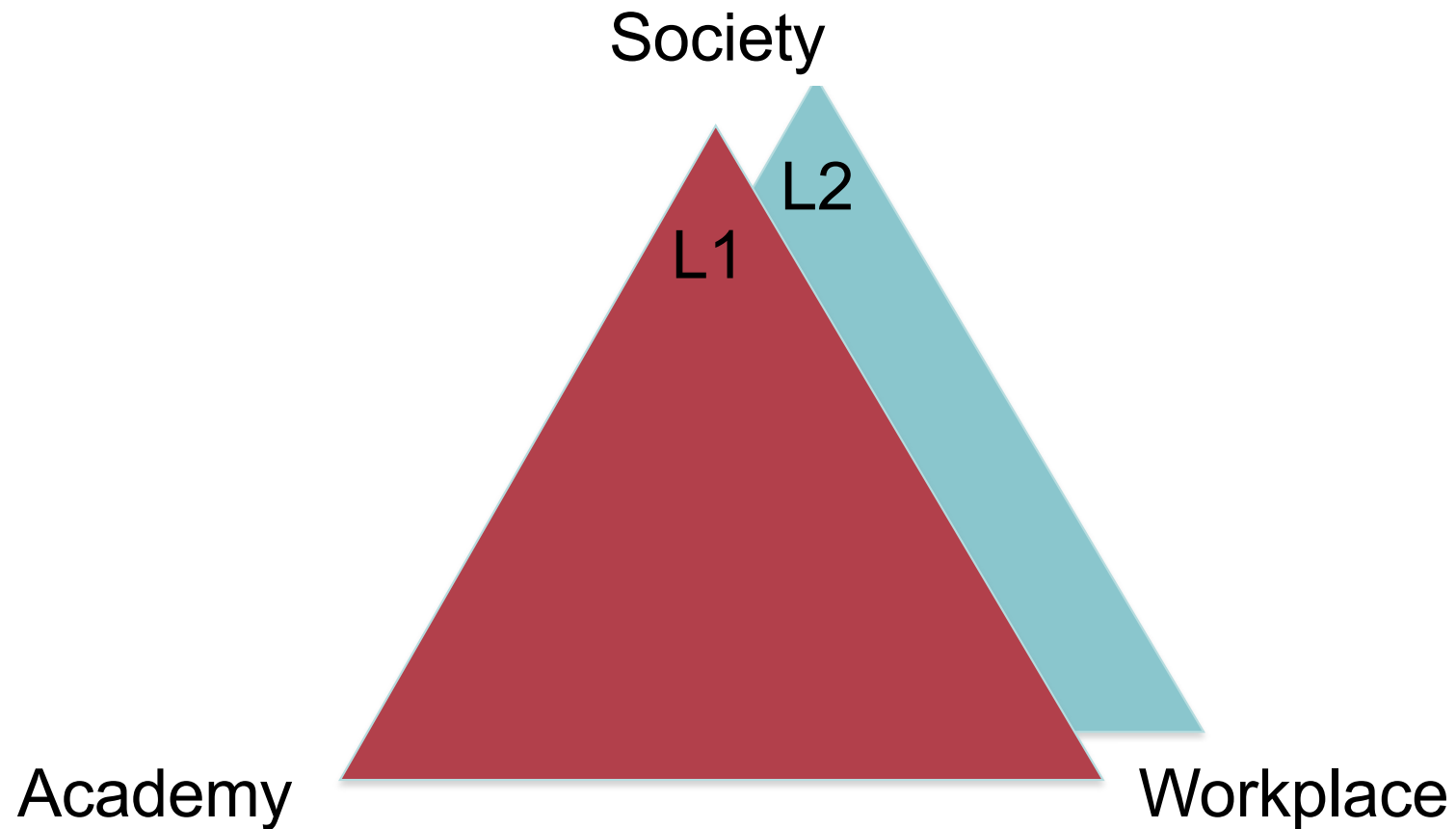
Airey (2011b)

John Airey 20th April 2023



Stockholm
University

Disciplinary Literacy Triangle



Airey (2020)

John Airey 20th April 2023



Stockholm
University

Other modes of representation?

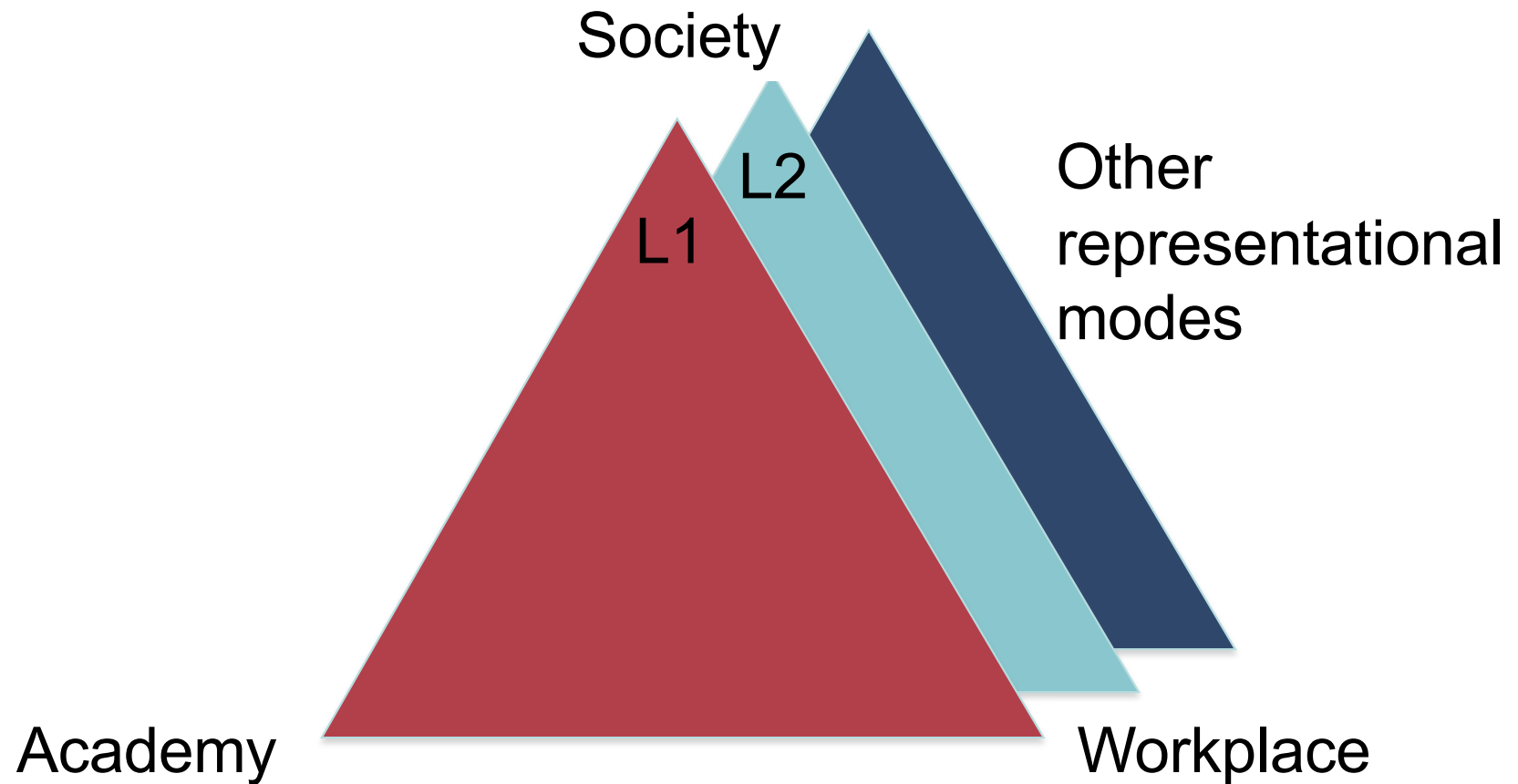
Mathematics as a third language?

Diagrams, graphs, code, pictures, gesture hands
on work with tools and apparatus, etc. etc...



Stockholm
University

Disciplinary Literacy Triangle



Airey (2020)

John Airey 20th April 2023



		Where used?			
		Academy	Workplace	Society	
Languages	First Language	Reading			
		Writing			
		Listening			
		Speaking			
	English	Reading			
		Writing			
		Listening			
		Speaking			
Other modes (please add to the list)	Mathematics	interpret?			
		Types?	create?		
	Graphs	interpret?			
		Types?	create?		
	Diagrams	interpret?			
		Types?	create?		
	Code	interpret?			
		Types?	create?		
	→				
	→				
	→				
	→				



Stockholm
University

Implications

Head of physics department:

Something like this shows you huge gaps in what you do that you don't think about how you teach at all—you know having an interview like this—and you suddenly think 'I never thought of that.'



Stockholm
University

Implications

Given the differences between disciplines and indeed individual courses within a discipline:

inter- and intra-faculty discussions about undergraduate disciplinary literacy goals are an important step—what is needed in which language?

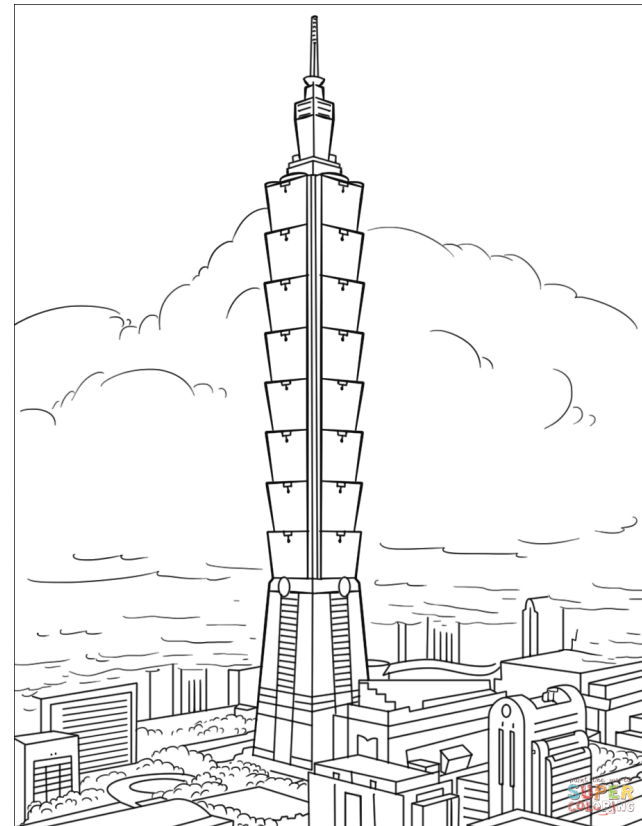
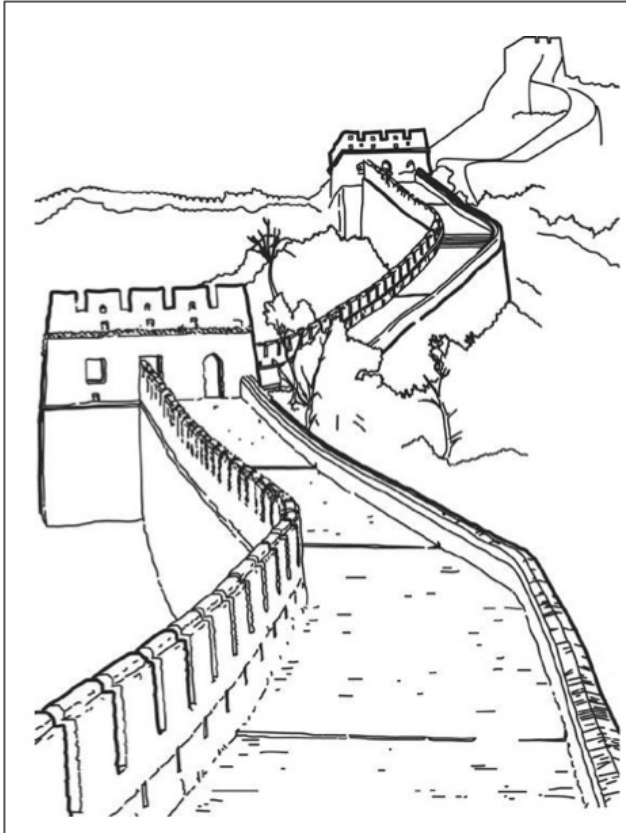
Suggest the matrix may be a good starting point for these discussions.



Stockholm
University

Everything, Everywhere, All At Once?

Wall or Tower?





Stockholm
University

Everything, Everywhere All At Once?

General language learning

Lay foundations then add the next layer.

Disciplinary-specific learning

Make a very specific “tower of language”.

Hopefully the matrix can help in making decisions.



Stockholm
University

Questions/Comments?

