Metaphorical Vocabulary Use in English as a Medium of Instruction Courses

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Supported by Kaken research grant 20K00863

REFLECTIONS AND NEW PERSPECTIVES
JALT2021
ONLINE
NOVEMBER 12~15, 2021

JALT
THE JAPAN ASSOCIATION FOR LANGUAGE TEACHING
全国語学教育学会

English as a Medium of Instruction (EMI)

- English as object of instruction > medium of instruction
- Component of governmental internationalization efforts
- Number of universities in Japan offering EMI more than doubled from 2000-2015.
- >40% of institutions offer EMI, although great variety in how it is implemented

(Brown, Bennett & Stoeckel, 2019; MEXT, 2017)

Lexical demands of EMI

- Learner needs
  - Exposure 100,000~250,000 words per course (Bennett, 2017)
  - Lexical needs
    - 95-98% coverage of words needed for comprehension (Hu & Nation, 2000; Laufer & Ravenhorst-Kalovski, 2010; Schmitt, Jiang & Grabe, 2011).
    - 6,000-10,000 word families required to reach 98%.
  - Misunderstanding in academic lectures due to metaphor use (Littlemore, 2001; Low, Littlemore & Koester, 2008)

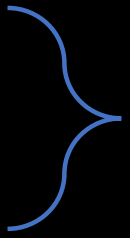
Lexical demands of EMI

- High-frequency & academic vocabulary (Browne, Culligan & Philips, 2013; Coxhead, 2000)
- Variation in lexical demands between disciplines (frequency, collocation, polysemy) (Durrant, 2014; Hyland & Tse, 2007).
- Therefore, need to raise awareness of extended word meanings.
- Fixation on known meanings rather than extended meanings (Bensoussan & Laufer, 1984; Laufer, 1989)
- Extended meanings one of the hardest aspects to acquire (Dóczi & Kormos, 2016)

Metaphorical vocabulary

Metaphor: “a figure of speech in which a word or phrase is applied to an object or action to which it is not literally applicable” (Oxford Dictionaries.com)

Source domains
- concrete entities
- basic
- more human-oriented

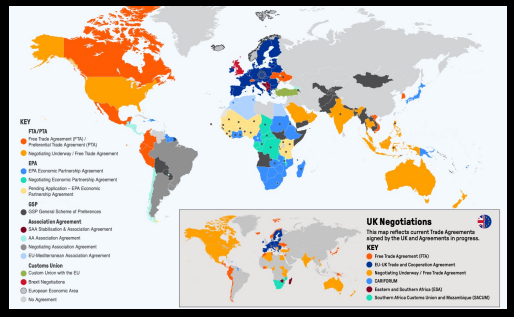


Target domains
- abstract concepts
- not directly perceived by senses

Metaphorical vocabulary

"A patchwork quilt of trade agreements." (BAWE corpus)

Source domain: quilts	Target domain: trade agreements
several pieces of cloth	several elements?
multicoloured	lack of unity?
warmth	???
covering for bed	???



Active metaphor

- processed by comparison
- different interpretations possible

Metaphorical vocabulary

"Power is the mechanism by which the international system is run." (BAWE corpus)

Source domain: machinery		Target domain: political systems
connected components	→	various political entities
functioning together	→	interaction
provide control	→	provide control
lead to outcome	→	lead to outcome
physical elements		???

Dead metaphor

- processed by categorization
- L1 & advanced users aware of meaning

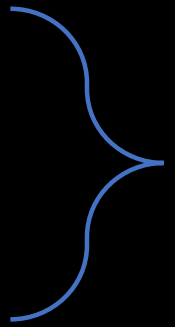
Conceptual metaphors

Conceptual metaphor theory (Lakoff & Johnson, 1980)

- Recurrent language features are evidence of how humans conceptualize the world.
- Abstract states are understood by comparison with concrete entities

Linguistic metaphor

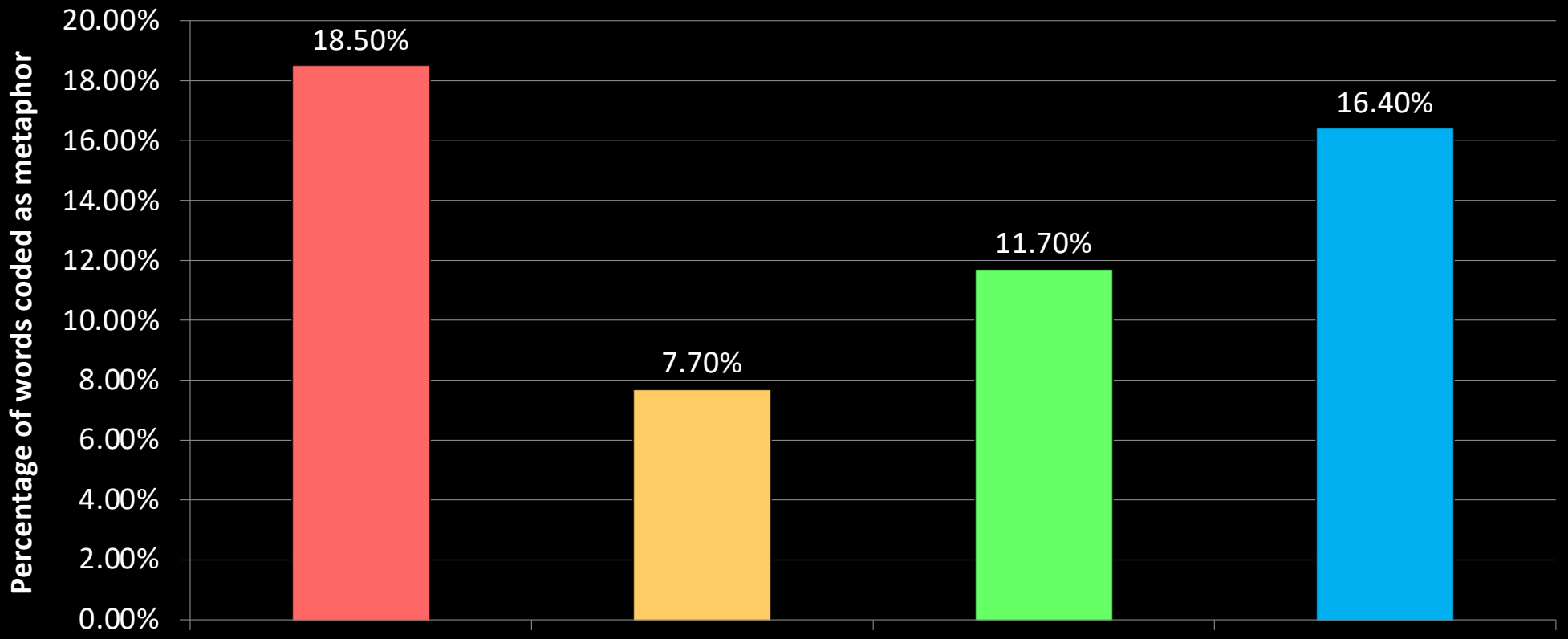
… a healthy / ailing economy…
…economic growth…
…finance is the life blood of the economy…
…a deep economic sickness in the country…
…a matter of economic life or death…
(COCA)



Conceptual metaphor

ECONOMIES ARE LIVING THINGS

Metaphor across genres



Steen et al. (2010)

Research aims

- Learners in EMI courses face considerable lexical demands.
- Need deep, as well as broad, vocabulary knowledge
  - Prominent metaphorical vocabulary
- Construct corpus of EMI materials (spoken & written)
- Reference corpus of materials from L1 English backgrounds
- Identify metaphor use…
  - …at a discipline-specific level
  - … (possibly) at a multi-disciplinary level
- Develop teaching materials for use in EMI programs

Methodology: EMI corpus construction

Brown, Bennett & Stoeckel (2019)

- corpus of undergraduate-level EMI materials
- 500,000 tokens
- written input
- 3 disciplines
- 2 institutions

Updated corpus

- 2,000,000 tokens
- written & spoken input
- 15 disciplines
- 5 institutions

Methodology: EMI corpus construction

Sub-set of EMI corpus

Discipline	**Tokens**
Applied Linguistics	470,736
Philosophy	171,872
Political Science	375,158
Literature	193,503

Methodology: Reference corpus

Compiled from:

British Academic Written English Corpus (BAWE)

British Academic Spoken English Corpus (BASE)

Michigan Corpus of Upper-Level Student Papers (MICUSP)

Michigan Corpus of Academic Spoken English (MICASE)

student writing
professor/student talk

Discipline	**Tokens**
Applied Linguistics	509,488
Philosophy	510,420
Political Science	682,079
Literature	574,782

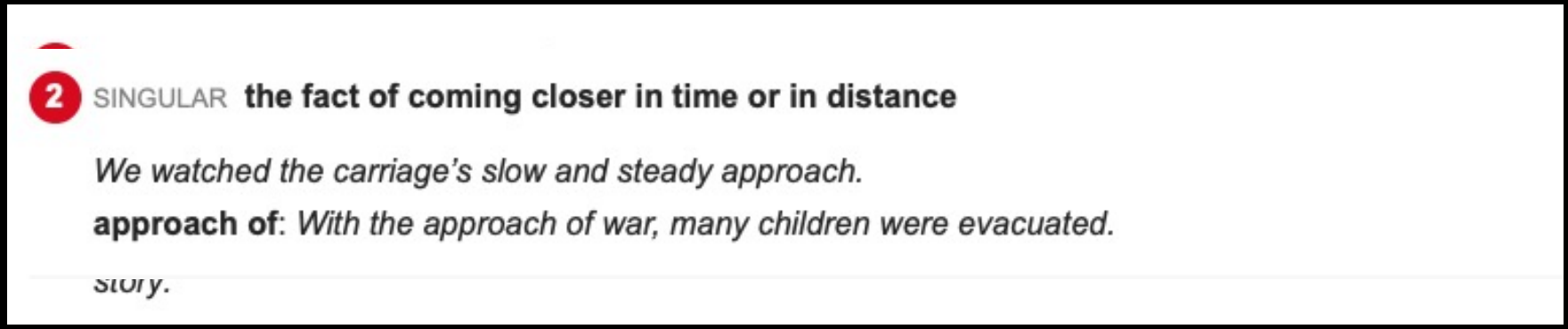
Methodology: Identifying metaphor

Metaphor Identification Procedure Vrije Universiteit (MIPVU) (Steen et al., 2010)

1. Consider meaning of each lexical unit in context (Macmillan dictionary).
2. Determine whether a more basic sense exists (human, concrete) .
3. Determine whether basic sense is sufficiently distinct (separate numbered entry in Macmillan dictionary).
4. Determine whether contextual sense can be understood by comparison with basic sense. If so, mark it as a metaphor-related word.

Methodology: Identifying metaphor

"...content and language integrated learning, an approach to language teaching which is growing in popularity..." (EMI corpus)



2 SINGULAR **the fact of coming closer in time or in distance**

We watched the carriage's slow and steady approach.

approach of: *With the approach of war, many children were evacuated.*

story.

macmillandictionary.com

Source domain: movement

- movement
- towards destination

Target domain: education

- dealing with issue
- towards goal of successful language acquisition

Methodology: Data analysis

1. 50,000-word samples of text taken from EMI corpus from each of 4 disciplines
2. Coded for metaphor using MIPVU process
3. Second rater codes 20% of this sample to establish reliability.

	Discipline	Text no punctuation	Metaphor-related word	
1				
2	Applied Linguistics	This	1	
3	Applied Linguistics	suggests	1	
4	Applied Linguistics	that		
5	Applied Linguistics	a		
6	Applied Linguistics	vocabulary		
7	Applied Linguistics	learning		
8	Applied Linguistics	program		
9	Applied Linguistics	will		
10	Applied Linguistics	require		
11	Applied Linguistics	both		
12	Applied Linguistics	an		
13	Applied Linguistics	explicit		
14	Applied Linguistics	teaching		
15	Applied Linguistics	component	1	
16	Applied Linguistics	and		
17	Applied Linguistics	a		
18	Applied Linguistics	component	1	
19	Applied Linguistics	which		
20	Applied Linguistics	maximizes		
21	Applied Linguistics	repeated		
22	Applied Linguistics	exposures	1	
23	Applied Linguistics	to	1	
24	Applied Linguistics	lexical		
25	Applied Linguistics	items	1	
26	Applied Linguistics	such as		
27	Applied Linguistics	extensive	1	

Methodology: Data analysis

- Identify the most frequent metaphorical words in each discipline.
- Identify possible metaphorical themes to investigate.

- Connecting sample codings with whole corpus
- All corpus data tagged with semantic tags (Wmatrix) (Rayson, 2008)

	APPLING	LIT	PHIL	POLSCI
1	found	way	way	threat
2	form	feel	thing	way
3	switch	call	form	power
4	level	long	call	system
5	way	great	follow	control
6	see	come	see	high
7	show	look	give	see
8	high	see	go	support
9	focus	thing	look	growth
10	goal	keep	take	level
11	item	form	strong	take
12	approach	sense	get	low
13	take	give	point	view
14	target	find	show	nature
15	stage	out of	share	base on
16	grade	turn	here	strong
17	give	back	feature	freedom
18	input	part	great	grow
19	call	go	satisfy	call
20	exposure	run	come	show

Semantic Category System: Categories

A
general & abstract terms

B
the body &the individual

C
arts &crafts

E
emotion

F
food & farming

G
government & public

H
architecture, housing &the home

I
money & commerce, industry

K
entertainment, sports & games

L
life & living things

M
movement, location, travel & transport

N
numbers & measurement

O
substances, materials, objects & equipment

P
education

Q
language & communication

S
social actions, states & processes

T
time

W
world & environment

X
psychological actions, states & processes

Y
science & technology

Z
names & grammar

Methodology: Data analysis

- Semantic tags used to search for metaphors related to same concept in whole corpus.
  - approach_M1
    - advance_M1
    - avoid_M1
    - bypass_M1
    - climb_M1
    - converge_M1
    - follow_M1
    - move_M1
    - pace_M1
    - proceed_M1
    - pursue_M1

Methodology: Data analysis

1. Keyword analysis to identify important concepts in each discipline
   - Keywords: Words appearing more often than expected by chance alone
   - Each discipline corpus compared with corpus of all other disciplines
   - Log-likelihood statistic
2. Each discipline, 10 keyword nouns taken as important concepts.
   - Applied linguistics: language, word, speaker, speech, grammar, verb, learning, vocabulary, teaching, teacher
   - Philosophy: argument, reason, mind, belief, knowledge, experience, existence, truth, moral, god
   - Political science: government, policy, politics, institution, party, economy, market, trade, election, democracy
3. Metaphorical collocates of important concept words identified

Results

% Metaphor-related words

Discipline	% Open-class words coded as metaphors
Applied Linguistics	16.69%
Philosophy	13.34%
Political Science	16.21%
Literature	13.94%

Open-class words:
nouns,
verbs,
adjectives, &
adverbs

Results

Applied linguistics

LANGUAGE IS A CONSTRUCTION/PRODUCT

(assemble, build, broken, foundation, framework, reconstruct, scaffolding, structure)

LANGUAGE TEACHING & LEARNING IS DIRECTED MOVEMENT

(approach, direct, follow, lead, map, movement, path, progress, target)

LANGUAGE IS A PHYSICAL OBJECT

(absorb, borrow, cluster, compound, contact, grasp, impact, possess, retrieve, string)

LANGUAGE USE IS OPERATING A MACHINE

(breakdown, control, device, fine tune, input, switching)

Results

Philosophy

Acceptance & understanding is possession

(accept, adopt, dispose, grip, hold, inherit, offer, possess, provide, retain, withhold)

Debate is aggressive behaviour

(argue, attack, challenge, clash, defence, deploy, fight, grapple, hostile, struggle)

Seen is known, unseen is unknown

(bury, conceal, display, exhibit, find, obscure, reflect, reveal, see, uncover, veiled, witness)

Ideas are constructed objects

(architect, blueprint, bridge, construct, fabricate, framework, pillar, reconstruct)

Results

Political science

POLITICAL INTERACTION IS PHYSICAL FORCE

(bind, boost, burden, containment, destabilize, drive, erode, force, impact, restrain, shape)

POLITICAL ENTITIES ARE CONSTRUCTIONS

(architect, construct, engineer, fortify, foundation, machinery, support)

POLITICS IS AGGRESSIVE/DESTRUCTIVE ACTION

(abuse, aggressive, barrage, campaign, endanger, landslide, sabotage, smash, undermine)

POLITICS IS PERFORMANCE

(actor, drama, dramatic, masquerade, perform, player, prompt, role, stage)

Results

Discipline	Conceptual metaphors	Estimated % of all open-class metaphors	Metaphors met every … words
Applied linguistics	12	24.41%	40.36
Literature	/	/	/
Philosophy	11	10.29%	125.30
Political science	9	19.64%	51.68

Limitations

- Data analysis still under way
- Second rater codings may change outcomes
- Limited corpus size

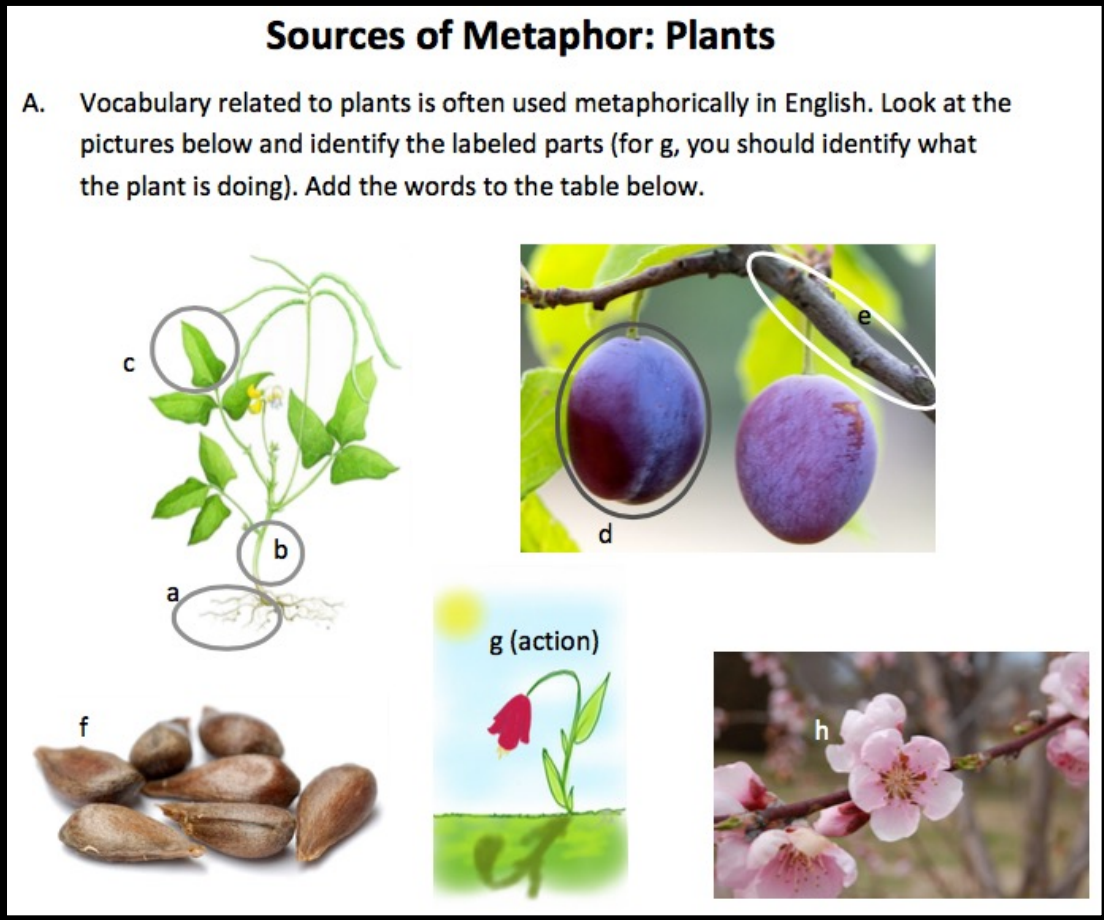
Future work

- Continue to identify metaphors in each discipline.
  - Common verbs as key words
- Examine metaphor use in other disciplines
  - Hard science
  - Business
- Develop teaching materials either for metaphor in general or for specific disciplines.

Future work

Possible approaches to teaching

- Identifying core meanings
- Guessing meaning from context
- Constructing relationship diagrams



Future work

Possible approaches to teaching

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- Guessing meaning from context
- Constructing relationship diagrams

Letter	Name	Core features
a	root	connection to earth, important for development, hidden
b	stem	main part of plant's body, leaves produced from
c	leaf	
d	fruit	the product of the plant
e	branch	grows in a new direction away from main body
f	seed	source of a new plant
g	wilt	
h	blossom	

Future work

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- Constructing relationship diagrams

1. We tried to tune the piano.
2. Learners have to fine-tune their language use.
3. My car wouldn't start, so I called the breakdown service.
4. Lack of vocabulary can lead to breakdowns in communication.
5. She was switching the lights on and off.
6. Language users will code-switch in different situations.

Future work

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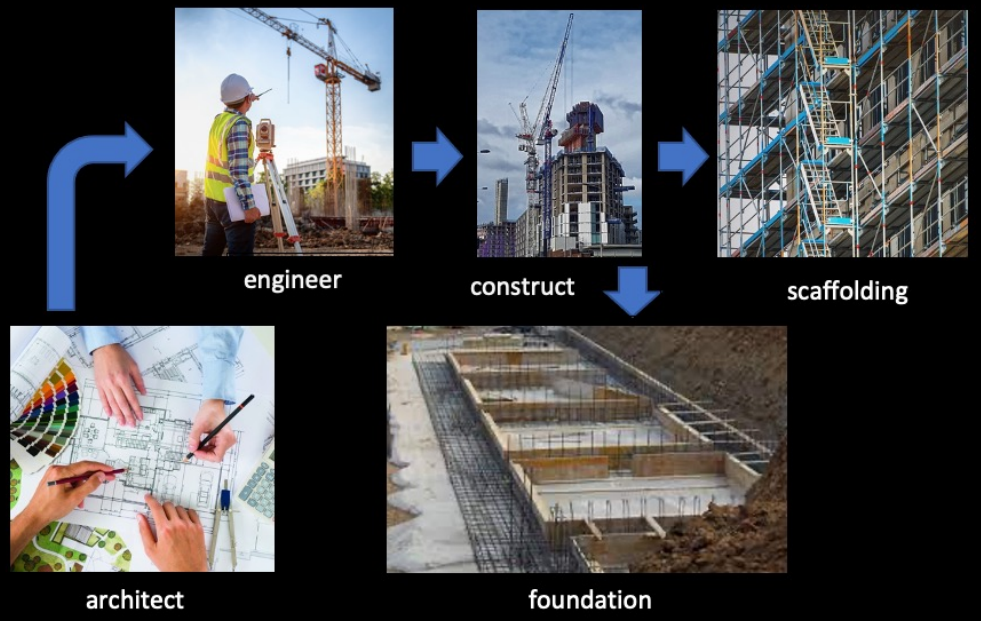

Thank you!

If you are willing to share EMI course materials (texts or audio recordings), please get in touch!

Call for participants

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