

第二言語音声語彙習得と 教授法

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外国語（英語）語彙学習

- これまで英単語をどのように学習して（教えて）きましたか？
- ✓ 「何度も覚えるまでスペルを書きなさい！」
- ✓ 「たくさん英文を読みなさい！」
- ✓ 「単語帳を毎日熟読しなさい！」
- ✓ 「単語カードを作りなさい！」



本講演のテーマ：音声語彙力習得・教授法

- 英単語学習は筆記情報（written input & output）偏重の傾向
- 「読み・書き」は大丈夫だが「聞く・話す」自信がない
- L2語彙研究の偏り（Reading, Writing, Testing）

内容

1. L2語彙研究の概観
2. (産出) 音声語彙研究の紹介
3. 音声語彙の効果的な教授法への示唆

L2語彙研究の概観

偶発的語彙学習 (incidental vocabulary learning)

・ 内容理解が目的。その過程でどの程度の未知単語が習得されるか。

例：Graded Readersなどの多読。

意識的語彙学習 (intentional vocabulary learning)

・ 単語学習が目的。より効果的な語彙学習活動を探求。

例：単語カード学習

1. 表象認知 (form recognition)

- 例：分析: (1) permission, (2) analogy, (3) analysis, (4) difficulty

2. 意味認知 (meaning recognition)

- 例：Analysis: (1) 許可, (2) 類似, (3) 分析, (4) 困難

3. 表象産出 (form recall)

- 分析： Analysis

4. 意味産出 (meaning recall)

- 例：Analysis: 分析

- どのレベルの語彙力の習得がより難しいでしょうか？

- Form recall > Meaning recall > Form recognition \cong Meaning recognition

(Laufer & Goldstein, 2004; Laufer et al., 2004)



- Ramezanali, N., Uchihara, T., & Faez, F. (2021). Efficacy of multimodal glossing on L2 vocabulary learning: A meta-analysis. *TESOL Quarterly*, 55(1), 105–133.
- Uchihara, T., Webb, S., & Yanagisawa, A. (2019). The effects of repetition on incidental vocabulary learning: A meta-analysis of correlational studies. *Language Learning*, 69(3), 559–599.
- Webb, S., Yanagisawa, A., & Uchihara, T. (2020). How effective are intentional vocabulary learning activities? A meta-analysis. *The Modern Language Journal*, 104(4), 715–738.
- Yanagisawa, A., Webb, S., & Uchihara, T. (2020). How do different forms of glossing contribute to L2 vocabulary learning from reading? A meta-regression analysis. *Studies in Second Language Acquisition*, 42(2), 411–438.

偶発的語彙学習 (incidental vocabulary learning)

- L1学習者：15%の学習率 (reading: Swanborn & de Glopper, 1999)
- Reading
 - ▶ 15~17%
- 未知単語に繰り返し出逢う => 学習率を上げる
 - ▶ 相関係数 ($r = .34$)

(半) 偶発的語彙学習 (semi-incident vocabulary learning)

- より語彙習得の効果を上げるために何ができるか？

様々な脚注 (gloss)の種類

- Marginal glosses
- Interlinear glosses
- In-text glosses
- Glossaries
- Multiple-choice glosses
- Hyperlinked glosses

1. Marginal glosses

Each year in the U.S. about 7,000 infants die in their **cribs** for no apparent reason. In 2019, the number has decreased. However, it appears that the vast majority of parents are still not ...

Cribs = babies' beds (L2)

Cribs = ベビーベッド (L1)

2. Interlinear glosses

Each year in the U.S. about 7,000 infants die in their **cribs** for no apparent reason.

Cribs = babies' beds

In 2019, the number has decreased. However, it appears that the vast majority of parents are still not ...

3. In-text glosses

Each year in the U.S. about 7,000 infants die in their cribs, babies' beds, for no apparent reason. In 2019, the number has decreased. However, it appears that the vast majority of parents are still not ...

4. Glossaries

Each year in the U.S. about 7,000 infants die in their **cribs** for no apparent reason. In 2019, the number has decreased. However, it appears that the vast majority of parents are still not ...

Vocabulary List

Cribs = babies' beds

Decrease = to go down in number or quantity

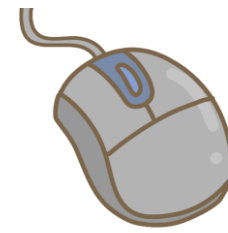
Infants = babies or very young children

5. Multiple-choice glosses

Each year in the U.S. about 7,000 infants die in their **cribs** for no apparent reason. In 2019, the number has decreased. However, it appears that the vast majority of parents are still not ...

**Cribs = 1. babies' beds
2. small beds**

6. Hyperlinked glosses



Each year in the U.S. about 7,000 infants die in their [cribs](#) for no apparent reason. In 2019, the number has decreased. However, it appears that the vast majority of parents are still not ...

Cribs = babies' beds

Results

TABLE 3. The learning gain for each gloss type compared to the nonglossed condition

	Immediate					Delayed				
	<i>k</i>	<i>n</i>	Mean ES difference (%)	CI	<i>p</i>	<i>k</i>	<i>n</i>	Mean ES difference (%)	CI	<i>p</i>
Multiple-choice	12	31	25.2	18.5, 31.8	< .001	12	21	15.6	9.0, 22.3	< .001
Hyperlinked	11	35	18.4	5.9, 30.9	.009	11	33	15.2	3.1, 27.3	.020
Marginal	25	69	17.8	13.5, 22.0	.001	21	50	12.8	9.6, 16.0	< .001
Glossaries	2	3	17.4	-27.7, 62.5	.134	3	5	10.4	-9.9, 30.6	.147
Interlinear	1	4	16.0	8.5, 23.5	.004	0	0	–	–	–
In-text	4	12	11.0	-0.4, 22.4	.055	3	4	6.5	-19.0, 32.1	.412

Note: *k* = number of studies, *n* = number of ESs, CI = 95% confidence interval, Mean ES difference (%) = mean effect size differences between each gloss type and the nonglossed condition converted into a percentage. *p* = *p*-value for significant test.

- Social distancing to stop the spread of COVID-19 might feel unnatural to us, but other animals **intuitively* do something similar, without the need for rules or regulations to keep them in line.

*直感的に

Single mode

- Social distancing to stop the spread of COVID-19 might feel unnatural to us, but other animals **intuitively* do something similar, without the need for rules or regulations to keep them in line.

*直感的に



Two modes

★two modes = three modes

★必ずしもmodeが多い方が良いとは限らない。

Ramezanali, Uchihara, & Faez (2021)

意識的語彙學習 (intentional vocabulary learning)

1. Flashcards

- L2 form => L1 meaning, L1 meaning => L2 form
- *e.g.*, 米 (L1) => _____?
- *e.g.*, Rice (L2) => _____?

2. Word lists

- L1 meaning & L2 form presented together
- *e.g.*, 米 (L1) : Rice (L2)

3. Writing

- Writing sentences using target words

4. Fill-in-the-blanks

- Completing sentences with a blank using target words
- *e.g.*, Children who watch a lot of TV do not _____ between reality and fantasy.

Results (直後テスト)

L2-to-L1 translation

L1-to-L2 translation

TABLE 2

Estimated Effect Size (ES) of Proportion of Target Words Learned on Immediate Posttests

Activity	Meaning Recall				Form Recall			
	<i>k</i>	<i>n</i>	Mean ES (SE)	CI	<i>k</i>	<i>n</i>	Mean ES (SE)	CI
Fill-in-the-blanks	8	9	0.431 (0.056)	[0.29, 0.56]	2	3	0.184 (0.042)	[-0.35, 0.72]
Writing	10	14	0.548 (0.018)	[0.43, 0.66]	4	6	0.368 (0.075)	[0.10, 0.62]
Word lists	5	11	0.732 (0.075)	[0.51, 0.94]	7	14	0.701 (0.051)	[0.57, 0.83]
Flashcards	2	6	0.770 (0.050)	[0.53, 1.00]	4	14	0.661 (0.048)	[0.50, 0.81]

Note. *k* = number of studies; *n* = number of ESs; SE = standard error; CI = 95% confidence interval adjusted with RVE. The total number of studies = 20. The total number of ESs = 77.

ここまでのまとめ

- ✓ 様々な学習活動の効果が検証されてきた
- ✓ しかし、ほとんどの研究が筆記語彙に着目
- ✓ 近年、Listening研究、Viewing研究増加

Listening, Viewing研究

- Listening (e.g., songs, academic lectures, teacher talk)
- Viewing (e.g., drama, documentary, movie)

***Kurokawa, *Hein, & Uchihara (in progress)**

- 動画視聴からの語彙習得
- L2字幕付き vs. L1字幕付き vs. 字幕なし
- L2字幕付き vs. 字幕なし => **約7%向上**
- L1字幕付き vs. 字幕なし => **約2%向上**

ここまでのまとめ

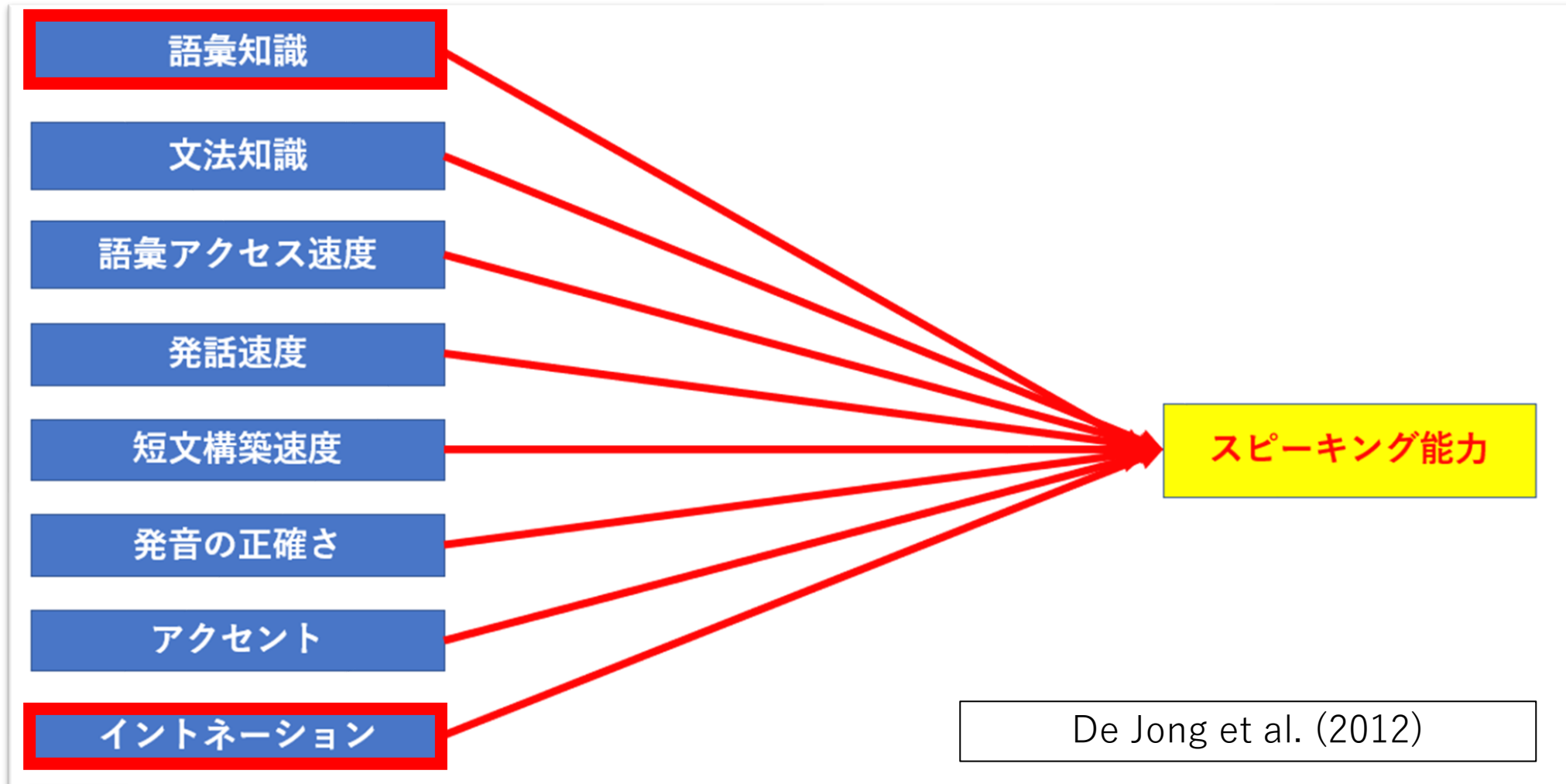
- ✓ 様々な学習活動の効果が検証されてきた
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- ✓ 近年、Listening研究、Viewing研究増加

□ 語彙学習の目的？

□ Reading, Listening, Writing, Speaking

□ 話せるようになるための語彙力とは??

スピーキング能力に必要な言語知識とは



Form	Spoken	R	What does the word sound like?
		P	How is the word pronounced?
Meaning	Written	R	What does the word look like?
		P	How is the word written and spelled?
	Word parts	R	What parts are recognizable in this word?
		P	What word parts are needed to express the meaning?
Use	Form and meaning	R	What meaning does this word form signal?
		P	What word form can be used to express this meaning?
	Concept and referents	R	What is included in the concept?
		P	What items can the concept refer to?
	Associations	R	What other words does this make us think of?
		P	What other words could we use instead of this one?
Use	Grammatical functions	R	In what patterns does the word occur?
		P	In what patterns must we use this word?
	Collocations	R	What words or types of words occur with this one?
		P	What words or types of words must we use with this one?
Use	Constraints on use	R	Where, when, and how often would we expect to meet this word?
		P	Where, when, and how often can we use this word?



話せるようになるための語彙力

- 産出語彙（意味/伝えたいこと => 形式/L2 spoken form）
 - **Form-meaning mapping knowledge** (e.g., りんご => apple)
 - 産出された形式がどの程度相手に伝わるか
 - **Spoken form (i.e., pronunciation) quality**
- 高いqualityのspoken formとは？
 - ネイティブのような発音？
 - 個々の発音の正確さとストレス？ (Nation, 2013)



High quality spoken formの定義



- 3つ発音能力の定義 (Munro & Derwing, 1995)

1. **Accentedness** (ネイティブらしさ)

2. **Intelligibility** (知覚できるか)

3. **Comprehensibility** (わかりやすさ = listener effort)

- 必ずしも「わかりやすい」発音が「ネイティブらしい」とは限らない
- 必ずしも「知覚できる」発音が「わかりやすい」とは限らない

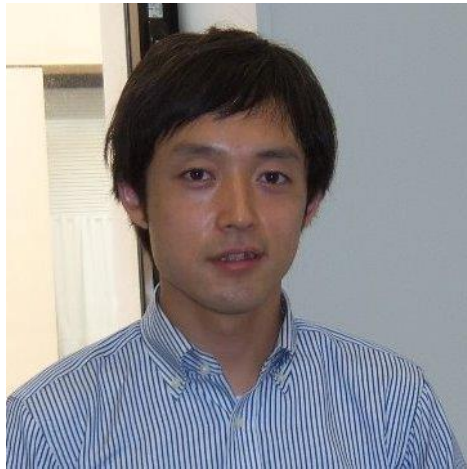
□ 「わかりやすい」発音の習得を目標 (comprehensible pronunciation)

話せるようになるための語彙力

- 産出語彙（意味/伝えたいこと => 形式/L2 spoken form）
 - **Form-meaning mapping knowledge** (e.g., りんご => apple)
 - 産出された形式がどの程度相手に伝わるか
 - **Spoken form (i.e., pronunciation) quality**
 - **相手にとって負荷のかからない程度の正確さ**
- 高いqualityのspoken formとは？
- ネイティブのような発音？

- 新たな単語を学習する過程でどの程度学習した単語の発音がより「わかりやすく」 (comprehensible)になるのか？
- 繰り返し出逢うことでより「わかりやすく」 (comprehensible)になるのか？ (cf. Uchihara et al., 2019)

Uchihara, T. Webb, S., Saito, K., & Trofimovich, P. (forthcoming). Frequency of exposure influences accentedness and comprehensibility in learners' pronunciation of second language words. *Language Learning*.



学習者

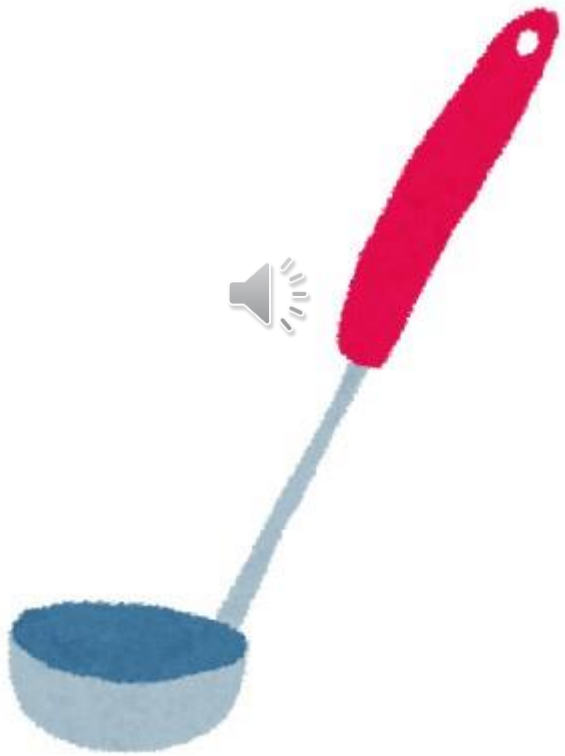
- 75名、日本人英語学習者

Target words

- 40 低頻度英単語
 - 13 外来語 (e.g., chandelier, chameleon, marshmallow)

Experimental groups

- 1回単語の音声を聞いて単語を覚える (E1) (n = 25)
 - 3回単語の音声を聞いて単語を覚える (E3) (n = 25)
 - 6回単語の音声を聞いて単語を覚える (E6) (n = 25)
- **Learning trials**
 - 単語を表す写真と単語の音声が流れる => 覚えるように指示



事前テスト

- Picture naming (1)

学習 + 事後テスト

- 学習 (40単語)
- 1回 vs. 3回 vs. 6回のインプット
- Picture naming (2)

遅延テスト

- Picture naming (3)



事前、事後、遅延テスト

- **Picture-naming task**

➤ 学習者は発音に関する情報は伝えない

語彙知識 (form-meaning mapping)

- **Spoken form recall : 表象産出 (picture/meaning => L2 form)**

発音知識

- **Accentedness & comprehensibility ratings** (Derwing & Munro, 2009)

- Accentedness (1 = no accent, 9 = extremely strong accent)
- Comprehensibility (1=easy to understand, 9=extremely difficult to understand)
- 24名の英語ネイティブ話者により評価

結果（外来語を除く）

Form-meaning mapping

- 事後テスト: $E6 > E3 > E1$
- 遅延テスト: $E6 = E3 = E1$

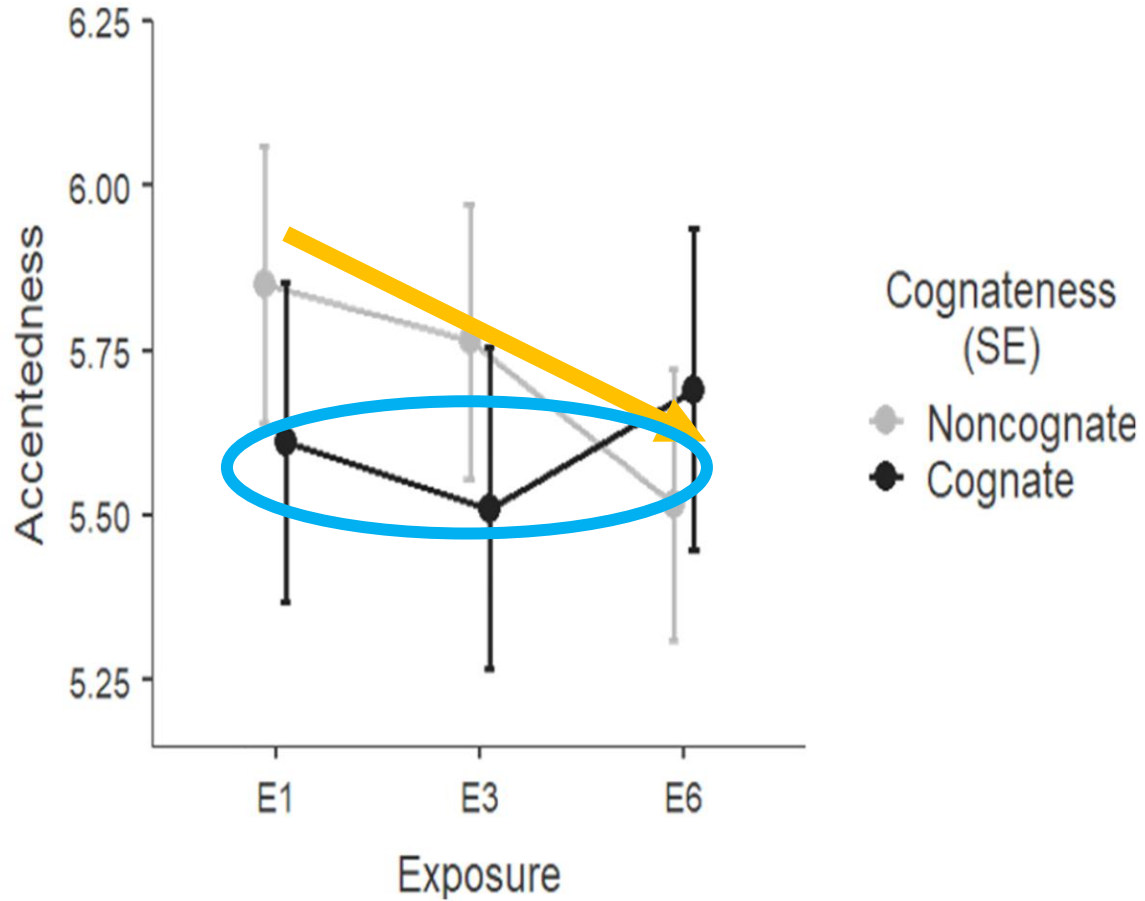
Comprehensibility

- 事後テスト: $E6 * < E3 < E1$
- 遅延テスト: $E6 = E3 = E1$

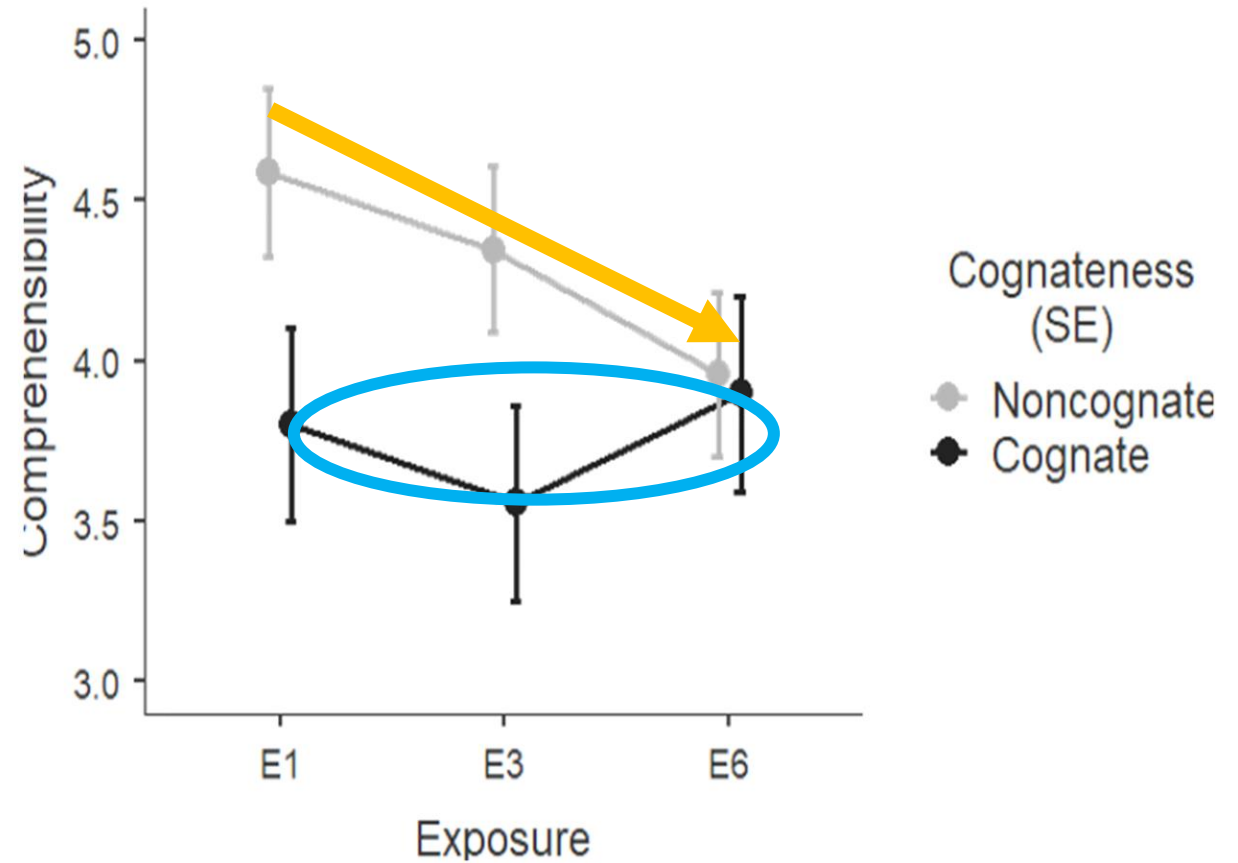
Accentedness

- 事後テスト: $E6 < E1$
- 遅延テスト: $E6 = E3 = E1$

外来語の影響



Accentedness

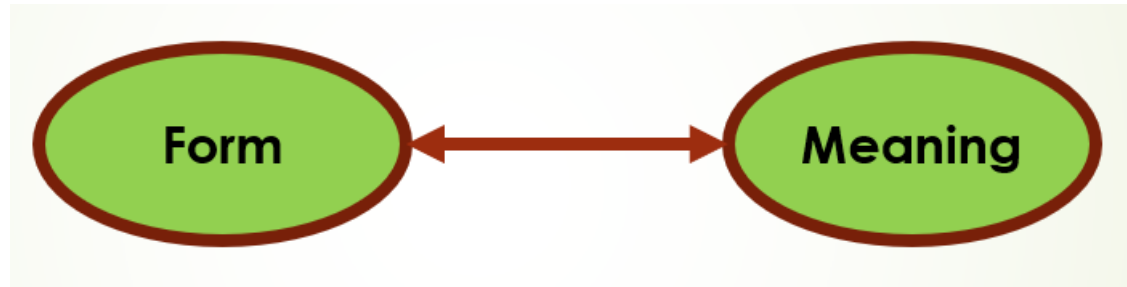
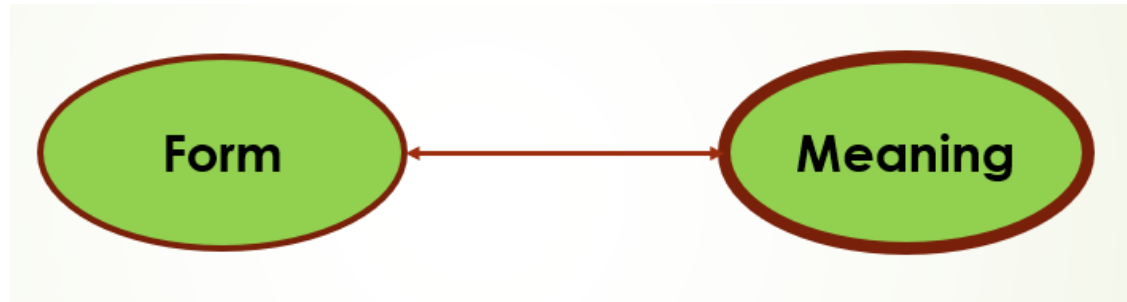


Comprehensibility

研究結果からの示唆

- 音声インプットを繰り返し与えることでform-meaning mappingだけでなく、spoken form quality（特にcomprehensibility）を向上させる
 - 未知語の学習時に音声を聞くことの意義
- 特に非外来語への影響が大きい
 - 外来語は少ないインプットでもある程度「わかりやすい」発音ができるようになる
- しかし、1週間後まで効果は持続しない
 - 長い期間繰り返しのインプットが必要

Frequency



音声語彙学習の効果的な 教授法を考える

インプットの重要性

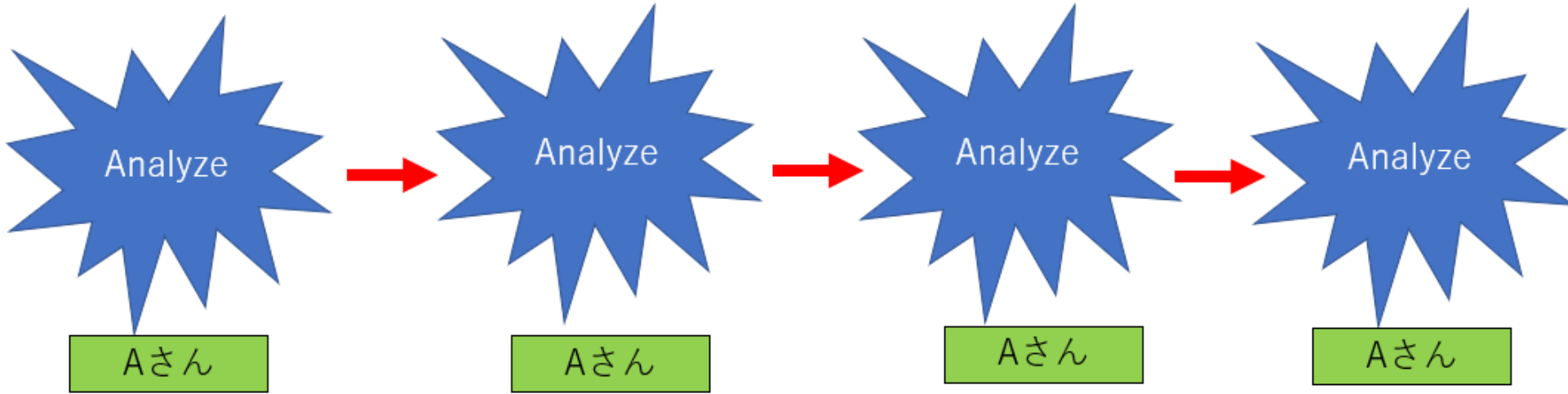
- 発音知覚トレーニング研究では必ずしもoutputトレーニングがinputトレーニングより効果的とは限らない。
 - Production accuracy: $\text{Input} = \text{Output} < \text{Input} + \text{Output}$ (Herd et al., 2013)
 - Perception-based > Production-based training (Lee et al., 2020)
- Inputトレーニングのみでも（バラつきはあるが）発音の正確さが向上する (Sakai & Moorman, 2018)

様々なinputを与える (talker variability)

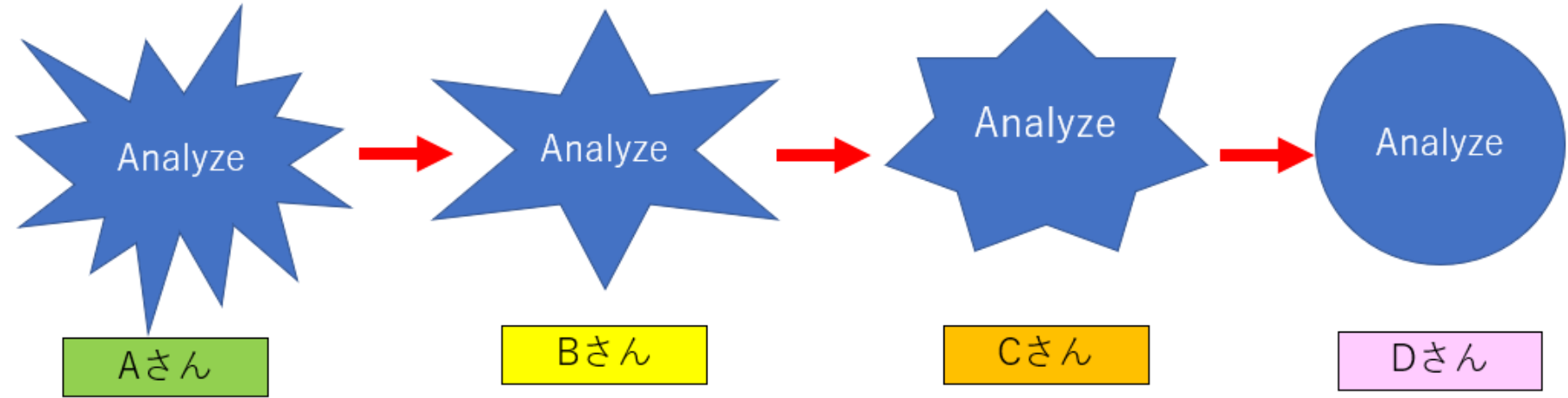
- 言語的特徴 (linguistic information) : 音声言語の意味の弁別にかかわる情報 (例: /teik/ => /**m**eik)
- 指標的特徴 (indexical information) : 音声言語弁別に関わらない音声特徴 (例: 音量、声の高さ)
- 人によって指標的特徴が異なる
- 性別や年齢でも異なる

単語の識別に必要な音声情報を抽出していく + 指標的特徴はそぎ落としていく => より洗練された音声知識

同じ人からの音声情報から学習



異なる人からの音声情報から学習



- **Talker variability => 音声識別力の向上** (e.g., Thomson, 2018)
- **Talker variability => 語彙習得促進** (e.g., Barcroft & Sommers, 2005)
- 未知単語の学習時にtalker variabilityを与えると語彙発音（ストレス）の正確さが向上 (Uchihara et al., 2022)
- Uchihara, T., Webb, S., Saito, K., & Trofimovich, P. (2022). The effects of talker variability and frequency of exposure on the acquisition of spoken word knowledge. *Studies in Second Language Acquisition*. [Open Access]

文字のインプット

- 筆記情報 = > 語彙習得促進 (Krepel et al., 2021; Kurokawa et al., in progress)
- 音声情報 = > 音声習得促進
- 筆記情報 = > 音声習得促進? (Hayes-Harb & Barrios, 2021)
 - L1とL2の関係 (e.g., 綴りと音声の一致度合い・一貫性)
 - 例: <o>: token, hot, computer
- 視覚(80%), 聴覚(11%), 触覚(3%), 味覚(2%), 嗅覚(1%) (廣森2015 p45)

- 筆記inputが語彙習得 (**form-meaning connection**)と発音 (**comprehensibility & accentedness**)に与える影響は？
- (1)音声+筆記input vs. (2)音声input vs. (3)筆記inputを比較

Uchihara, T., Webb, S., Saito, K., & Trofimovich, P. (2022). Does mode of input affect how second language learners create form-meaning connections and pronounce second language words? *The Modern Language Journal*. [Open Access]

音声 mode



筆記 mode



Ladle

筆記 + 音声 mode



Ladle

直後テスト

- 筆記情報がある方が語彙知識 (form-meaning connection)向上
- 筆記情報を与えても与えなくとも音声inputがあれば発音知識 (comprehensibility & accentedness)向上

遅延テスト

- 音声input“のみ”の方が「ネイティブらしい」単語発音を維持する傾向
- ✓ **Form-meaning mappingとComprehensibilityを高めるためには「音声＋筆記情報」を与えるのが効果的**
- ✓ **さらなる研究が必要**
 - 音声inputを大量に与える => 文字inputを与える vs. 同時に与える

Uchihara, T., Webb, S., Saito, K., & Trofimovich, P. (2022). Does mode of input affect how second language learners create form-meaning connections and pronounce second language words? The Modern Language Journal. [Open Access]

Word Stressを教える

- “Producing the spoken form of an English word includes **being able to pronounce the sounds in the word** as well as **the degrees of stress of the appropriate syllables of the word** if it contains more than one syllable.”

(Nation, 2013, p. 65)

- **個々の音の発音 (Segmental accuracy)**
- **単語レベルのストレス (stress placement accuracy)**



- より comprehensible な単語の発音をするためには segmental accuracy と stress placement accuracy どちらも重要 => 「個々の発音を正確に + 正しいストレスの位置」 (Uchihara, 2022)
- 左 => 右へのズレが問題 (Field, 2005)
 - (e.g., **A**tmosphere => atm**O**sphere)
 - (e.g., comp**U**ter => c**O**mputer)

- Field, J. (2005). Intelligibility and the listener: The role of lexical stress. *TESOL quarterly*, 39(3), 399-423.
- Uchihara, T. (2022). Is it possible to measure word-level comprehensibility and accentedness as independent constructs of pronunciation knowledge? *Research Methods in Applied Linguistics*.

- Murphy, J., & Kandil, M. (2004). Word-level stress patterns in the academic word list. *System*, 32(1), 61-74.
- Academic Word List (AWL; Coxhead, 2000)に出てくる2979語の音節数とstressの位置で分布を調査
- 19%が3音節2つ目にストレスがある単語 (3-2)
- 11%が2音節で2つ目にストレスがある単語 (2-2)

Table 3
Word-level stress patterns of the AWL^a

(A) Stress pattern	(B) Example word	(C) Ranking of combined inventories	(D) No. of words	(E) %
3-2	<i>commitment</i>	1	556	18.66
2-2	<i>approach</i>	2	340	11.41
4-2	<i>complexity</i>	3	264	8.86
2-1	<i>versions</i>	4	257	8.62
4-3-1	<i>economic</i>	5	236	7.92
3-1	<i>analyst</i>	6	196	6.58
4-1-3	<i>qualitative</i>	7	178	5.98
3-1-3	<i>institute</i>	8	150	5.04
5-3-1	<i>methodologies</i>	9	112	3.76
5-2-4	<i>discriminating</i>	10	95	3.19
4-2-4	<i>facilitate</i>	11	80	2.69
4-1	<i>variable</i>	12	71	2.38
3-3-1	<i>guarantee</i>	13	68	2.28
2-1-2	<i>networks</i>	14	64	2.15
5-2	<i>considerable</i>	15	60	2.01
6-3-1	<i>philosophically</i>	16	49	1.64
5-4-1	<i>implementation</i>	17	34	1.14
5-4-2	<i>environmental</i>	18	30	1.01
3-1-2	<i>formatted</i>	19	22	0.74

学習ストラテジー

- 学習者が授業外の単語学習でより音声インプットを取り入れるように促す。
- 例：日々の単語小テストを音声のみで行う
- **音声小テスト群 vs. 筆記小テスト群 (Uchihara, under review)**
 - 音声テスト群：教師が英単語を発話 => 生徒が意味を書く
 - 筆記テスト群：教師が英単語のスペルを提示 => 生徒が意味を書く
- **結果**
 - 音声テスト群の方が授業外学習で単語の発音を調べたり、聞いたり、発音して覚える頻度が高くなる傾向
 - 筆記テスト群の方が授業外でより単語のスペルに着目して学習するようになる
 - 音声テスト群の方が音声語彙力 (L2 spoken form => L1 meaning) が向上したが、筆記語彙力に差はなかった (L2 written form => L1 meaning)

終わりに

- 語彙学習・指導の中で発音にも目をむける必要性
- 発音学習はRule-based learning or Item-based learning?
- “Rule”としての発音指導 + “Item”としての発音指導
 - 例：“usually” /'ju:ʒʊəli/ => ? /ʒ/ (e.g., “rouge” …)
- さらなるL2音声語彙研究が必要
 - 意識的語彙学習の中でのspoken inputの役割と音声語彙力に与える影響
 - 音声語彙力とスピーキング能力の関係
 - など

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