Intentional and Incidental Vocabulary Learning: The Role of Historical Linguistics in the Second Language Classroom

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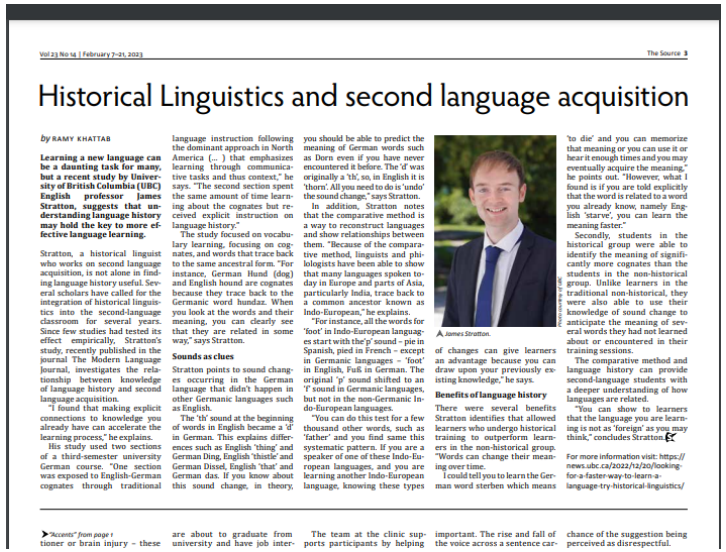

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Historical Linguistics and second language acquisition

by RAMY KHATTAB

Learning a new language can be a daunting task for many, but a recent study by University of British Columbia (UBC) English professor James Stratton, suggests that understanding language history may hold the key to more effective language learning.

Stratton, a historical linguist who works on second language acquisition, is not alone in finding language history useful. Several scholars have called for the integration of historical linguistics into the second-language classroom for several years. Since few studies had tested its effect empirically, Stratton's study, recently published in the journal The Modern Language Journal, investigates the relationship between knowledge of language history and second language acquisition.

"I found that making explicit connections to knowledge you already have can accelerate the learning process," he explains.

His study used two sections of a third-semester university German course. "One section was exposed to English-German cognates through traditional language instruction following the dominant approach in North America (...) that emphasizes learning through communicative tasks and thus context," he says. "The second section spent the same amount of time learning about the cognates but received explicit instruction on language history."

The study focused on vocabulary learning, focusing on cognates, and words that trace back to the same ancestral form. "For instance, German Hund (dog) and English hound are cognates because they trace back to the Germanic word hundaz. When you look at the words and their meaning, you can clearly see that they are related in some way," says Stratton.

Sounds as clues

Stratton points to sound changes occurring in the German language that didn't happen in other Germanic languages such as English.

"The 'th' sound at the beginning of words in English became a 'd' in German. This explains differences such as English 'thing' and German Ding, English 'thistle' and German Distel, English 'that' and German das. If you know about this sound change, in theory, you should be able to predict the meaning of German words such as Dorn even if you have never encountered it before. The 'd' was originally a 'th', so, in English it is 'thorn'. All you need to do is 'undo' the sound change," says Stratton.

In addition, Stratton notes that the comparative method is a way to reconstruct languages and show relationships between them. "Because of the comparative method, linguists and philologists have been able to show that many languages spoken today in Europe and parts of Asia, particularly India, trace back to a common ancestor known as Indo-European," he explains.

"For instance, all the words for 'foot' in Indo-European languages start with the'p' sound – pie in Spanish, pied in French – except in Germanic languages – 'foot' in English, Fuß in German. The original 'p' sound shifted to an 'f' sound in Germanic languages, but not in the non-Germanic Indo-European languages.

"You can do this test for a few thousand other words, such as 'father' and you find same this systematic pattern. If you are a speaker of one of these Indo-European languages, and you are learning another Indo-European language, knowing these types of changes can give learners an advantage because you can draw upon your previously existing knowledge," he says.

James Stratton.

Benefits of language history

There were several benefits Stratton identifies that allowed learners who undergo historical training to outperform learners in the non-historical group. "Words can change their meaning over time.

I could tell you to learn the German word sterben which means 'to die' and you can memorize that meaning or you can use it or hear it enough times and you may eventually acquire the meaning," he points out. "However, what I found is if you are told explicitly that the word is related to a word you already know, namely English 'starve', you can learn the meaning faster."

Secondly, students in the historical group were able to identify the meaning of significantly more cognates than the students in the non-historical group. Unlike learners in the traditional non-historical, they were also able to use their knowledge of sound change to anticipate the meaning of several words they had not learned about or encountered in their training sessions.

The comparative method and language history can provide second-language students with a deeper understanding of how languages are related.

"You can show to learners that the language you are learning is not as 'foreign' as you may think," concludes Stratton.

For more information visit: https://news.ubc.ca/2022/12/20/looking-for-a-faster-way-to-learn-a-language-try-historical-linguistics/

"Recents" from page 1

tioner or brain injury – these are about to graduate from university and have job interviews. The team at the clinic supports participants by helping them with important. The rise and fall of the voice across a sentence can change the meaning of the suggestion being perceived as disrespectful.

The Source

On The Coast with Gloria Macarenko

Here's a better way to learn languages

Play Segment 6:22 Share Segment

Learning a second language is something a lot of people want to do. And it's no surprise reaching fluency can be tough. It turns out there may be a trick to how to you can acquire language skills faster. For more on this, James Stratton joins the show. He is a linguist and Assistant Professor in the Department of English Language and Literatures at UBC.

CBC Radio

UBC News

Overview

1. Background/Literature Review
2. Methodology
3. Results
4. Discussion
5. Conclusion
6. Q&A

Explicit/Implicit Learning

Explicit: “with metalinguistic awareness”

Implicit: “without metalinguistic awareness”

(Ellis, 2009, p. 7)

L1 = first language, **L2** = second language

Schools of Thought

Implicit:

Monitor Theory (Krashen, 1981)

"language acquisition works the same for everyone"
"learning versus acquisition"

Explicit:

Skill Acquisition Theory (DeKeyser, 2020)

declarative → procedural → automatized knowledge

Effectiveness of Implicit and Explicit Learning

L2 grammar rules are more amenable to **explicit learning conditions**

(Norris & Ortega, 2000; Spada & Tomita, 2010; Goo et al., 2015)

Research Gap

Unclear how **generalizable** previous findings are to **other linguistic domains** (e.g., L2 vocabulary)

L2 Vocabulary Research

Incidental Vocabulary Acquisition: “by-product”

(Schmitt, 2010, p. 29)

Through:

Reading: Free Voluntary Reading (e.g., Krashen, 2004, 2011)

Extensive Reading (e.g., Nation, 2015)

Gaming: (e.g., Ranalli, 2008; Sundqvist, 2019)

Television: (e.g., Peters & Webb, 2018; Feng & Webb, 2020; Rodgers & Webb, 2020)

L2 Vocabulary Research

Intentional/Explicit Vocabulary Learning:

Various advantages of learning vocabulary intentionally

(Laufer, 2005; Schmitt, 2008; Elgort & Nation, 2010; Nakata, 2016)

Theoretically grounded in work on **human memory** and **learning**

(Atkinson & Shiffrin, 1968; Craik & Watkins, 1973; Craik & Tulving, 1975)

Human Memory and Learning

For **learning** to take place, **transfer** from:

short-term memory → **long-term** memory (Atkinson & Shiffrin, 1968)

Elaborative rehearsal (Craik & Watkins, 1973)

- Mechanism through which serial transfer can take place
- Metacognitive strategy which encodes additional features to a memory trace in attempt to make it more memorable

Human Memory and Learning

The **more information** or **cues** you have, the **easier** it is to **retain** and **retrieve** information

Involvement Load Hypothesis (Laufer & Hulstijn, 2001)

> The more involved learners are, the easier it is to acquire and retain information

Human Memory and Learning

The **more information** or **cues** you have, the **easier** it is to **retain** and **retrieve** information

Association building

- create a link between a **novel stimulus** and **information** already **stored** in **long-term memory**
- create a link L2 item and L1 item

Human Memory and Learning

Association building is the **foundation** for **widely used memory techniques**

- **Method of Loci** (Yates, 1966)
- **Mnemonics** (Worthen & Hunt, 2011)
- **Keyword Method** (Atkinson, 1975)

Creating Link between English L1 and German L2

- **English and German both Germanic languages**
- **Cognates:** traced back to the same ancestral form/etymon

  Recognizable:

  - *Hand* ‘hand’, *Finger* ‘finger’

  Less recognizable:

  - *Zimmer* ‘room’ [cognate. ‘timber’]
  - *sterben* ‘to die’ [cognate. ‘starve’]
  - *Zaun* ‘fence’ [cognate. ‘town’]

Sound Changes

Ingvæonic Palatalization

k > tʃ / ____ [front vowels]

Second Germanic Sound Shift

p > p͡f /#____ [initial position]

p > p͡f /[V___V] [between vowels]*

t > t͡s /#____ [initial position]

Meaning Prediction:

Kinn, kauen, Pfanne, Zinn, zu

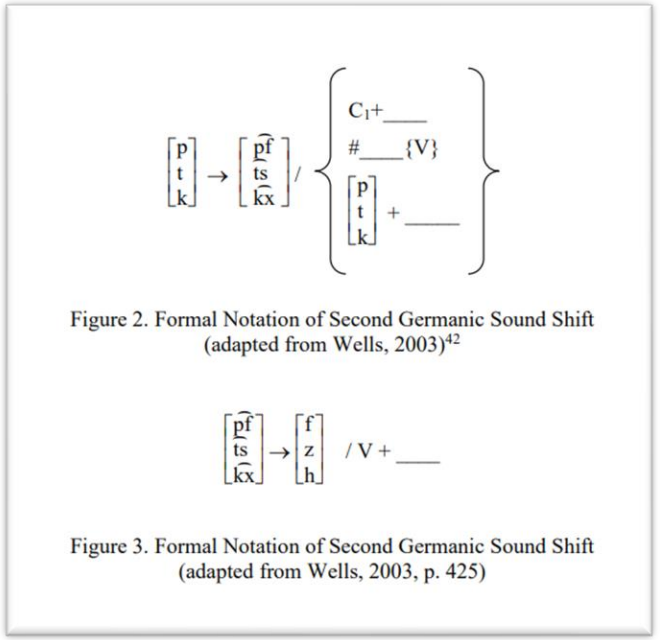


Figure 2. Formal Notation of Second Germanic Sound Shift (adapted from Wells, 2003)[42]

Figure 3. Formal Notation of Second Germanic Sound Shift (adapted from Wells, 2003, p. 425)

Upper German, or pre-Old High German voiceless stops /p, t, k/, became affricated in initial position, before a consonant, or when geminated

**Apfel* used to be *appel* in Old Englsih (cf. Dutch *appel*), Proto Germanic *aplaz. Therefore, *p* occurred intervocalically.

Sound Changes

Second Germanic Sound Shift

Interdental fricative → voiced alveolar stop (Stedje, 2001, p. 61)

θ > d /#____ [initial position]

θ > d /V__V [between vowels]

Examples:

thirst – *Durst*, thistle – *Dissel*

Meaning prediction: *Dorn*? *Ding*?

Semantic Changes

*OE = Old English

- **Broadening/Narrowing**:

  sterben ‘to die’ (OE* *steorfan*), narrowed in English [*starve*]

  Tier ‘animal’ (OE *deor*), narrowed to refer to specific type [*deer*]

- **Pejoration/Amelioration**:

  Weib ‘woman’ (underwent pejoration < PGmc **wīb* ‘woman’),

  narrowing in English (OE *wīf*). Former meaning retention *midwife*

- **Change by association**

  Gebet ‘prayer’ [cognate ‘bead’], association of rosary beads and praying

Historical Linguistics in the L2 Classroom

- **Scholars** have **called** for **explicit historical instruction** in the **German L2 classroom**

  (Smith, 1968; Horsford, 1987; Wolff, 1993; Lightfoot, 2007)

- With the **exception** of some work on **French** (Arteaga & Herschensohn, 1995), **no empirical studies**

- **Coffman** (2018) examined effects of HL on L2 motivation

  Surveys and oral interviews suggested HL did have an effect

Methodology

Learning Conditions	Training Sessions		Assessments
	Explicit	Non-explicit	
Explicit Condition* (*n* = 18) Non-explicit Condition* (*n* = 17)	**Sound Changes:** 2nd Ger. Sound Shift Ingvæonic Palatalization **Semantic Changes:** Broadening Narrowing Pejoration Amelioration Change by Association	Task-based and communicative-based activities	**<u>Vocabulary</u>** **Pre-/Post-/Delayed-Post Test** 126 words (63 cognates, 63 non-cognates) Of the 63 cognates (42 cognates with sound changes, 21 with semantic changes) Of the 42 sound change cognates (21 encountered, 21 not encountered) **Exit Survey**

* In the paper the “explicit group” is called “intentional” and the “non-explicit” group is called “incidental”

Translation Task (126 words)

Word Type	*N*	
Distractors	63	
Cognates	63	
	Encountered	Unencountered
	42	21

*Of the *Encountered Words*, 21 affected by semantic changes, 21 by sound changes

Target Words Affected by Semantic Changes

Cognate	Semantic Relationship
1. ***sterben*** ‘to die’	cognate ‘to starve’ – semantic narrowing in English
2. ***Weib*** ‘woman (pej)’	cognate ‘wife’– (OE* *wīf*) used to mean ‘woman’
3. ***Tier*** ‘animal’	cognate ‘deer’ (OE *deor*) – semantic narrowing in English
4. ***versehren*** ‘to injure’	cognate ‘sore’ – related to German *sehr* ‘very’, used to mean ‘pain’
5. ***reißen*** ‘to rip’	cognate ‘to write’ (OE *wrītan*). People used to rip/carve into wood to ‘write’ something
6. ***weh*** ‘pain’	cognate ‘woe’
7. ***Zimmer*** ‘room’	cognate ‘timber’ – semantic narrowing in English and German
8. ***Vogel*** ‘bird’	cognate ‘fowl’ (OE *fugol*) – semantic narrowing in English
9. ***Gebet*** ‘prayer’	cognate ‘bead’ – change by association
10. ***beten*** ‘to pray’	cognate ‘bead’ (same as *Gebet*)
11. ***Zwilling*** ‘twin’	cognate ‘two’ – German *zw-* is English *tw* – e.g., *zwischen* ‘between’
12. ***Knecht*** ‘servant’	cognate ‘knight’ (OE *cniht*) – amelioration in English
13. ***satt*** ‘full’	cognate ‘sad’, originally meant *full*, as in *satisfy*
14. ***selig*** ‘holy’	cognate ‘silly’ – pejoration in English
15. ***Waren*** ‘goods’	cognate *-ware*, as in *silverware*, *hardware* and *warehouse*
16. ***Burg*** ‘fortress’	cognate *-burg*(*h*) as in Edinburgh (people used to live in a *Burg*)
17. ***Bürger*** ‘citizen’	cognate *-burg*(*h*) – people who lived in a *Burg* were *Bürger* (lit. ‘of the *Burg*’).
18. ***Zaun*** ‘fence’	cognate ‘town’ (OE *tūn*). Original meaning was enclosed space
19. ***Bein*** ‘leg’	cognate ‘bone’
20. ***Urlaub*** ‘holiday’	cognate ‘to allow’. It was necessary to ask permission to take ‘leave’
21. ***wissen*** ‘to know’	cognate ‘wit’ – (OE *witan* ‘to know’) – relict ‘to have your wits about you’

*OE = Old English

Target Words Affected by Sound Changes

Ingvæonic Palatalization k > tʃ/ ____[high front vowels]	
Encountered Cognates	Non-Encountered Cognates
Kinn* > chin ***Käfer*** > chafer (type of beetle) ***Kerl*** > churl (archaic word for man)	***Krücke*** > crutch ***strecken*** > to stretch ***kauen*** > chew
Second Germanic Sound Shift p > pf/#_____	
Encountered Cognates	Non-Encountered Cognates
pipe > ***Pfeife*** pan > ***Pfanne*** pound > ***Pfund***	penny > ***Pfennig*** pole > ***Pfahl*** pepper > ***Pfeffer***
p > pf/ V___V	
to tap > ***zapfen*** copper > ***Kupfer*** drop (as in eye drops) > ***Tropfen***	to hop > ***hüpfen*** to stamp > ***stampfen*** apple > ***Apfel***
p > f / (____ nasal / liquid)	
open > ***offen*** weapon > ***Waffe*** ripe > ***reif***	grip > ***Griff*** sharp > ***scharf*** to slurp > ***schlürfen***
t > ts/ #___	
tongue > ***Zunge*** tin > ***Zinn*** toe > ***Zeh***	to fart > ***furzen*** wart > ***Warze*** twig > ***Zweig***

t > s /V__V	
Encountered Cognates	Non-Encountered Cognates
to let > ***lassen*** hate > ***Hass*** better > ***besser***	kettle > ***Kessel*** to sweat > ***schweißen*** nut > ***Nuss***
[θ/ð] > d (# ___ / V__V)	
thing > ***Ding*** thirst > ***Durst*** these > ***diese***	thorn > ***Dorn*** feather > ***Feder*** thistle > ***Dissel***

Training

Explicit

Session *n*	**Content**	**Description**
Session 1	Historical linguistics	• History of English and German as Germanic languages • Ingvæonic Palatalization
Session 2	Sound change	• Second Germanic Sound Shift
Session 3	Sound change	• Second Germanic Sound Shift
Session 4	Semantic change	• Semantic changes
Session 5	Review	• Practice and Review
Session 6	Review	• Practice and Review

Non-Explicit

Session *n*	**Content**	**Description**
Session 1	Communicative activity	• Two-way interaction task with cognates and definitions
Session 2	Reading	• Read short German text (250 words) containing some target words
Session 3	Roleplay	• Roleplay based on cognates containing L2 definitions
Session 4	“Heads-up”	• Heads-up activity
Session 5	Speed Dating	• 2-minute conversation containing target cognates (with 10 different people). E.g., *Tier* - response: *Was ist dein Lieblingstier*
Session 6	Reading	• Reading (250 words) with follow-up Cloze test

Research Question I

Is there a **statistically significant difference** between the number of **cognates** acquired by L2 learners who received historical instruction (**explicit** condition) and L2 learners who did not (**non-explicit** condition)?

Research Question II

Is there a statistically **significant difference** between the two learning conditions (**explicit** and **non-explicit**) in the number of German cognates L2 learners were able to correctly predict the meaning of? Unlike in RQ1, these are cognates which learners will have **not encountered** in their pedagogical interventions.

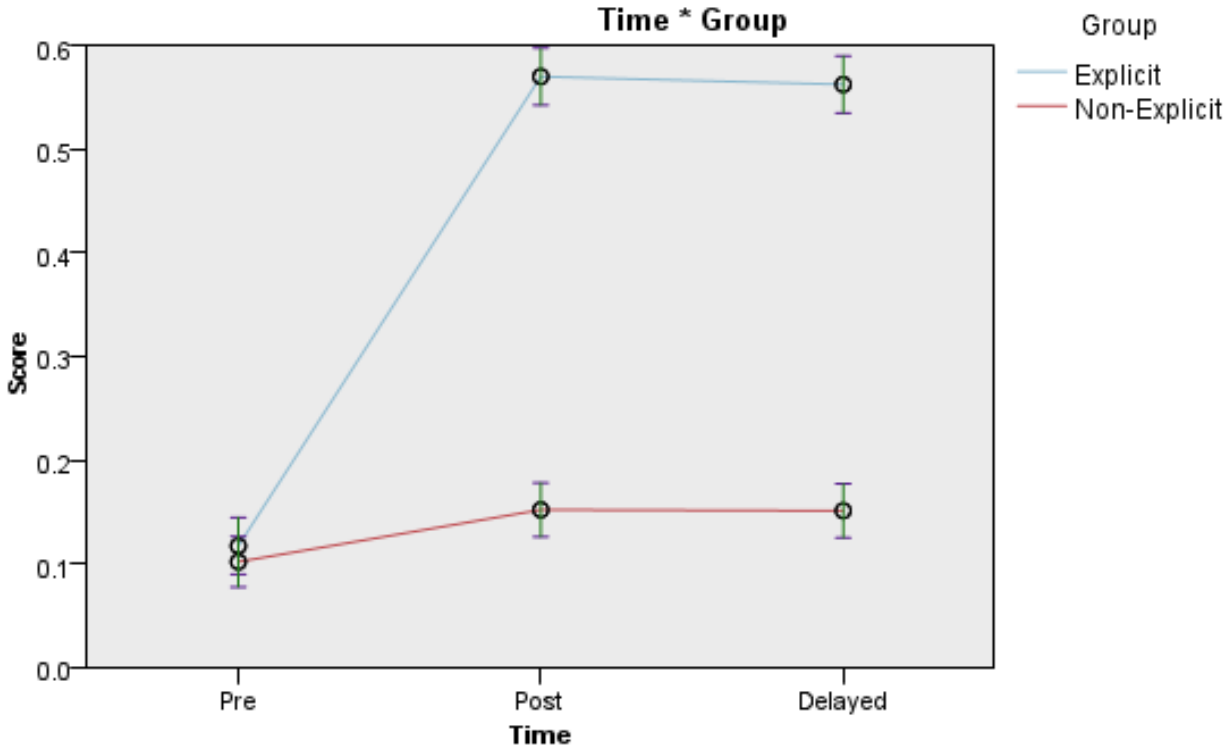
Results

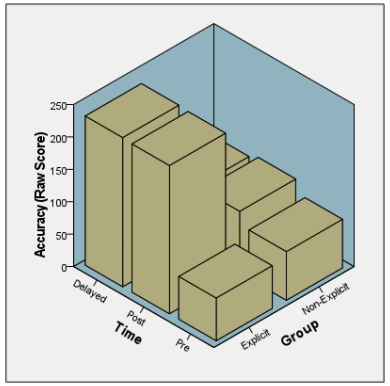
RQI: Encountered Cognates

Is there a **statistically significant difference** between the number of **cognates** acquired by L2 learners who received historical instruction (**explicit** condition) and L2 learners who did not (**non-explicit** condition)?

Result: **Explicit significantly outperformed non-explicit group**

Knowledge of Encountered Cognates





Significant effect of:

- **GROUP** F (1, 4,398) = 27,656, p = .001, d = .59 [CI = .12, 1.1]
- **TIME** F (2, 4,398) = 138,307, p = .001,
- **GROUP × TIME** F (2, 4,398) = 88,756, p = .001

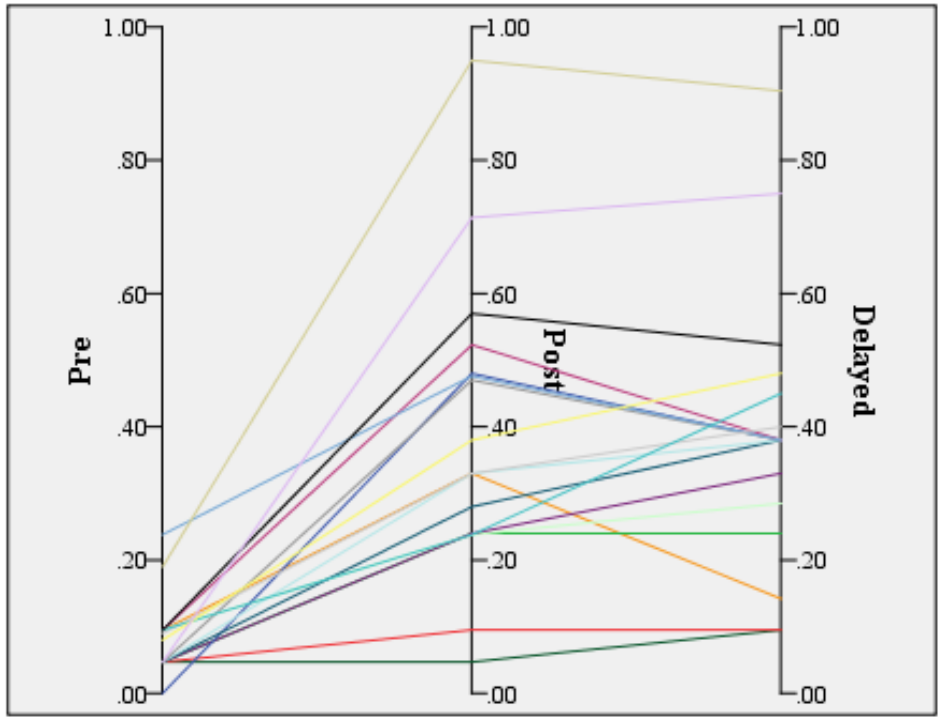
Effect size*:

- **GROUP** d = .59 [CI = .12, 1.1]
- **EXPLICIT** d = 1.0 [CI = .38, 1.8]

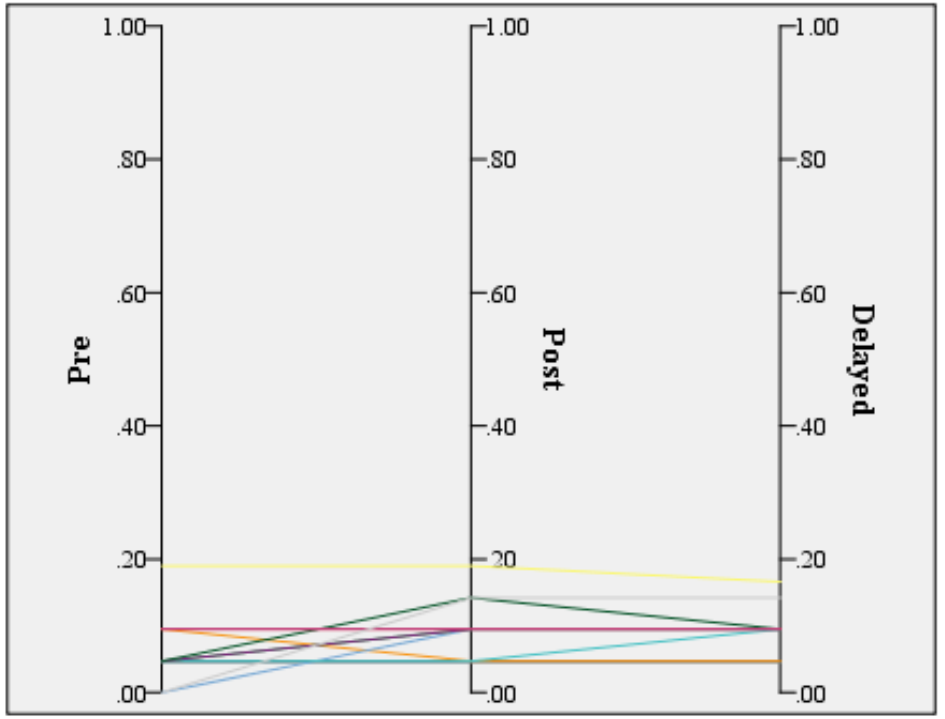
Explicit condition learned **19** additional cognates

*Measured by benchmarks of Plonsky & Oswald (2014**)** [small d = .40. medium d = .70, large d = 1.0**]**

Parallel Coordinate Plot of Individual Differences for Translation Accuracy of Encountered Cognates from Pre-Test to Delayed-Post-Test



Explicit



Non-Explicit

Meaning Generalization in Non-Explicit Group

- Non-explicit group more susceptible to meaning generalization

Semantic Field

Zunge ‘tongue’ (trans. as ‘tooth’)
Bein ‘leg’ (trans. as ‘knee’ or ‘arm’)

Compounds

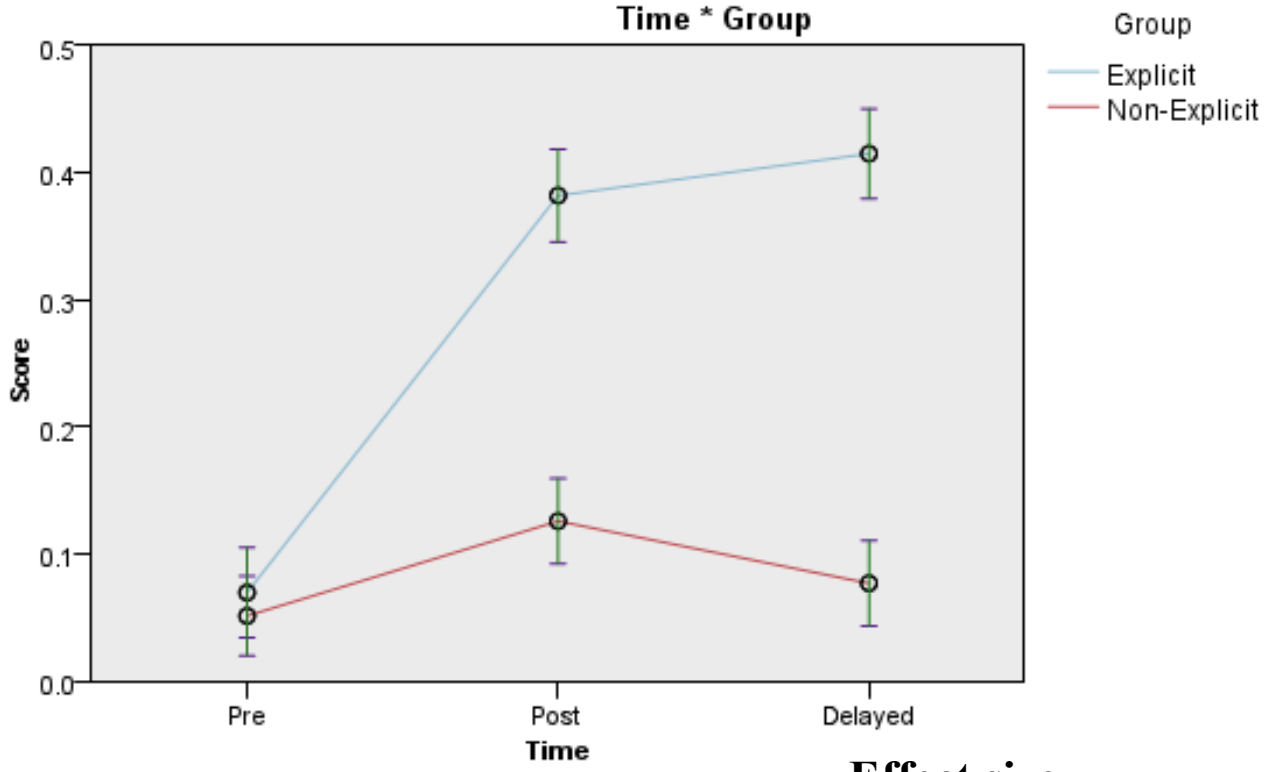
Tier ‘animal’ (trans. as ‘pet’ – because of *Haustier*) $n = 4$
Bürger ‘citizen’ (trans. as ‘mayor’ – because of *Bürgermeister*) $n = 3$

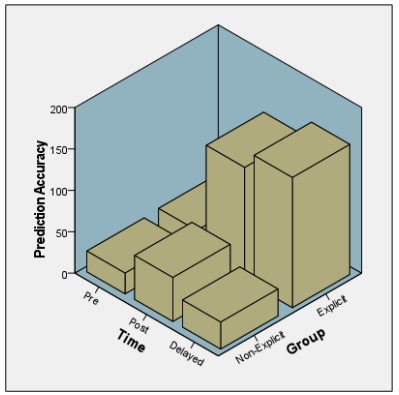
RQII: Unencountered Cognates

Is there a statistically **significant difference** between the two learning conditions (**explicit** and **non-explicit**) in the number of German cognates L2 learners were able to correctly predict the meaning of? Unlike in RQ1, these are cognates which learners will have **not encountered** in their pedagogical interventions.

Result: **Yes** (explicit condition outperforms non-explicit condition)

Knowledge of Unencountered Cognates





Significant effect of:

- **GROUP** F (2, 2,193) = 41,890, p = .001
- **TIME** F (2, 2,193) = 15,372, p = .001
- **GROUP × TIME** F (2, 2,193) = 18,513, p = .001

Effect size:

- **GROUP** d = .46 [CI = .21, 1.2]
- **EXPLICIT** d = .89 [CI = .21, 1.6]

Explicit condition predicted **6** additional cognates

*Measured by benchmarks of Plonsky & Oswald (2014) [small d = .40. medium d = .70, large d = 1.0]

Errors in Non-Explicit Group

- **Explicit** group used **historical knowledge** to identify the meaning of unencountered cognates
- **Non-explicit** group often **guessed**

Bürger ‘citizen’ (translated as ‘burger’)
Kinn ‘chin’ (translated as ‘kin’)
Krücke ‘crutch’ (translated as ‘crook’)
Kessel ‘kettle’ (translated as ‘castle’)

Summary

- **Explicit** group significantly **outperformed non-explicit group**

Discussion

Why? Possible Explanations

- Skill Acquisition Theory

  (DeKeyser, 2015)
- Elaboration

  (Craik & Watkins, 1973; Craik & Tulving, 1975)
- Involvement Load Hypothesis

  (Laufer & Hulstijn, 2001)
- Role of Attention and Awareness

  (Schmidt, 1990, 1995)

The historical instruction helped

Cognates affected by semantic changes

- Effective because of **degree of elaboration** (L1-L2 connection)

  (e.g., Craik & Watkins, 1973; Craik & Tulving, 1975)

- **Narratives** have been shown to aid memory

  (e.g., Bower & Clark, 1969; Craik & Lockhart, 1972)

L2 Vocabulary

- "the somewhat **novel contribution** of the findings from the present study is that **historical narratives**, such as being cognizant of the etymological association between L1-L2 cognates (specifically English-German cognates), **may significantly aid** in the **vocabulary acquisition** process in the L2 classroom" (Stratton, 2022, p. 850)

Predictability

Declarative knowledge of the **sound changes** provided learners in the explicit condition a **toolkit** to predict meaning of novel words

Conclusion

- Knowledge and instruction on **language history** can be beneficial when learning historically related languages
- Applications to other **historically related languages**

Applications to other Germanic languages

Scandinavian speaking L2 learner of German

Norwegian did **not undergo** the **Second Germanic Sound Shift**

Norwegian ***tall***	–	German ***Zahl*** ‘number’
Norwegian ***å betale***	–	German ***bezahlen*** ‘to pay’
Norwegian ***tann***	–	German ***Zahn*** ‘tooth’
Norwegian ***tinn***	–	German ***Zinn*** ‘tin’

Conclusion

- The findings from this study may provide a new meaning to "**applied historical linguistics**"

Many **thanks!**

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References next slide

References (page 1 of 5)

Atkinson R. C., & Shiffrin R. M. (1968). Human memory: A proposed system and its control processes. In K. W. Spence (Ed.), *The Psychology of Learning and Motivation: Advances in Research and Theory* (pp. 89- 195).

Arteaga, D. L., & Herschensohn, J. (1995). Using diachronic linguistics in the language classroom. *The Modern Language Journal*, *79*(2), 212–222.

Coffman, J. M. (2018). The effect of HL exposure on content acquisition, metalinguistic awareness, and L2 motivation, enjoyment, and interest in the university foreign language classroom. *International Journal of Arts Humanities and Social Sciences*, *3*(8), 15-26.

Craik, F. I. M., & Tulving, E. (1975). Depth of processing and the retention of words in episodic memory. *Journal of Experimental Psychology: General*, *104*, 268–294.

Craik, F. I., & Watkins, M. J. (1973). The role of rehearsal in short-term memory. *Journal of verbal learning and verbal behavior*, *12*(6), 599-607.

Crawford, R. L. (1988). Some aspects of the history of German and English for the classroom. *Die Unterrichtspraxis*, *21*(2), 204–207.

References (page 2 of 5)

DeKeyser, R. M. (2020). Skill acquisition theory. In B. VanPatten & J. Williams (Eds.), *Theories in second language acquisition: An introduction* (pp. 94–112). New York: Routledge.

Elgort, I., & Nation, P. (2010). Vocabulary learning in a second language: Familiar answers to new questions. In *Conceptualising 'learning' in applied linguistics* (pp. 89-104). Palgrave Macmillan, London.

Ellis, R. (2009). Implicit and explicit learning, knowledge and instruction. In R. Ellis, S. Loewen, C. Elder , R. Erlam , J. Philp , & H. Reinders (Eds.), *Implicit and explicit knowledge in second language learning, testing and teaching* (pp. 3–25). Bristol, UK : Multilingual Matters.

Feng, Y., & Webb, S. (2020). Learning vocabulary through reading, listening, and viewing: Which mode of input is most effective?. *Studies in Second Language Acquisition*, *42*(3), 499-523.

Goo, J., Granena, G., Yilmaz, Y., & Novella, M. (2015). Implicit and explicit instruction in L2 learning. *Implicit and explicit learning of languages*, *48*, 443-482.

Horsford, H. (1987). Common Sense and Language History. *Die Unterrichtspraxis*, *20*(2), 278–287.

References (page 3 of 5)

Krashen, S. (2004). *The power of reading*. Portsmouth, NH: Heinemann.

Krashen, S. (2011). *Free voluntary reading*. Portsmouth, NH: Heinemann.

Laufer, B., & Hulstijn, J. (2001). Incidental vocabulary acquisition in a second language: The construct of task-induced involvement. *Applied Linguistics*, *22*(1), 1–26.

Lightfoot, D. (2007). Language history for teaching and learning German. *Die Unterrichtspraxis*, 40(1), 34–45.

Nakata, T. (2016). Effects of retrieval formats on second language vocabulary learning. *International Review of Applied Linguistics in Language Teaching*, *54*, 257– 289.

Nation, P. (2015). Principles guiding vocabulary learning through extensive reading. *Reading in a Foreign Language*, 27, 136–145.

Norris, J. M., & Ortega, L. (2000). Effectiveness of L2 instruction: A research synthesis and quantitative meta-analysis. *Language learning*, *50*(3), 417-528.

References (page 4 of 5)

Peters, E., & Webb, S. (2018). Incidental vocabulary acquisition through viewing L2 television and factors that affect learning. *Studies in Second Language Acquisition*, 40, 551–577.

Ranalli, J. (2008). Learning English with The Sims: exploiting authentic computer simulation games for L2 learning. *Computer Assisted Language Learning*, *21*(5), 441-455.

Rodgers, M. P. H., & Webb, S. (2020). Incidental vocabulary learning through watching television. ITL—*International Journal of Applied Linguistics*, *171*, 191– 220.

Salmons, J. (2012). Salmons, J. (2012). A history of German. Oxford: Oxford University Press.

Smith, S. (1968). Historical Linguistics and the Teaching of German. *The German Quarterly*, 41(2), 231–238

Schmitt, N. (2008). Instructed second language vocabulary learning. *Language Teaching Research*, *12*(3), 329- 363.

Spada, N., & Tomita, Y. (2010). Interactions between type of instruction and type of language feature: A meta-analysis. *Language Learning*, *60*(2), 263-308.

Sundqvist, P. (2019). Commercial-off-the-shelf games in the digital wild and L2 learner vocabulary. *Language Learning & Technology*, *23*, 87–113.

References (page 5 of 5)

Wells, C. J. (2003). German, a linguistic history to 1945. Oxford: Oxford University Press.

Wolff, R. A. (1993). The history of the language as an instructional aid. *Unterrichtspraxis*, 26(1), 27–35.

Second Germanic Sound Shift (p. 1 of 2)

voiceless stops /**p, t, k**/, became **affricated** in initial position, before a consonant, or when geminated (Salmons, 2012, p. 112)

The **affrication of /k/** did **NOT** take place in the varieties which ultimately became **Modern Standard German**

English *drin**k*** – Standard German [tʁɪŋ**k**n]

Swiss German [tʁɪŋ**k**x͡**x**n]

The change is assumed to have finished by the 6th and 7th century

Second Germanic Sound Shift (p. 2 of 2)

As part of the chain shift, **affricates** conditionally became **spirants** intervocalically or after vowels in final position

*[p] → [p͡f] → [f] weapon – Waffe hope – hoffen

*[t] → [t͡s] → [s] water – Wasser hate – Hass

Appendix – Explicit group (session 5-6)

Sound Change:

Write the English translation for the words below, work out the rule (that is, the sound change), and can you think of any other words which follow the pattern?

Ex. 1: Rule: _____

1. das Ding
2. dies
3. der Dorn
4. das Bad
5. denken
6. durch
7. Süd-/Nord-
8. der/die/das

Ex. 2: Rule: _____

1. Pfeife
2. Pfanne
3. Pfennig
4. Kupfer
5. hüpfen
6. Tropfen
7. zapfen

Appendix - Explicit group (session 5-6)

7. English and German are Germanic Languages. The Germanic languages family belongs to a bigger language family called "Indo-European". There are sound changes which took place in Germanic languages that did not take place in the other Indo-European languages. See if you can work out which sound changes took place by filling in the missing words!

Sanskrit	pitar					trayas	
Latin	pater	pe-	piscis	decem	dentes	tres	cord (cordis)
French	per	pie (pe)	poisson	dis	dent	troi	
Spanish	padre	pie	pez	diez	diente	tres	corazón
Greek	pater	podi		deka	deka	treis	kardia
Hindi	pita:	paira		dasa	dante		
English	father	foot	Fish	ten	ten	three	heart
Icelandic	faðir	fotar		tiu	toen		
Gothic	fadir	fotus		texun	tunþus	þrija	hairto
German	Vater	Fuß	Fisch	zehn	zehn		
Old English	fæder		fisc			þreo	heorte

Appendix: Coding

- Answers were coded on a linear scale between 0-1
  - Correct answers [1]
  - Incorrect answers [0]
  - Correct cognate, incorrect current meaning [.5]
  - Incorrect part of speech [.75]

TABLE 4. Knowledge of Encountered Cognates (Descriptive Statistics)[13]

Condition	Pre-Test			Post-Test			Delayed-Post-Test		
	n	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Intentional	89/756	.12	.33	431/756	.57	.49	425/756	.56	.48
Incidental	79/714	.11	.31	108/714	.15	.35	108/714	.15	.36

TABLE 5. Knowledge of Encountered Cognates Affected by Semantic Changes from Pre-Test to Delayed-Post-Test

Condition	Pre-Test			Post-Test			Delayed-Post-Test		
	n	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Intentional	66/378	.17	.38	229/378	.60	.48	230/378	.61	.47
Incidental	60/357	.19	.37	82/357	.23	.41	77/357	.22	.41

TABLE 6. Knowledge of Encountered Cognates Affected by Sound Changes (Descriptive Statistics)

Condition	Pre-Test			Post-Test			Delayed-Post-Test		
	N	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Intentional	23/378	.06	.25	203/378	.54	.49	195/378	.52	.50
Incidental	18/357	.05	.22	26/357	.07	.26	32/357	.09	.28

Knowledge of Unencountered Cognates

Condition	Pre-Test			Post-Test			Delayed-Post-Test		
	n	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Intentional	27/378	.07	.26	136/378	.38	.49	157/378	.42	.49
Incidental	27/357	.07	.26	31/357	.09	.28	32/357	.09	.29