Inquiry Summary
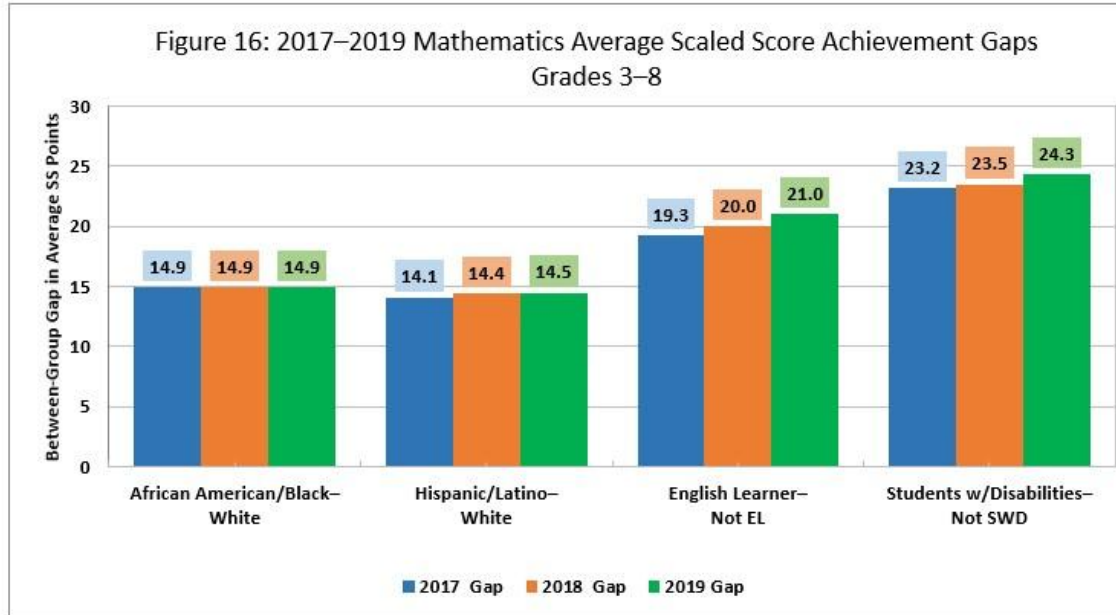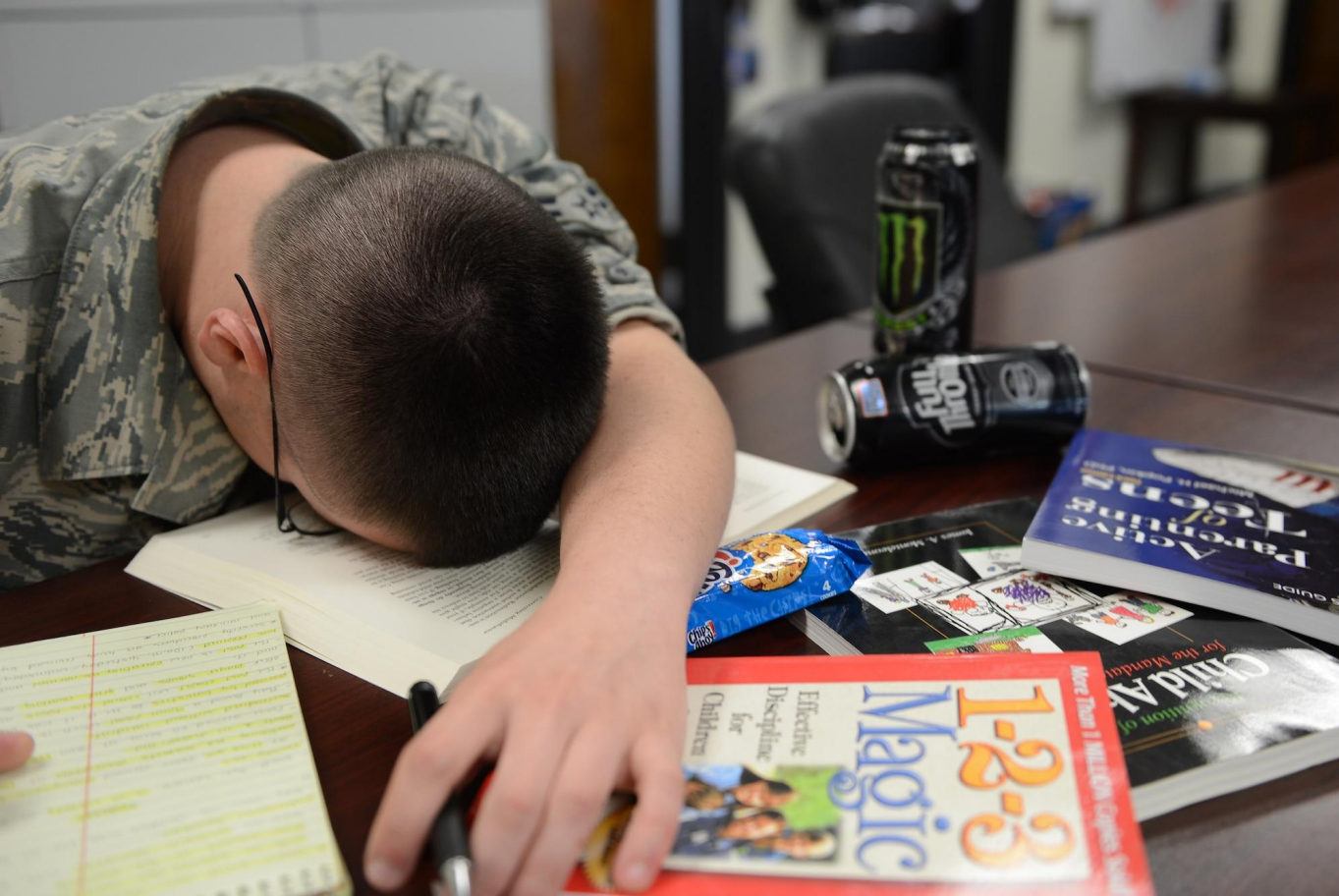
Can translation tools help EL's acquire thinking skills?

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May, 2022

1. Background

A large achievement gap...

Figure 16: 2017–2019 Mathematics Average Scaled Score Achievement Gaps Grades 3–8

...with unacceptable human consequences...

...has persisted despite major state initiatives.

1971: Transitional Bilingual Education - "L1 for a while"

2001: Sheltered English Immersion - "English with support"

2017: LOOK Act - "<mark>Research and Best Practices</mark>"

- Source: www.wbur.org/news/2017/08/09/english-language-learning-bills

One explanation: language might be necessary to develop thinking skills.

Translanguaging:

"using resources from **different languages together**"

– ealjournal.org/2016/07/26/what-is-translanguaging/

Inquiry: Can translanguaging <u>with technology</u> provide the necessary <mark>language</mark>?

(to develop grade-level thinking skills)

Literature

Studies generally find that translanguaging with technology can help ELs learn, but "best practices" do not yet exist.

Vogel, Ascenzi-Moreno, and García, (2018): translation tools are being used by students but most teachers are not using these tools "intentionally" yet; Giving students choice over how and when to use the tool may be important and a "tinkering" mindset is needed.

Lake and Beisly,(2019): translation apps can help students transfer L1 knowledge into other languages but students and teachers need practice using them. Cultural change may be needed before students and teachers use tools.

Carhill-Poza (2017): Emerging bilingual students used video-based resources a lot, often re-watching videos several times until they understood. When available, translation technology helped students get a better understanding of challenging academic content that otherwise would have been incomprensible.

Annotated Bibliography

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2. Inquiry Design

Goal: translate theory into practice in a **particular context**.

Lesson 1

Evaluating Action
Diagnosing
Planning Action
Taking Action

Lesson 2

Evaluating Action
Diagnosing
Planning Action
Taking Action
Cycle 2

Lesson 3

Evaluating Action
Diagnosing
Planning Action
Taking Action
Cycle 3

Source: McPherson, M. A., & Nunes, J. M. B. (2002). No lectures on-campus: can e-learning provide a better learning experience?. *Chaos: An Interdisciplinary Journal of Nonlinear Science*, 442-447.

Classroom context

- grade 4 SEI classroom; 15 students participated in the inquiry
- range in English proficiency:
  - WIDA level one: 6 (all literate in L1)
  - WIDA level two: 4
  - WIDA level three: 5 (most became literate using English)
- L1s: Spanish, Portuguese, Arabic, and Thai
- range of academic backgrounds and experiences (e.g. 1st to 5th grade math)
- one student on IEP, another being assessed
- all students get free or reduced lunch
- native countries: Brazil, Guatemala, Honduras, El-Salvador, Thailand, and Sudan
- students proficient in computer use and had access to chromebooks
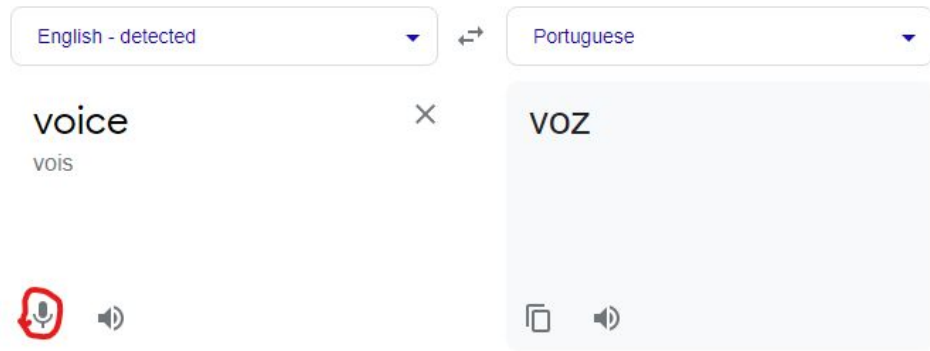
Lesson 1

Voice to Text → Supporting Details for a Main Idea

Question: how does voice to text translation affect ability to find supporting details for a main idea?

Instruction: guided practice finding supporting details for a main idea and individual training on translation technology.

Assessment: ability to write supporting details for main ideas in a nonfiction text using a graphic organizer.

Name: _____

Appearance - what does it look like?	Food - what does it eat?	Life-cycle - how does it grow up and reproduce?	Habitat - where does it live?
- white/light brown - Little - Tail of around 30cm	The main prey is lemming *Left over from predators such as polar bear	Arctic foxes form monogamous pairs through a breeding season (april to May) though often several females will live together.	Northern tree line in the arctic tundra (very cold)
How can you describe pictures of it?	Does it eat plants, animals, insects?	How long does it live? How many babies does it have?	Cold or hot climate? dry or wet?

Adaptation 1	Adaptation 2	Adaptation 3	Did you know - other interesting facts.
Thick layer of body fat			
What helps the animal stay safe and find food?	What helps the animal stay safe and find food?	What helps the animal stay safe and find food?	Circle the most interesting fact.

Example of student work assessed
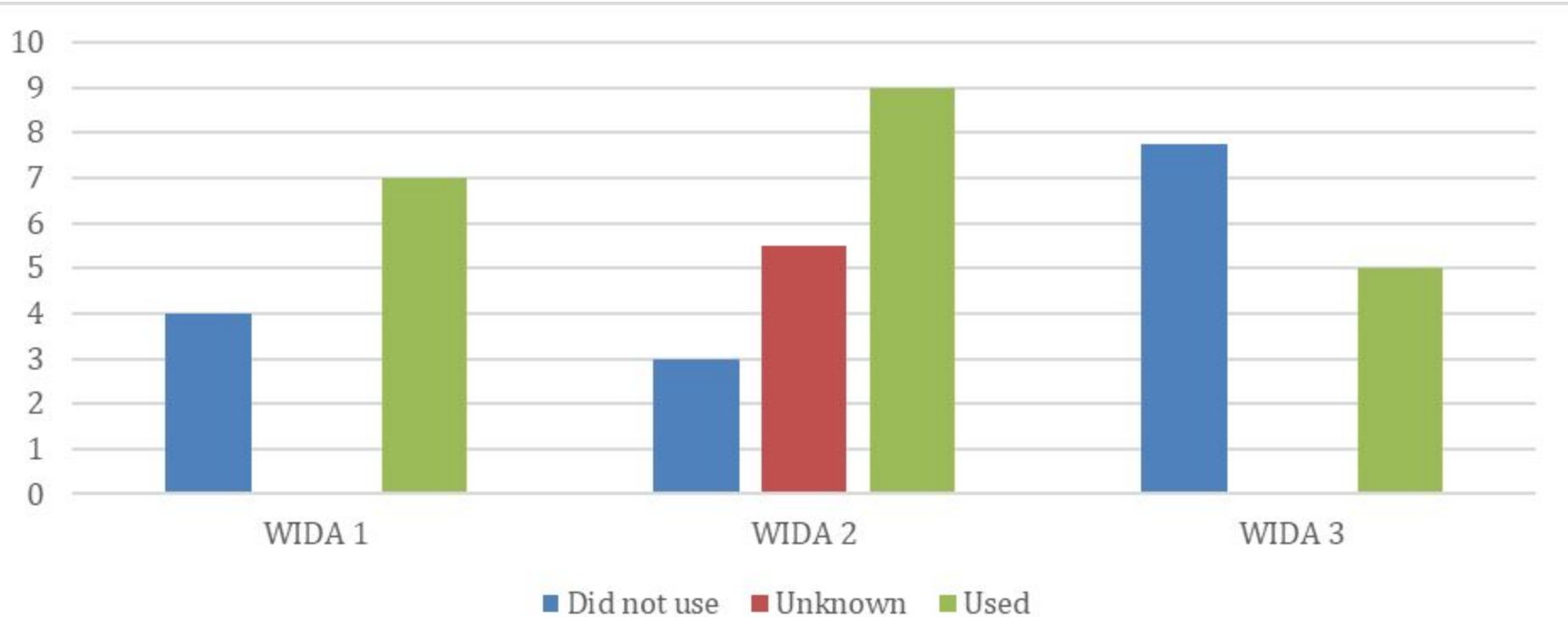
Rubric: link
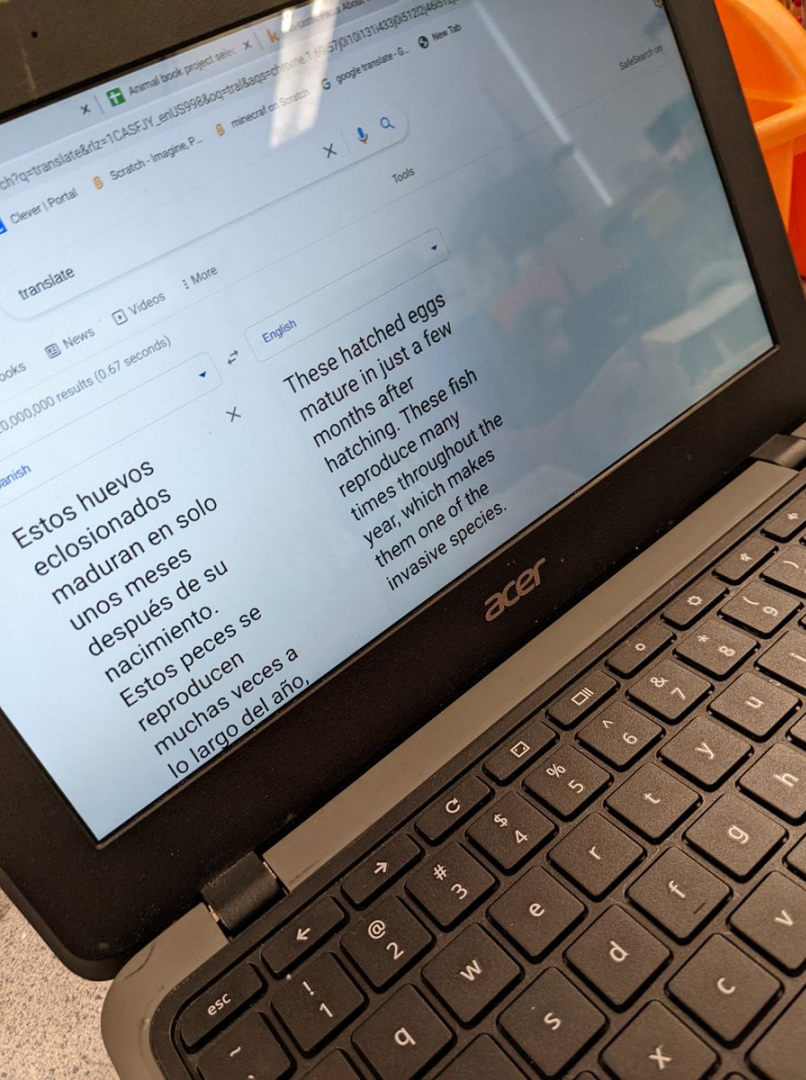
Other data collected

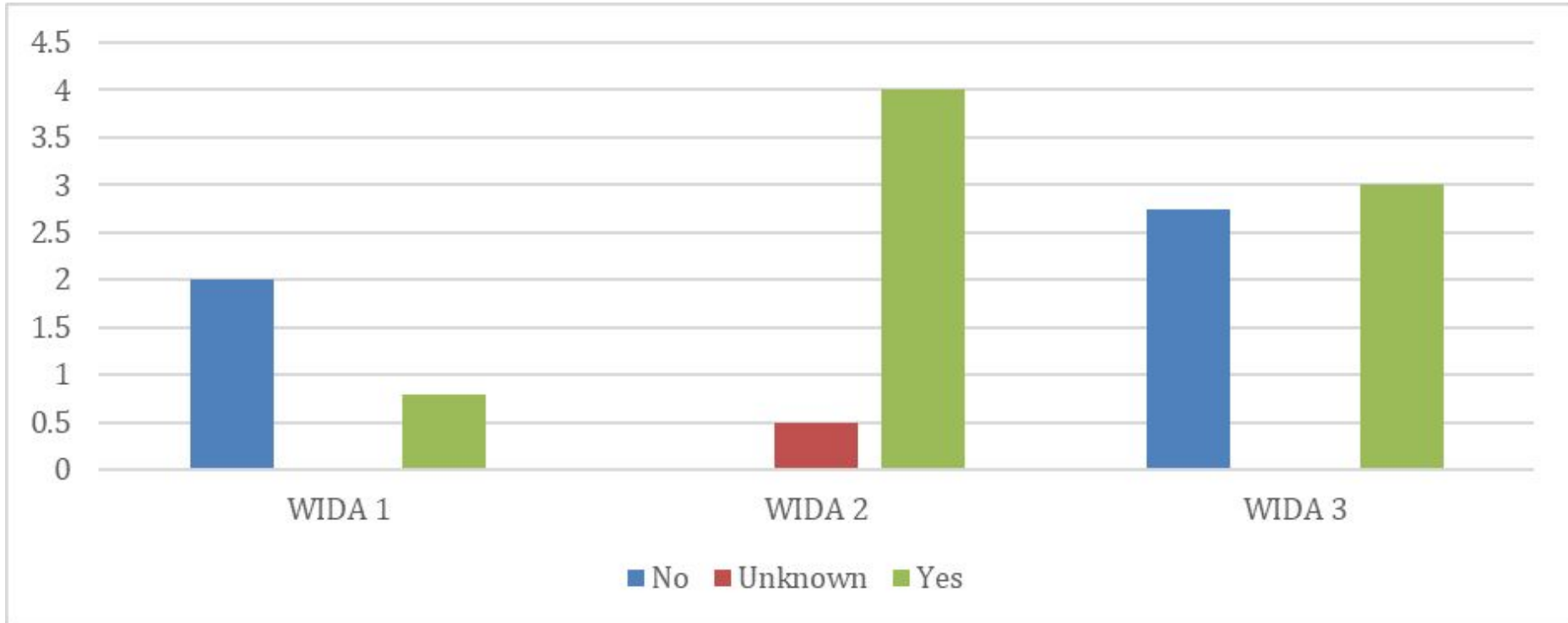- observed use of translation technology

Other data used

- language proficiency
- academic background
- attitude towards L1

All data entered into a single spreadsheet

Results: total scores by WIDA level and tool use

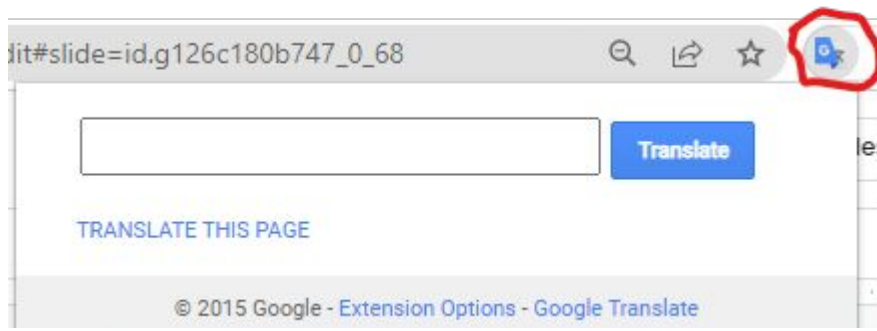# Results: scores on subsections requiring comprehension, by WIDA level and tool use

What I learned:

1. **text-based translation tools** preferred Carhill-Poza (2017

2. **stigma** with using L1 Lake and Beisly,(2019)

3. tools helped; more **"tinkering"** needed on challenging tasks. Vogel, Ascenzi-Moreno, and García, (2018)

Lesson 2

Student selected technology + translanguaging spaces → ability to find, evaluate, and communicate supporting facts

Question: can student-selected tools and translanguaging spaces help students learn how to identify and evaluate facts related to a main idea?

Instruction: guided practice finding and evaluating facts about animals; explicit translanguaging spaces and practices defined and encouraged.

Assessment: student graphic organizers scored using a rubric.

Name ~~A████████~~   Date _____

Make a Web   Book Title: __Jelly fish.♥♡__

Jelly fish have been swimming in streams
Jelly fish for millions of years, even before denosaurs.
lived on land

Jellyfish live
in icy seas of
cold water
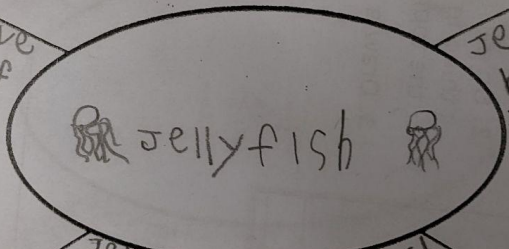
Jellyfish

Jellyfish
have more
than 40
tentacles
on their body.

Jellyfish
are an animal
that you
cannot have at
home because
you's electre and if
give catch it it will
give you 1 grem burns.

jellyfish
eat small
fish.

Example:

completed
graphic
organizer.

Scoring Rubric

Item	Scoring
Quantity of facts	1 point per fact
Quality of facts	1 point per "interesting" fact (fact unique to the animal)
Language	0 points if mostly incomplete sentences/thoughts 1 point if mostly complete simple sentences, thoughts presented. 2 points if complete sentences are used throughout and some sentences are compound or complex.

Second lesson: Total possible points: 12 (5 quantitative, 5 qualitative, 2 language) Proficient Score: 8, with at least 4 for quantity, 3 for quality.

Results: total scores by WIDA level and tool use
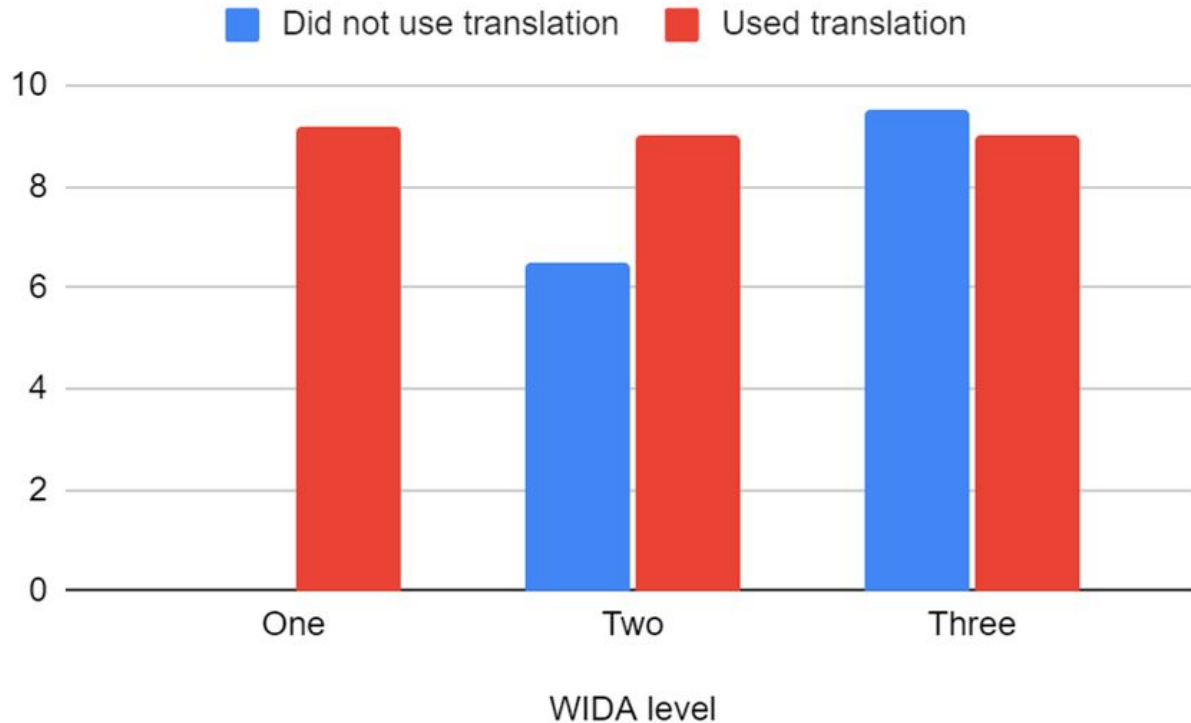
Results: scores for "interesting facts" by WIDA level and tool use

Case 1	Case 2	Case 3
WIDA level 1, did not use tools in the first lesson, used browser extension and google text translation in the second lesson. **Result:** was able to meet proficiency threshold for second lesson despite second lowest score in first lesson.	WIDA level 2, did not use tools in lesson 1 or 2 because of potential "embarrassment". **Result:** failed to meet proficiency threshold for both lessons. Typically copied text without comprehension.	WIDA level 1, used tools in first and second lesson. **Result:** one of the highest scores on both lessons. Performance improved, perhaps because of increasing proficiency at using tools.

What I learned:

1. tools ==can dramatically improve== performance

2. ==evaluative performance== still ==lagged,== and language was sometimes cut and pasted

3. ==extra time, revision, and peer support== seemed necessary for the comprehension needed for students to evaluate facts.

Lesson 3

Translatable lesson + non-technology supports → ability to paraphrase.

Question: can student-selected translation tools used with other modifications to help ELs improve student ability to paraphrase?

Instruction: lesson on how to paraphrase with time for self-study with video and web-based content.

Assessment: student paraphrasing of teacher-selected passage.

PARAPHRASE: SAY IN YOUR OWN WORDS

How to Paraphrase in 5 Easy Steps | Scri...

Scribbr

5 easy steps to Paraphrasing

HOW TO PARAPHRASE

1. read carefully
2. write down important ideas
3. write your own version
4. compare your version to the original
5. cite: write down where you got the information

C3SUT

Valid from **Thu, Apr 28th 2022 - Sat, May 28th 2022**
29 days remaining

View Progress

Copy Link   Email   Embed   Google Classroom   Remind   Microsoft Teams

ACTIVITY

Go to nearpod.com using the code on the left.

Then, paraphrase the article (put into your own words).

You can record a voice response and/or a written response.

- lesson on Google sites, which is translatable.

- auto-translation of captioning for the video.

- self-paced Nearpod activity with voice or text response options.

- taught to the whole class, followed by self-paced study and writing exercise.

Paraphrase (write in your own words): " Jellyfish start life as tiny swimming larvae. Then they dive down to the seafloor. They stick to a hard surface. There they change into a polyp. They look like branches. The polyps make jellyfish. The jellyfish then float off through the ocean. Immortal jellyfish are special. If they are hurt or starving, they have a trick. They can turn back into polyps! Then they can become jellyfish again. The jellyfish can do this many times. This means they might never die of old age. But immortal jellyfish can still die from other reasons. They can be eaten by bigger creatures. They can also die from disease. " You can also go to: https://newsela.com/read/longest-living-animals-on-earth/id/2001023217/   if want it to read aloud to you. You can answer with writing or audio.

Jellyfish start their life as worms to go to the depth of the sea and stick to a hard surface and form a polyp to become a jellyfish. Jellyfish can be immortal because they have a trick to not die (they can die from being eaten by some animal or diseases) and the trick is to become a polyp again to last longer!

jellyfishes are immortal and can still die of getting eaten by other animals or creatures that are in the ocean. Immortal jellyfishes are special if they are or were hurt or starving they become normal jellyfishes again.

Jellyfish start life as tiny swimmers then they dive to the bottom of the seafloor they stick hard in the top there they change into polyp they look like branches the polyps create jellyfish the jellyfish then it swim off through the ocean.Immortal jellyfish are special. If they are hurt or starving,they have a trick. they can transform back into polyps then they can transform back into jellyfish again the jellyfish can do it lot of times this means they might never die of old age. But immortal jellyfish can still die from other reasons they can be eaten by taller monsters They can also die from disease.

Student work: from WIDA level 1, 2, and 3 students.

Paraphrasing scores (WIDA 2 and 3 used tools)
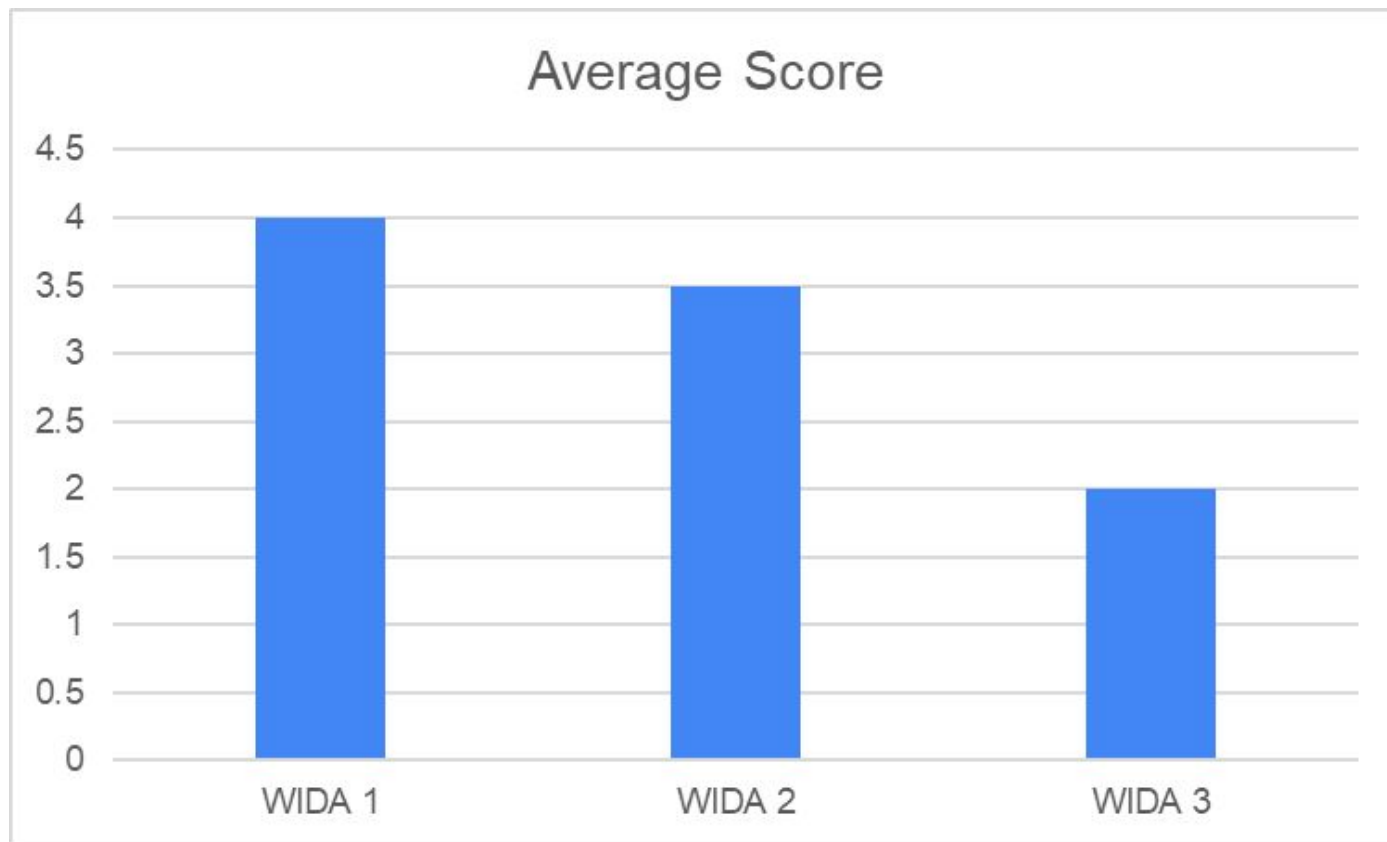
What I learned

1. translation technology "can make impossible tasks possible" for emerging bilinguals.

2. teachers need to find tools that students find useful and culturally acceptable, and integrate tools into lessons.

3. technology works best when added to existing "best practices" for EL instruction, such as context-rich instruction, support from L1 speakers, and opportunities to relearn and revise.

Questions generated by this inquiry

How does the use of student-adopted translation tools affect student learning on:

- math word problems?
- standardized tests?
- social studies and science?

As computers become increasingly capable, when should students rely on them for support?

- grammerly? spell-check? voice to text?