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Yiorkadjis*

TEAM 3

Needfinding in Language- Learning Education



Introducing Our Team



Violet Crow
Junior '26, Symbolic
Systems

Shi Han
Maters'25 Learning
Design & Tech



Abhi Desai
Senior'25 CS

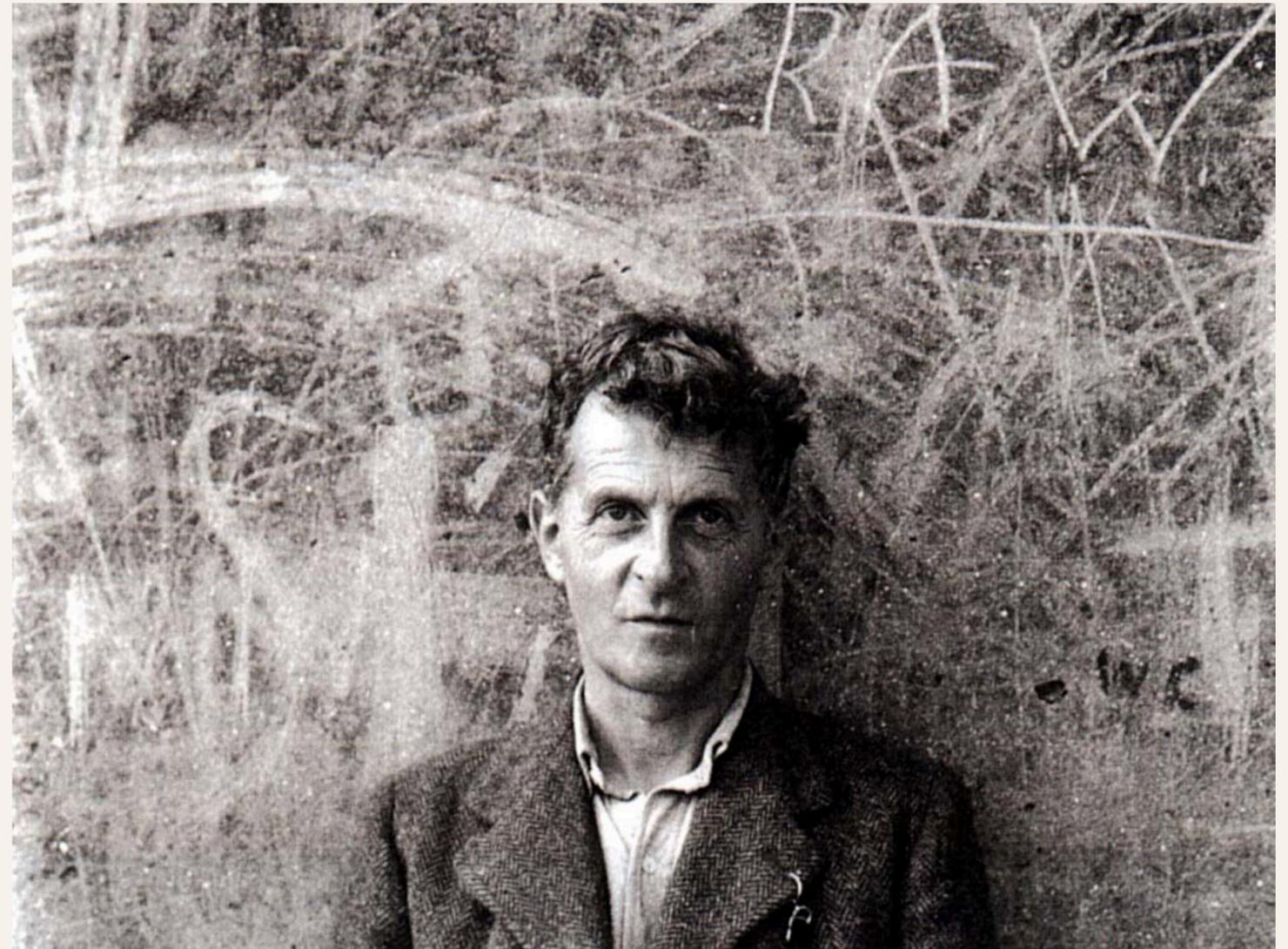
Polycarpos Yiorkadjis
Masters'25 CS



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“The limits of my
language mean the
limits of my world”

Ludwig Wittgenstein



Problem Domain

Early-Mid English
Language Learning

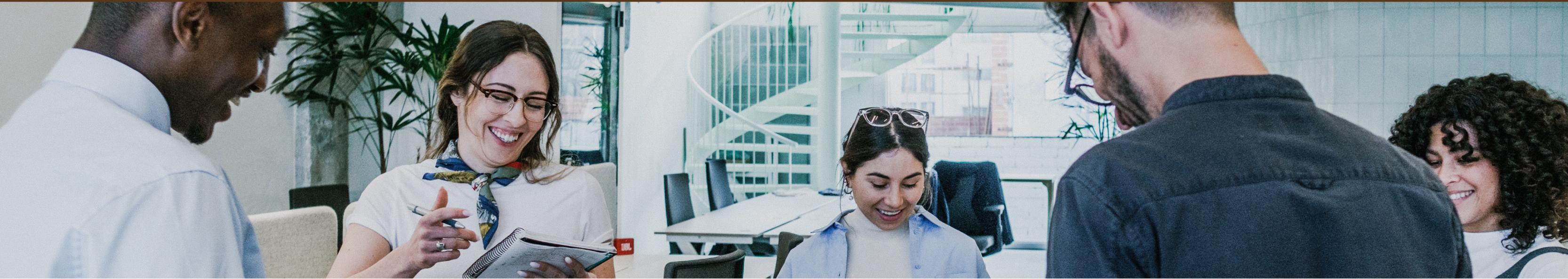


1. Impact

2. Potential for positive change

3. Unmet need

4. Passion & Personal Connection



Participants: 3 Teachers + 1 Student

Interviews were conducted physically in Stanford University, except Francis on Zoom

- Stanford Student, “Sebastian” (Mirrielees)
 - 20 years old, Junior
 - Math Teacher
- Elementary School Student, “Nathan” (Hulme Court)
 - 9 years old
 - Learned English in Singapore & US school
- Ex-English Language Teacher, “Jen” (GSB)
 - 29 years old
 - Taught English to high school and middle school students
- Current English Language Teacher, “Francis” (Zoom)
 - 29 years old
 - Teaches English to high school students



“Sebastian” - Extreme User

We wanted to consider how language intersects with non-language subjects like mathematics

Content-Specific Vocabulary: Math teachers use **technical vocabulary** (like terms such as "denominator," "perpendicular," or "quadratic"). Understanding their approach to teaching might **support clearer explanations or enhance students' grasp of subject-specific language.**

Communicating Complex Concepts: In math, **precise language is crucial to convey abstract or complex ideas.** We can better understand how **technology might be leveraged to help students better understand and articulate these concepts,** especially those who struggle with English.

Innovative, Non-traditional Methods: Sebastian does not have formal teacher training. They might **approach teaching from a more informal, perhaps even tech-driven or self-taught, perspective.** They might offer **insights into creative, out-of-the-box methods that can enhance language learning through technology.**



Questions: 2 Discussion Guides (Student & Teacher) with 4 Sections for Interview

Discussion Guide for Interview

BACKGROUND & OBJECTIVE

To explore the key challenges students and teachers face during the language learning process and identify potential strategies for overcoming these obstacles.

DISCUSSION FLOW (35 mins)

SECTION	DESCRIPTION	TIME
1	Introduction & Background	5 mins
2	Challenges Faced by Students	15 mins
OR		
2	Challenges Faced by Teachers	15 mins
3	Potential Solutions	10 mins
4	Wrap Up	5 mins
Total time		35 mins



Questions had a strong focus on

- **Language Learning**
- **Technology in Learning**
- **Motivation to learn English**

11. How do you feel about using technology (e.g., apps, websites, online resources, ChatGPT) to enhance your English learning?
 - a. What specific tools or platforms have you found helpful, and why?
 - b. Do you prefer using technology for learning and if so, what do you find appealing about it?
12. In what ways do you think technology can support your learning goals?
 - a. What do you like about interactive platforms (e.g., language learning games, virtual classrooms)?
 - b. How important is it for you to have access to multimedia content (e.g., videos, podcasts) when learning English?
13. How do you prefer to receive feedback through technology?
 - a. What do you think about digital platforms where teachers can provide immediate feedback on your assignments?
 - b. Do you think online discussion forums or peer review systems would help you improve your writing or speaking skills?

Roles & Responsibilities

01 Interviewers

Violet & Ash



02 Empathy Maps

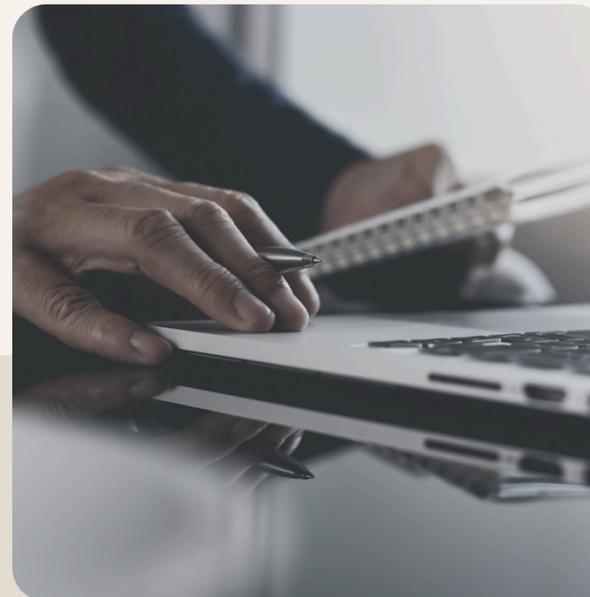
Violet, Ash, Abhi

For Jen & Sebastian

Interviews were first recorded. The audio was later extracted Audacity, and uploaded it into Microsoft Word's 'transcribe' feature to generate the transcription.



Apparati



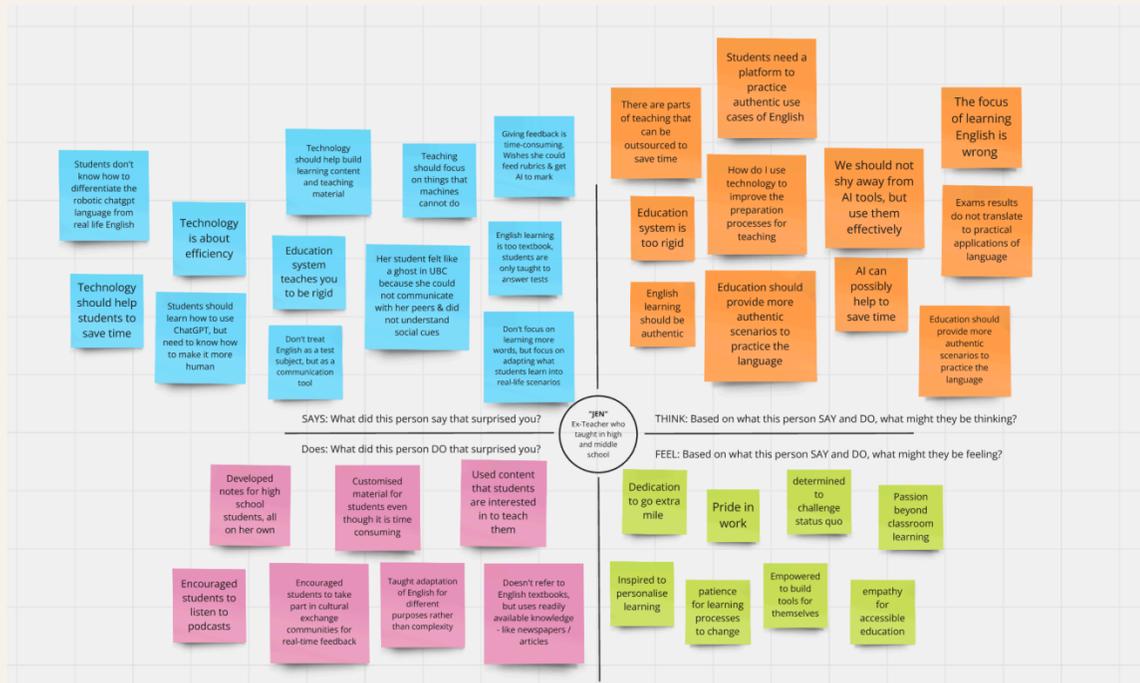
For Francis & Nathan

Interviews were not recorded, but notes were taken.

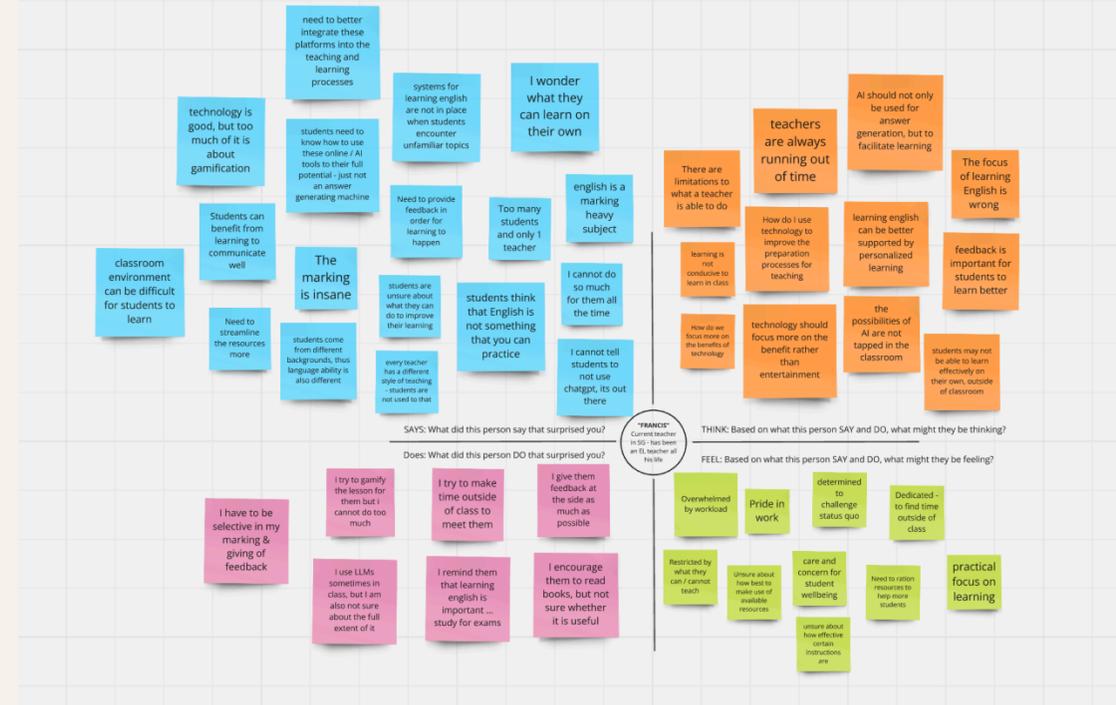
Nathan's parents were not agreeable because he was a minor & Francis still works with the Singapore government & does not want the interview to go on any kind of record.

EMPATHY MAPS

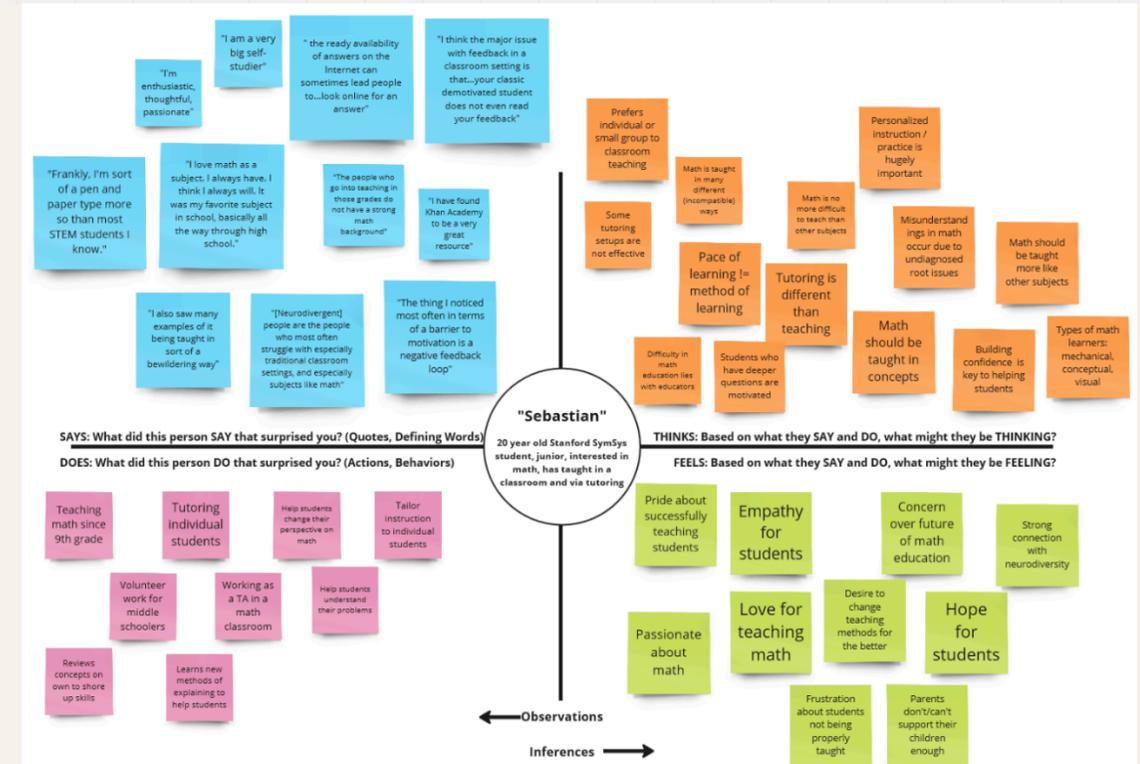
Jen



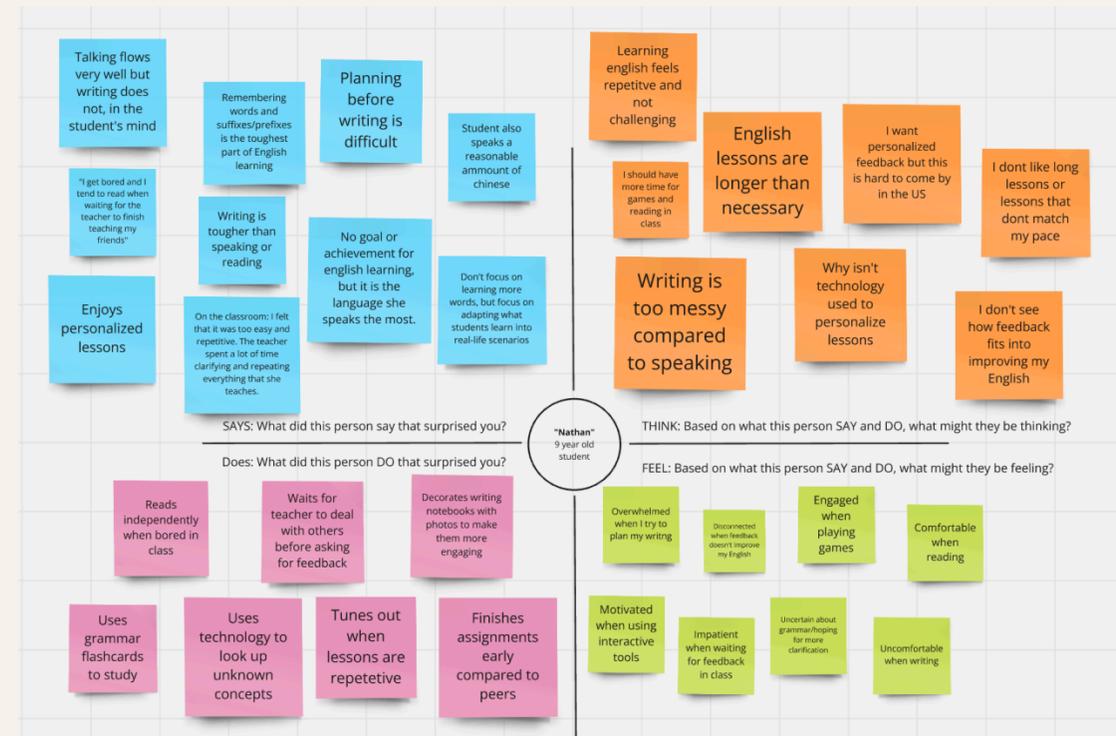
Francis



Sebastian



Nathan



PICTURES & RELEVANT ARTIFACTS

Kahoot

Questions (20) [Show answers](#)

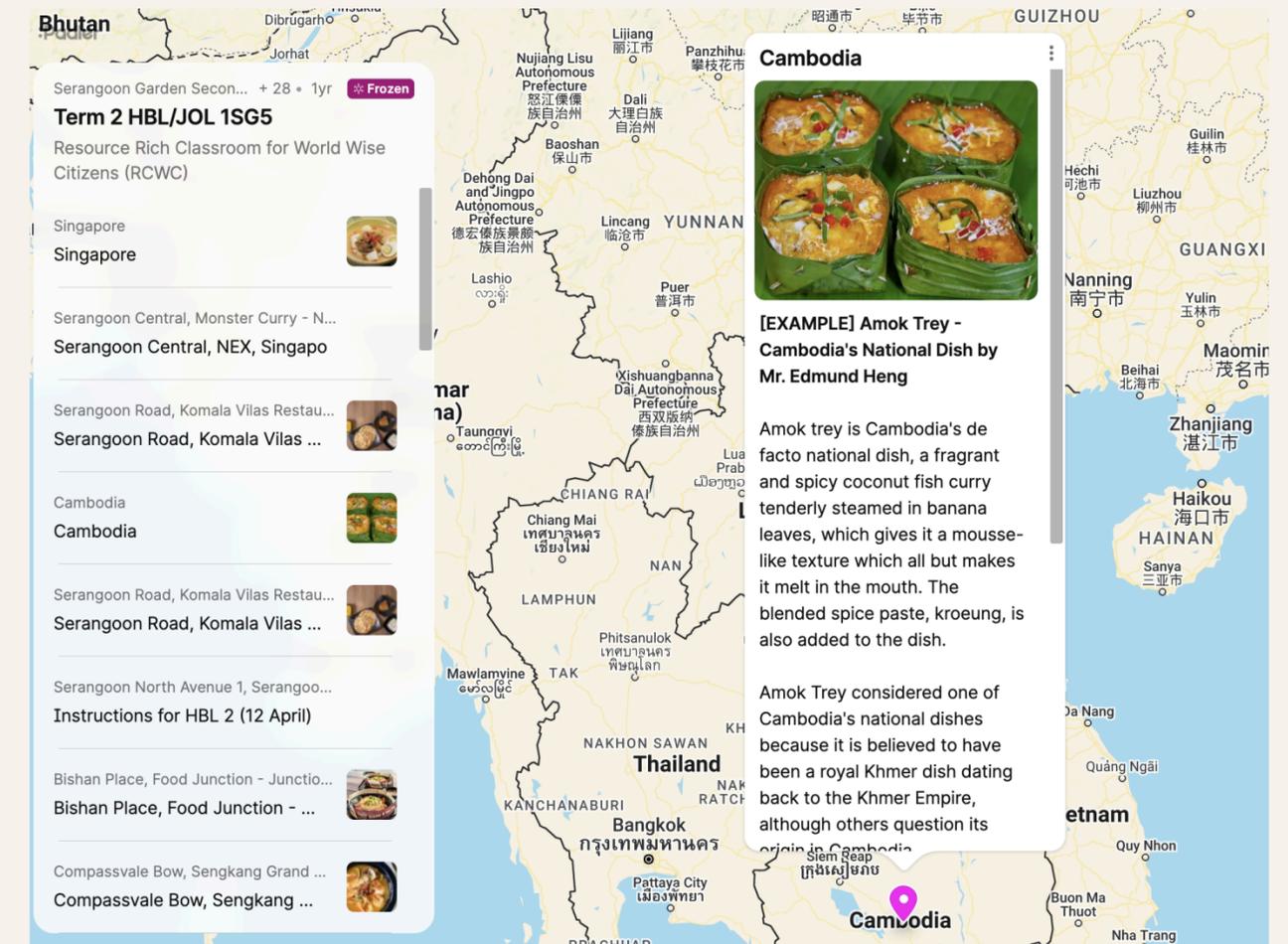
1 - Quiz
He _____ broke your camera.  20 sec

2 - Quiz
Dreams become reality for those who _____.  20 sec

3 - Quiz
How many dead people are buried in that ____?  20 sec

4 - Quiz
Learning to spell English words takes _____.  20 sec

5 - Quiz
Some people get _____ easily.  20 sec



Term 2 HBL/JOL 1SG5
Resource Rich Classroom for World Wise Citizens (RCWC)

Singapore
Singapore

Serangoon Central, Monster Curry - N...
Serangoon Central, NEX, Singapo

Serangoon Road, Komala Vilas Restau...
Serangoon Road, Komala Vilas ...

Cambodia
Cambodia

Serangoon Road, Komala Vilas Restau...
Serangoon Road, Komala Vilas ...

Serangoon North Avenue 1, Serangoo...
Instructions for HBL 2 (12 April)

Bishan Place, Food Junction - Junctio...
Bishan Place, Food Junction - ...

Compassvale Bow, Sengkang Grand ...
Compassvale Bow, Sengkang ...

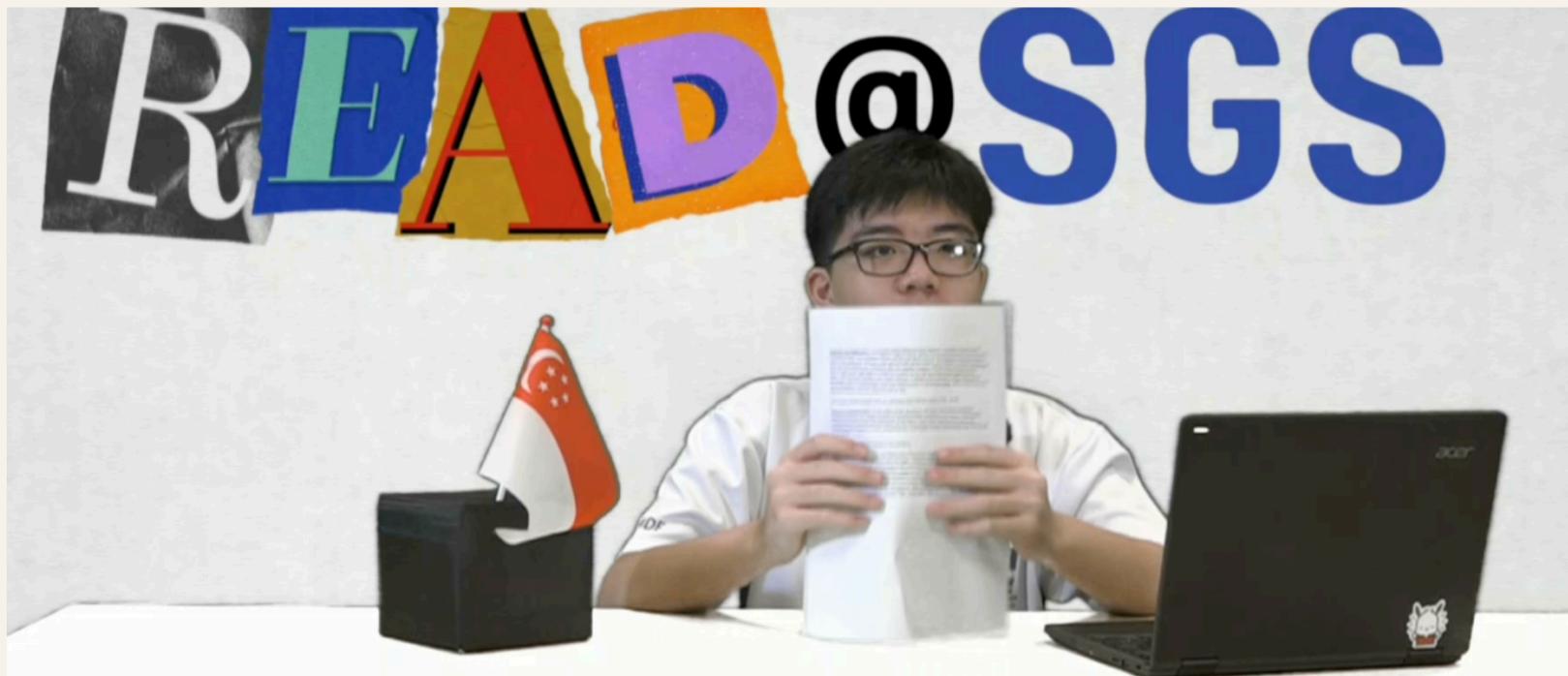
Cambodia

[EXAMPLE] Amok Trey - Cambodia's National Dish by Mr. Edmund Heng

Amok Trey is Cambodia's de facto national dish, a fragrant and spicy coconut fish curry tenderly steamed in banana leaves, which gives it a mousse-like texture which all but makes it melt in the mouth. The blended spice paste, kroeung, is also added to the dish.

Amok Trey considered one of Cambodia's national dishes because it is believed to have been a royal Khmer dish dating back to the Khmer Empire, although others question its status.

Padlet Activity



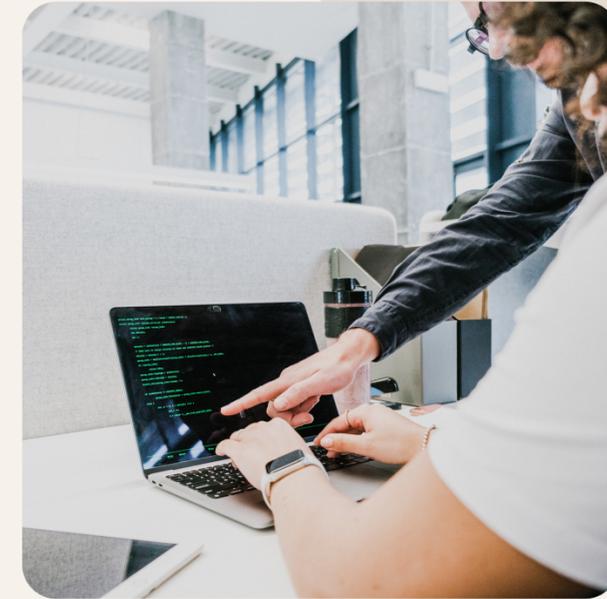
Authentic Tasks - Newscaster for school program

KEY QUOTES & SURPRISES

FROM JEN

"I customise material for students even though it is time consuming"

"Technology is about efficiency"



FROM SEBASTIAN

"The thing I noticed most often in terms of a barrier to motivation is a negative feedback loop"

"I think the major issue with feedback in a classroom setting is that...your classic demotivated student does not even read your feedback"



FROM NATHAN

"I like lessons when they are personalized"

"Teacher doesn't mark my work or give feedback instantly, I need to wait for my turn."

FROM FRANCIS

1. "Technology is good, but too much of it is about gamification"
2. "I cannot tell students to not use ChatGPT, it's already out there"
3. "I wonder what they can learn on their own"
4. "I have to be selective in my marking & giving of feedback because there is no time"



BREAKDOWN & ANALYSIS OF FRANCIS' EMPATHY MAP



1. Teachers have not explored the potential of technology beyond gamification of learning.
2. We need to embrace ChatGPT / AI models
3. How can we empower students to do self-directed learning & ensure quality?
4. Teachers want to do more for students, but do lack the resources / tools to do it

KEY LEARNINGS

Giving Feedback

Teachers believe that feedback is important in learning. However, it is **usually not given in a timely, effective manner**. This is often due to a lack of resources such as time.

Student Motivation

Providing **feedback, no matter how constructive or well-intentioned, becomes ineffective if students are not motivated** to reflect on or apply it.

Applications of Technology / AI

Technology opens up opportunities for autonomous learning. But the **challenge lies in teaching students how to use AI tools responsibly**, helping them understand when and how AI can assist their learning without becoming a crutch.



Moving Forward

Refining Design Question

- Reconsider earlier design question based on empathy map findings to make it more user-centric & rooted in the core needs and problems.

Align & Narrow Focus

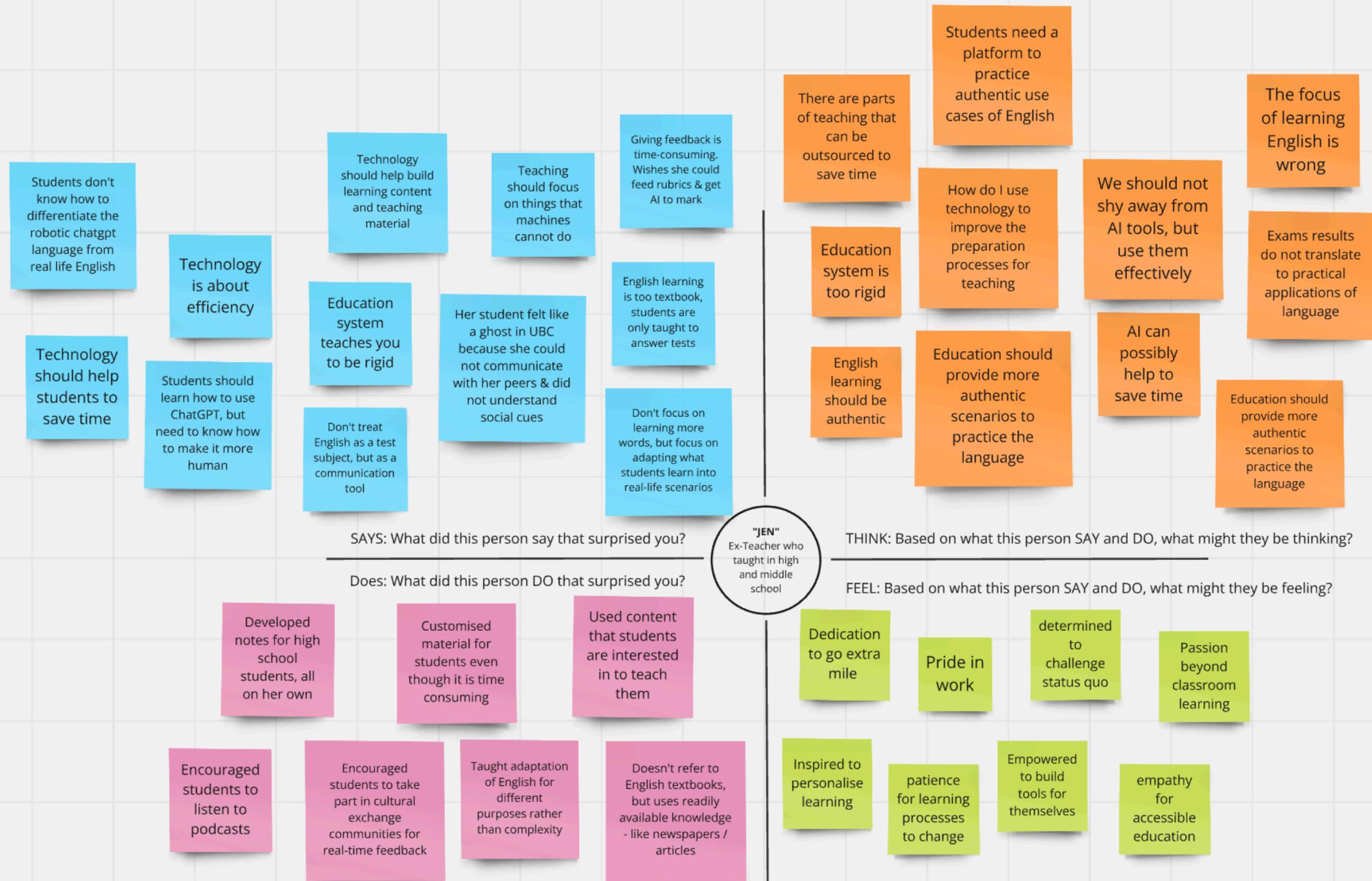
- A few pain points were surfaced during the analysis of the empathy maps. We want to focus on the key insights which are impactful & significant.



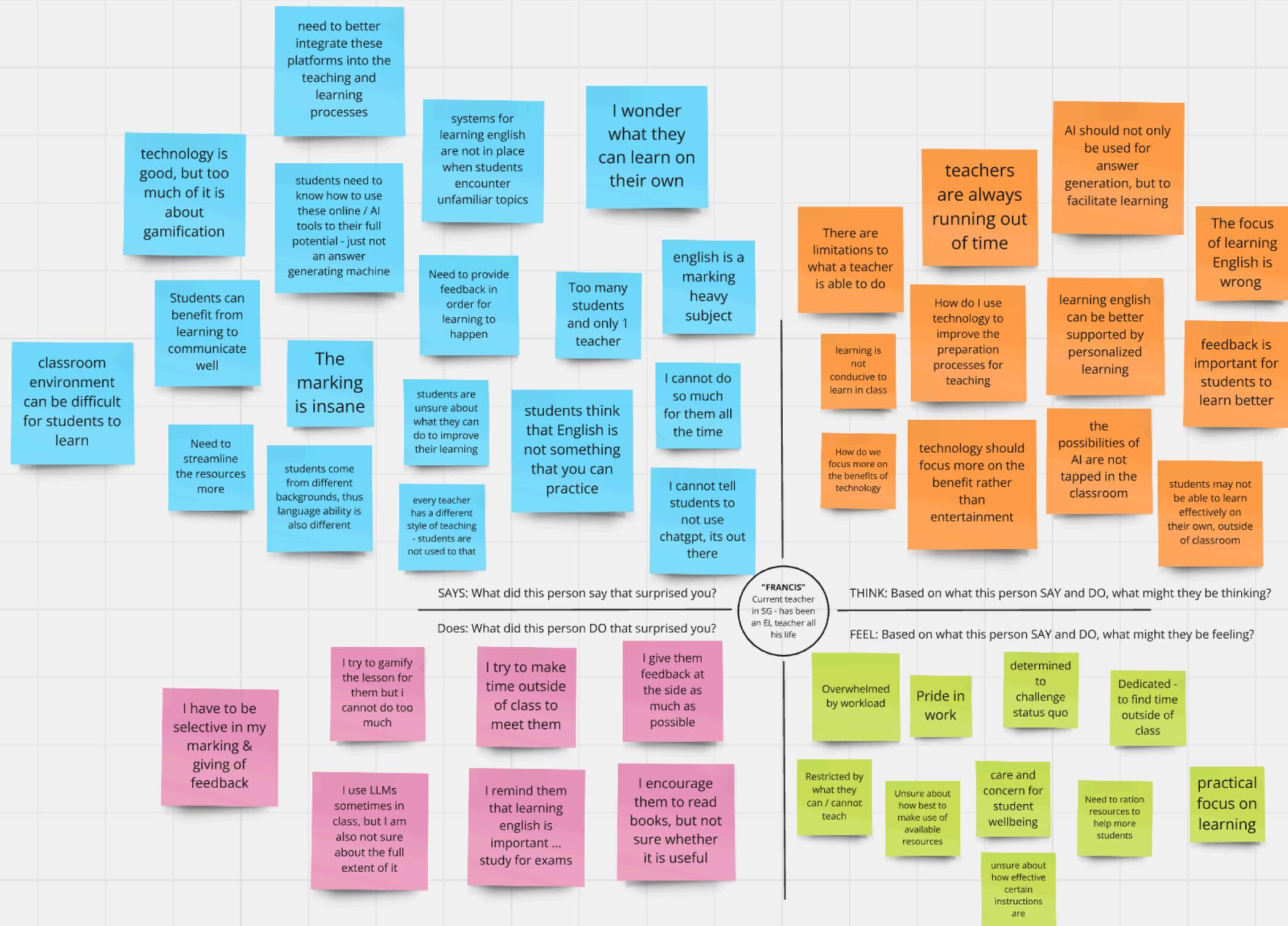
APPENDIX



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