Implementing the WSA-EC Programme at Woodlands Ring Secondary school – Subject Department Initiatives

4th Annual WSA-EC Forum 2016

Woodlands Ring Secondary School

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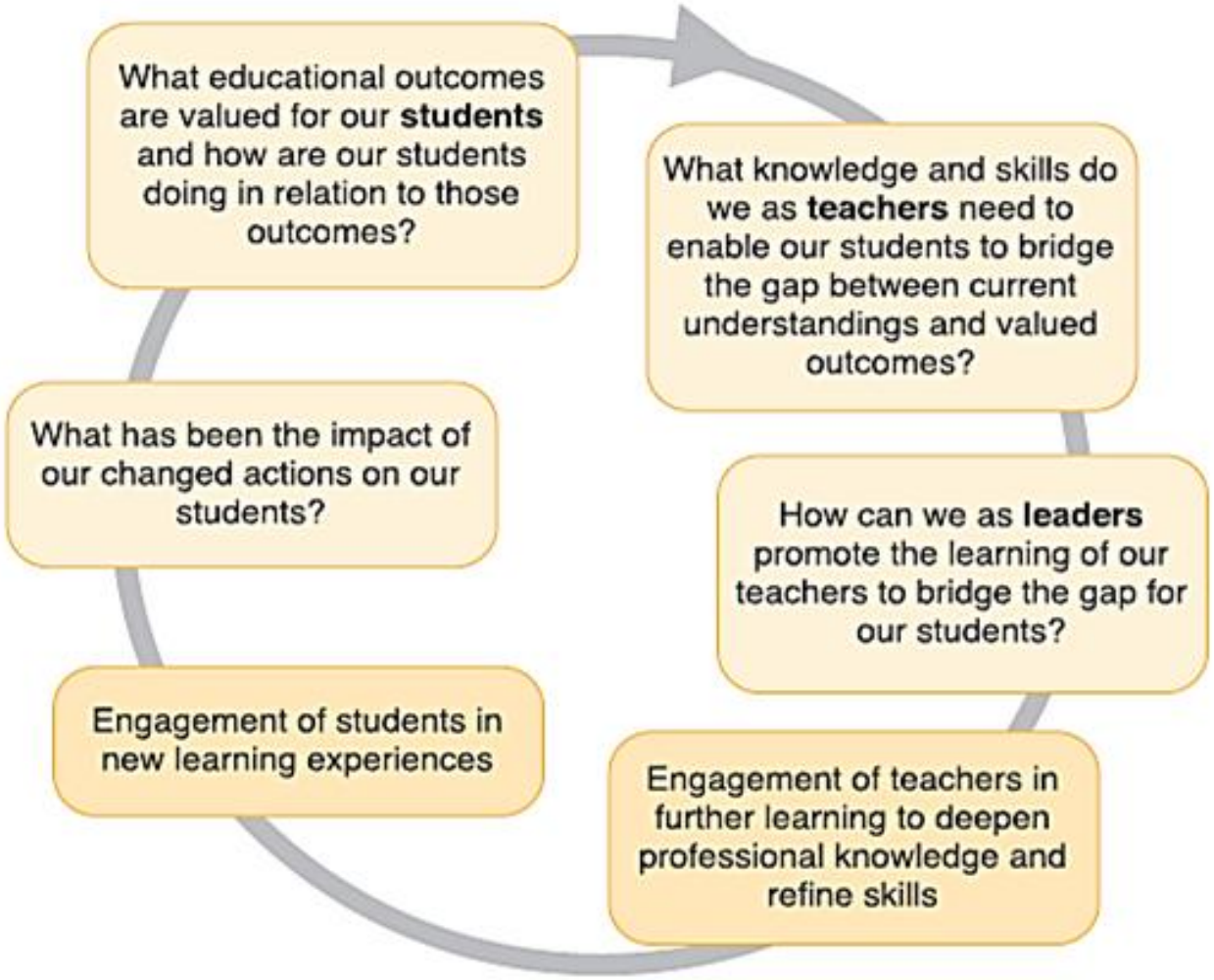
ELIS

ENGLISH LANGUAGE INSTITUTE OF SINGAPORE

Teacher Inquiry and Knowledge-Building Cycle

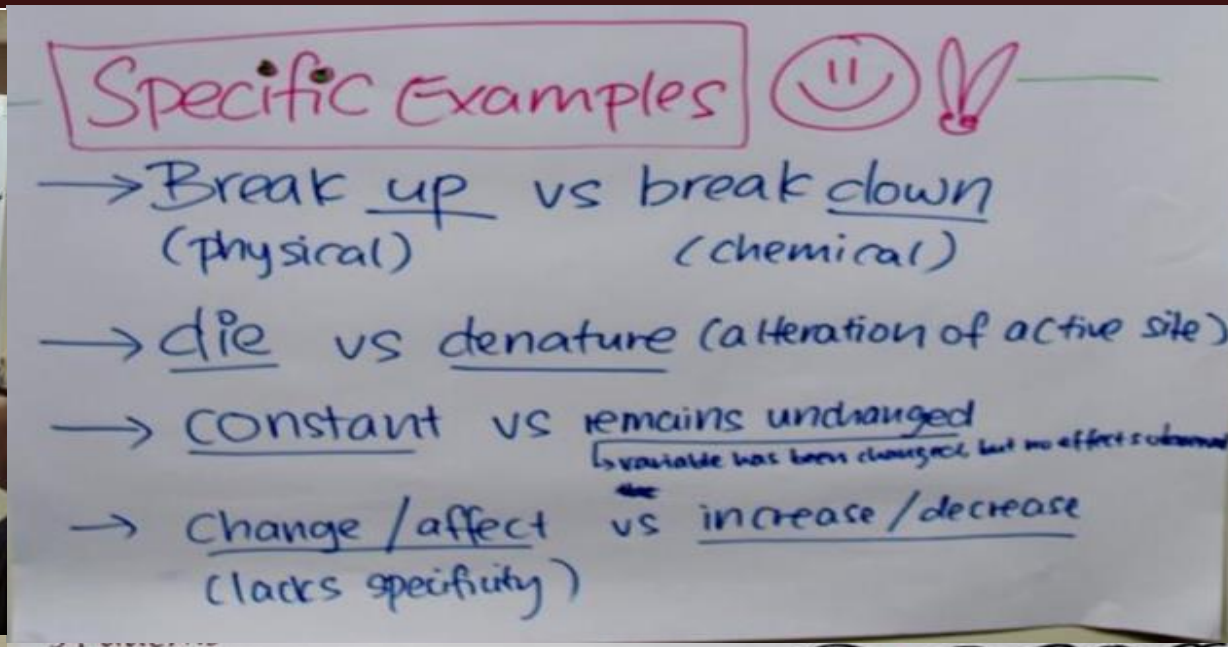


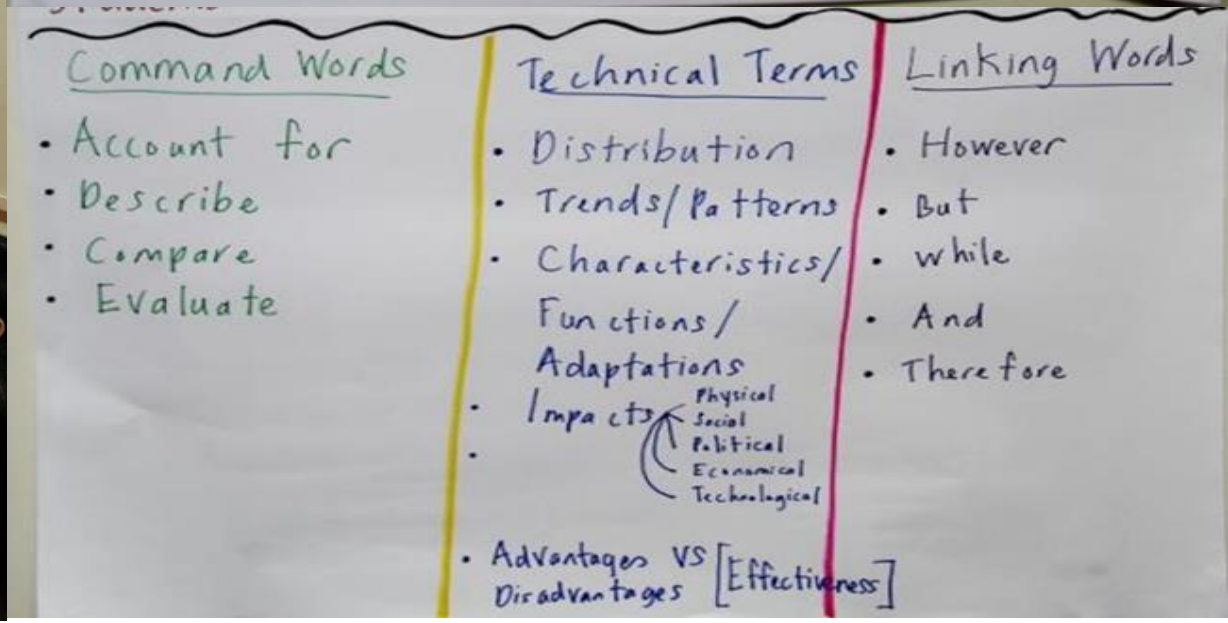
Timperley, H. (2008). *Teacher professional learning and development*. Brussels, Belgium: UNESCO International Bureau of Education.

Three Year Journey @WRSS

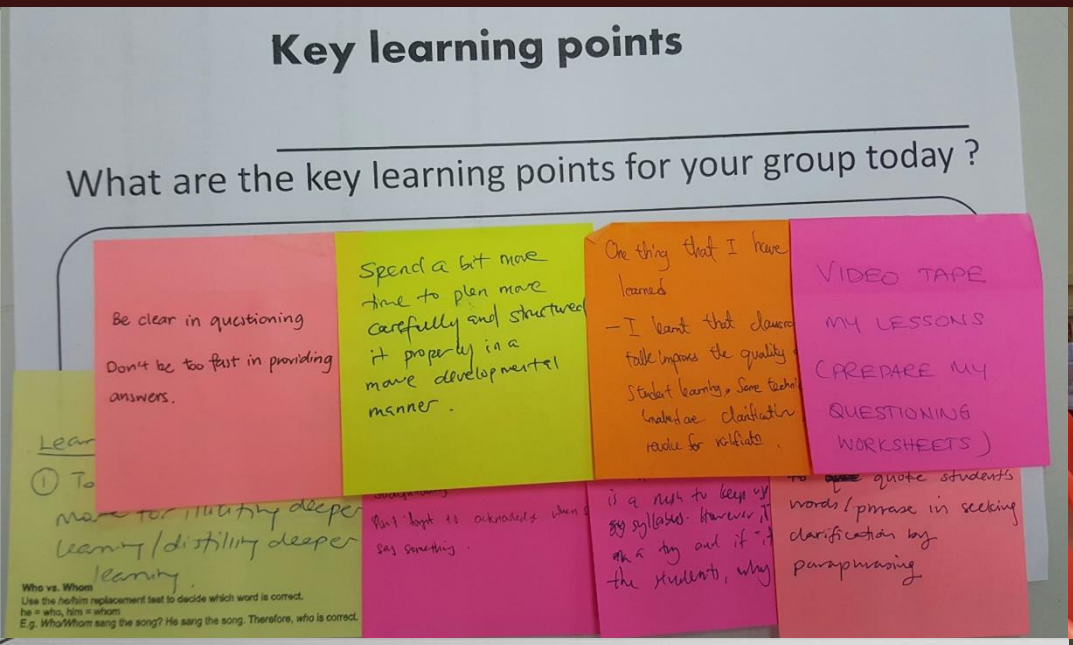
2014	• Champions introduced to importance of effective communication • Champions applied learning in their own classrooms • Whole-School PD on subject literacy
2015	• Department Level PD for subject literacy • Champions introduced to Talk Moves • Champions applied learning in their own classrooms
2016	• Whole-School PD for Talk Moves • Department Level PD for Talk Moves • Champions introduced to Integrating Talk with Writing in Subject Classrooms • Champions applied learning in their own classrooms
2017 & Beyond	• Whole-School PD for Integrating Talk with Writing • Department Level PD for Integrating Talk with Writing

Subject Literacy – Whole School PD





OUTLSC – Whole School PD



1) The teacher did most of the talking

2) Some students would feel happy not being required to contribute verbally. Only the vocal ones would feel restricted. However, the lesson would be very boring.

3) Call on students to answer questions
Include strategies to encourage student interaction eg think-pair-share, role play activities, more wait-time, buzz time

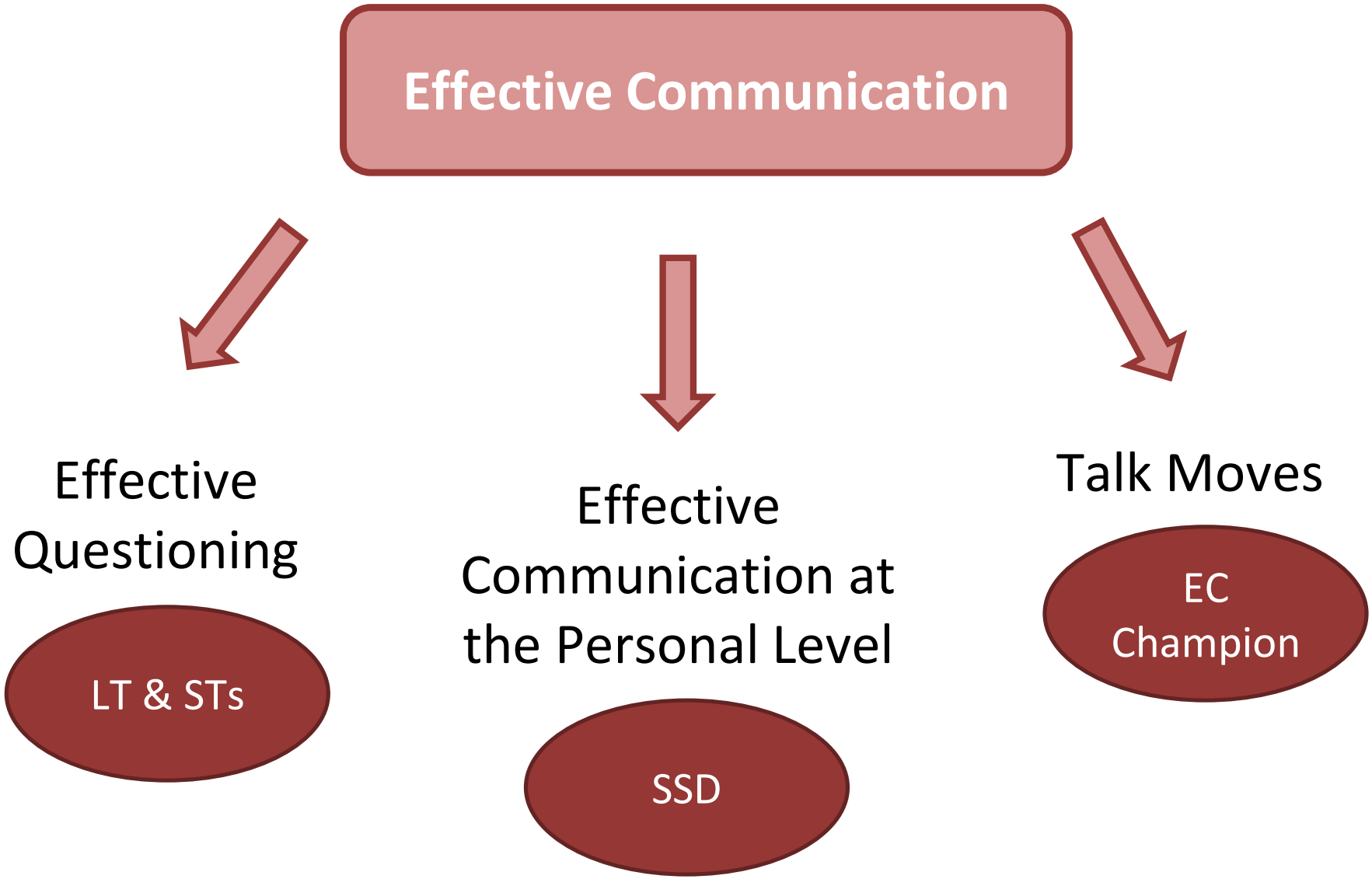
- Ask more open-ended questions to allow for a variety of responses.

4) NO. The interaction shows the teacher has low expectations of student knowledge. It is up to the teacher to probe and not dominate the conversation.

Critical Success Factors

- Alignment with School Learning Direction
- Multiple professional development platforms
- Strong support from school leaders
- Established culture of learning and collaboration

Alignment with School Learning Direction



Multiple Professional Development Platforms

	Tue	Wed
	29	30
ngaroo Con	Home-Based Learning SCT (PM) YH Meeting with FT (AM)	S1 to 5 Math
	5	6
ek		
	Teacher Leader-Led SRT Whole-School PD (PM)	2:30p Briefing
	12	13
	Dept Meeting 1 (PM) SRT Learning Teams (AM)	LS Mass Run
	19	20
sed MTL Oral Examination		
ool-based El	Dept Meeting 2 (PM) +2 more	Mass Run Ma
	26	27
Exam (End 4N: 29Apr | 4E5O: 5 May)		
	Teacher-Leader Led SRT	SMP 4 - Sess

Tuesday mornings

SRT - Learning Teams

ST - led SRT

Tuesday afternoons

Department Meeting

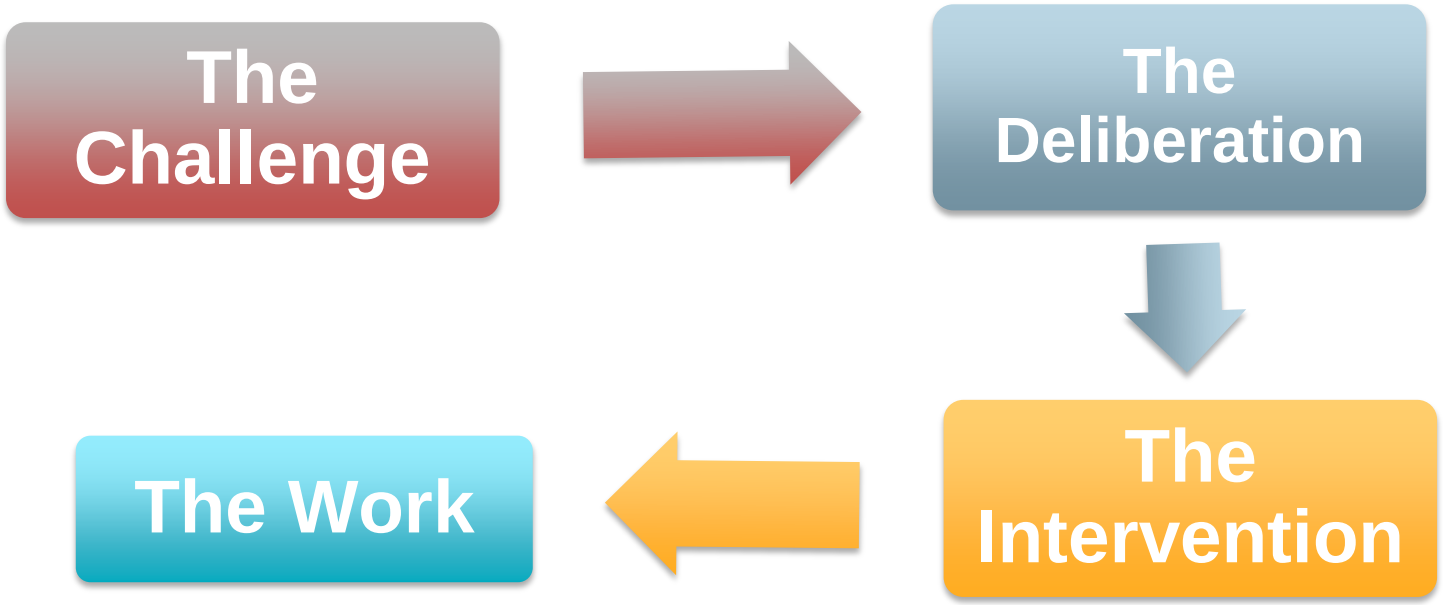
Staff Contact Time

Whole-school PD

Department Level Initiatives

Subject Literacy in the Humanities Department

Overview



The Challenge

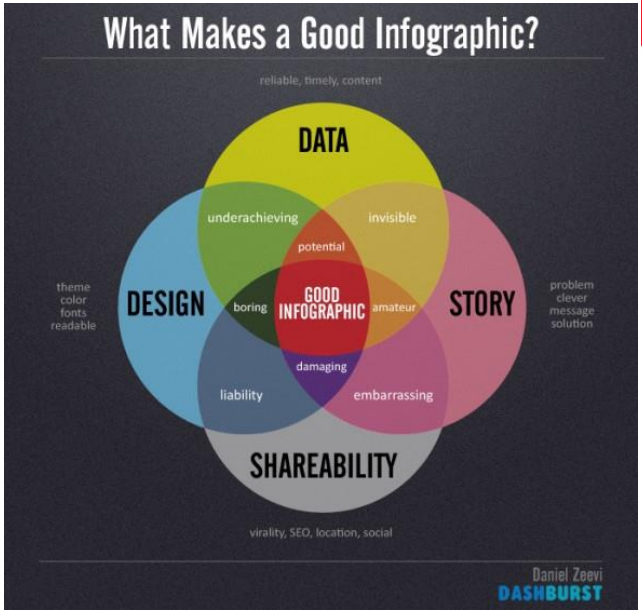
- Students tend to write in the same way as they speak.
- Their writing does not meet the academic demands of the subject.
- Students need to learn how to **read, write, speak** and **think** in subject-specific ways

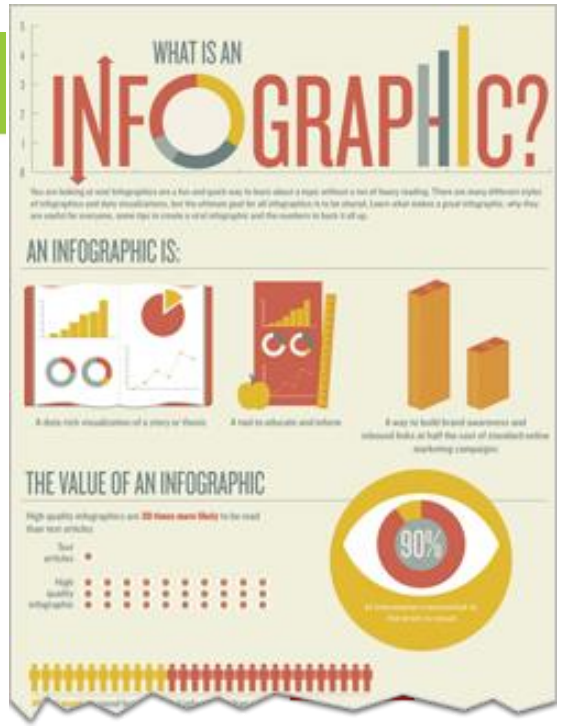
The Deliberation

- How to help our learners achieve **subject literacy**?
- How do we know they have **academic language proficiency**?
- How do we help students develop the **ability to read, write, speak, think and learn** in the Humanities subjects?

The Intervention

Infographics such as posters and bookmarks were created to help guide cognitive processes and subject language use.





The Work

Answering Source-Based Questions (SBQs) requires two key stages:

Analysis (Thinking) Stage

(1) Question Analysis

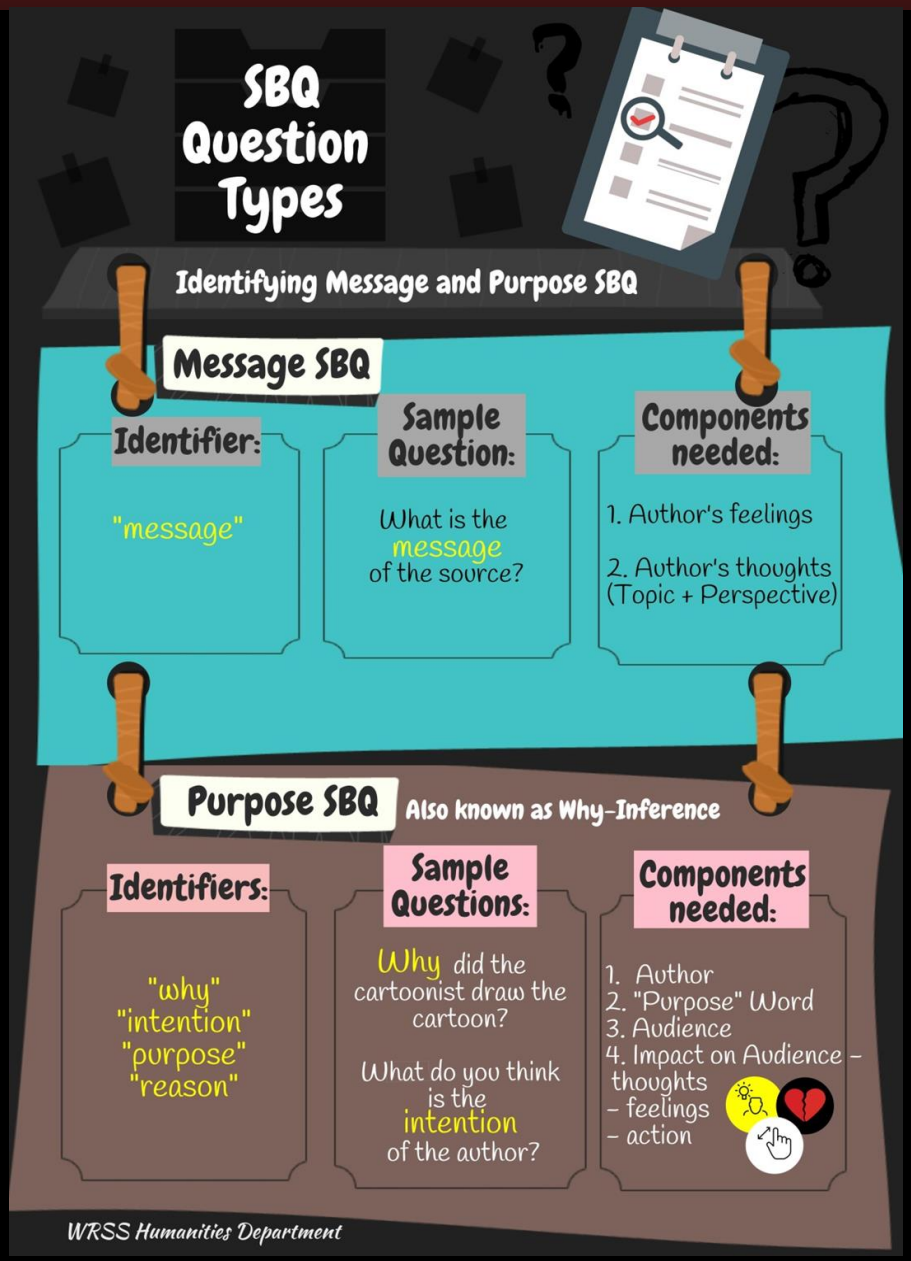
(2) Context Analysis

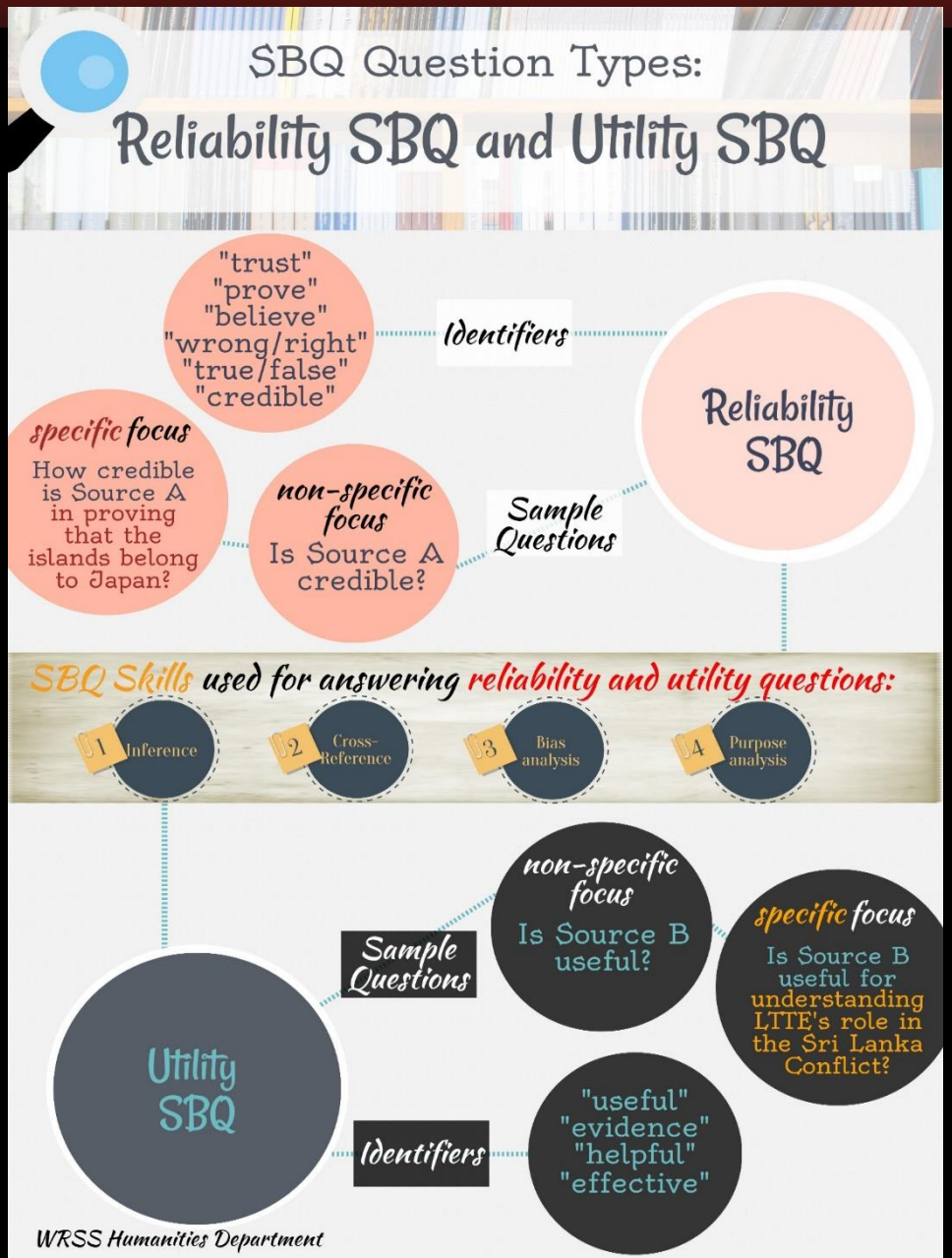
(3) Source Content Analysis

Writing Stage

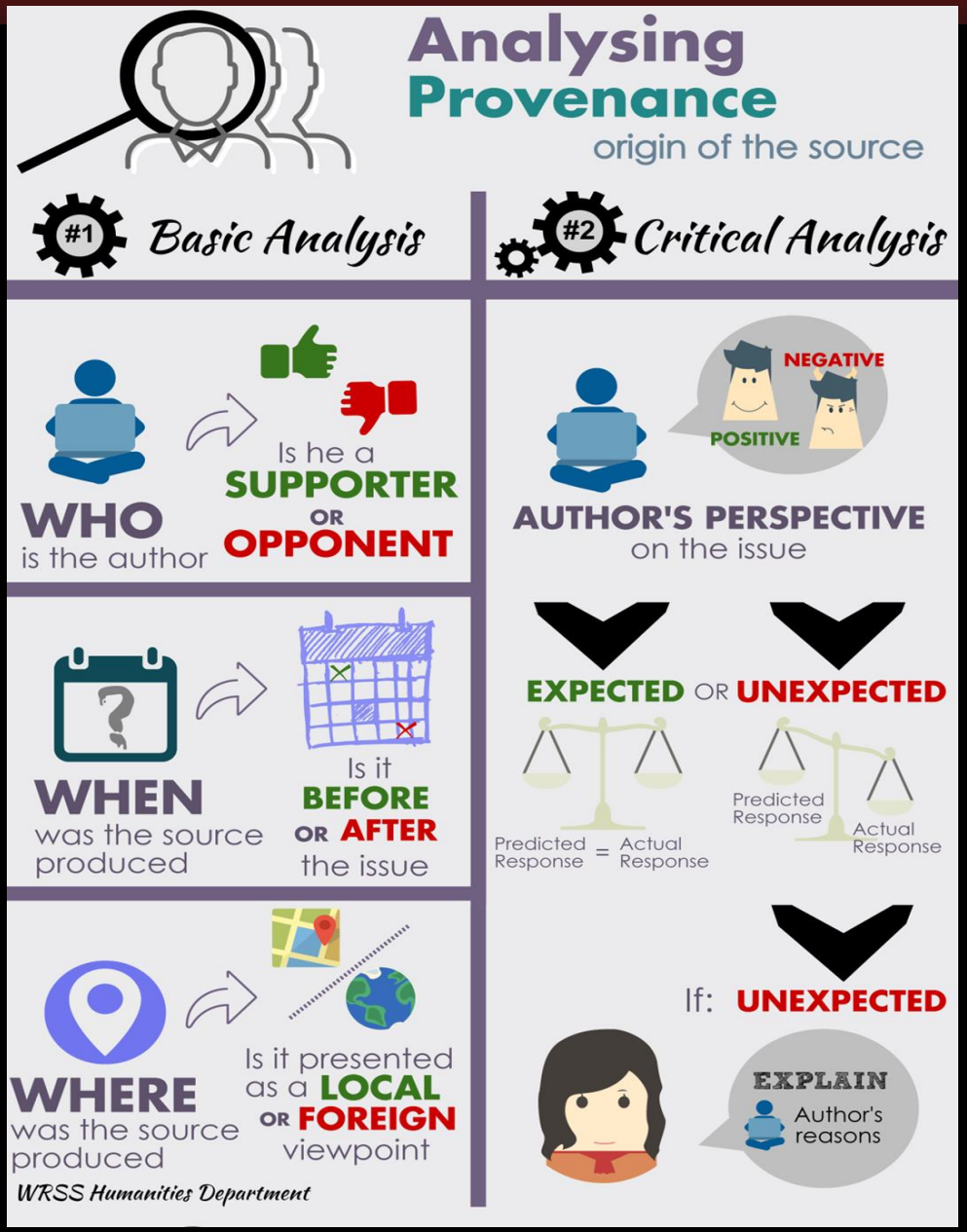
(4) Presentation of Response

(1) Question Analysis



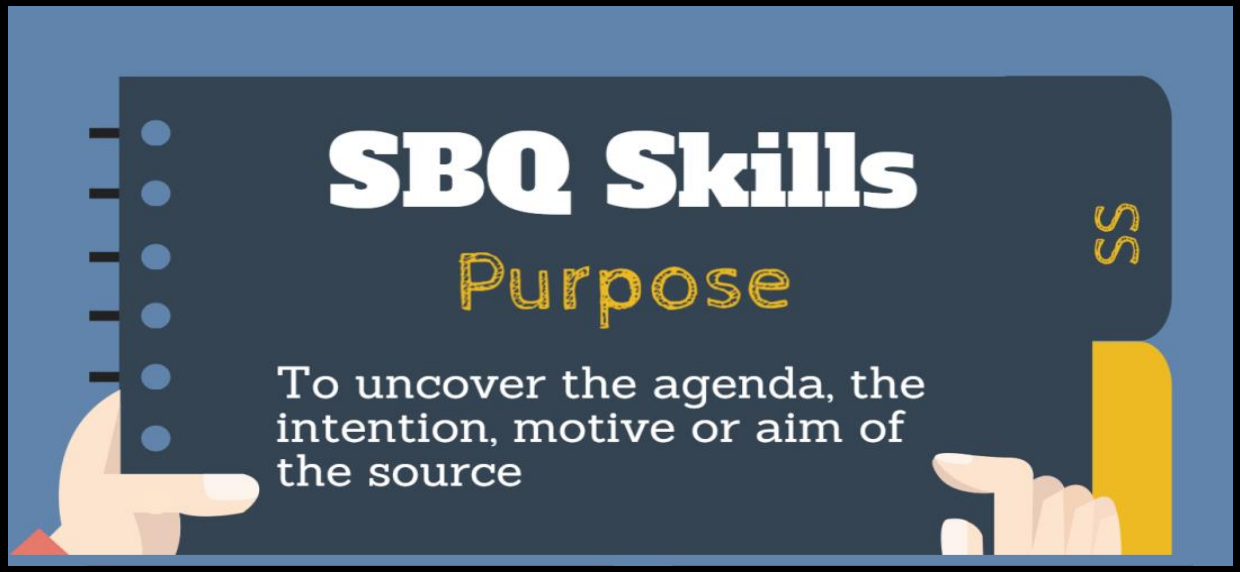


(2) Context Analysis



(3) Source Content Analysis

(4) Presentation of Response



Presentation Structure

1. Purpose
2. Explain Purpose
3. Support A
4. Explain Support A

WRSS Humanities Dept

1. author+purpose word+audience+intended impact (doing)

2a. intended impact(feel)+intended impact(think)

2b. intended impact(feel)+message

3. A says "..."

4. This suggests/means/implies that

The Outcomes

1. **DEPARTMENT**: Useful to norm how answering SBQs are taught across History and Social Studies units, and among teachers.

2. **TEACHER**: “Useful”, “Should have done this sooner”. Teaching package for new or beginning teachers.

3. **STUDENTS**: Information was found to be appealing and attractive. More able to translate what they know into a valid written SBQ response. Consistent exposure to and practice of thinking/writing frames.

Department Level Initiatives

Opening Up Talk for Learning in the **Sciences**

Talk Moves for Productive Academic Discussion

- EC Champion developed and tested a list of talk moves and frames
- Introduced them to teachers during department-level professional development session.

Talk Moves and Frames for Prompting and Responding

Teacher Talk Moves and Frames for Prompting and Responding

Focus Area 1: Voicing and clarifying students' ideas		
Talk Move	**Frames for prompting**	**Frames for Responding**
Seek clarification	Can you elaborate on X? What do you mean by X? Can you be more specific about X? That's a complicated idea. Can you say it again loud and clear so that we all can understand? I'm not really clear about the part....	What I mean is... An example of this is... In other words ... I think that...
Re-voice for verification	So you're saying that... Let me see whether I understand you correctly. Are you telling us...? I wonder whether you mean...	Yes, that's right. No, what I really meant to say is...
Focus Area 2: Listening closely to other students		
Talk Move	**Frames for prompting**	**Frames for Responding**

Talk Moves for Productive Academic Discussion

- EC Champion developed and tested a list of talk moves and frames
- Introduced them to teachers during department-level professional development session.
- Teachers recorded whole-class discussion. They transcribed and analysed approximately 3-4 minutes of the audio recording.

Audio Playback of Lesson

Transcript

16	S1,2,3,4 [chorus answer]	Starts to disappear.
17	T	Starts to disappear. Jenny, did you observe that as well?
18	S5	Ya…
19	T	Okay why does, number 1, what causes the foam to disappear? Besides Lai Peng who else? Soo Lee? What causes the foam to disappear?
20	S6	When the ice cream sinks and the water will not be like overflowed. Then the foam will be like disappear. Like it goes back into the water.
21	T	Okay got that… sit down, good attempt! Soo Lee mentioned that when the ice cream sinks, it will occupy the spaces left by the gases. So the gases actually will dissolve in the water or escape into the air.

Talk Moves for Productive Academic Discussion

- EC Champion developed and tested a list of talk moves and frames
- Introduced them to teachers during department-level professional development session.
- Teachers recorded whole-class discussion. They transcribed and analysed approximately 3-4 minutes of the audio recording.
- Write a short reflection prompted by the following questions.

Reflection Questions

1. Who did most of the talking?
2. Were your students willing to contribute?
3. Did they speak audibly and confidently?
4. Did I ask questions that allowed for different responses?
5. Did I actively build on my students' responses by inviting them to elaborate, explain, speculate or justify their ideas?
6. Did I get the students to build on one another's contributions, or just to respond to my questions or feedback?
7. Can I identify any talk moves and frames for no. 4, 5 and 6? What are these talk moves and frames?
8. Did I give sufficient wait time?
9. If given the opportunity to conduct this lesson again what would I do differently to increase students' verbal contribution in lesson discussion?

Teacher's Reflection

Q9. If given the opportunity to conduct this lesson again, what would I do differently to increase students' verbal contribution in lesson discussion?

Teacher's Reflection

"Definitely a **longer wait time** and allow students to comment on each other's explanation and not just at the surface of their observations. I will allow them to **interact more** before I consolidate the key points shared by the individual students.

I will ask more **open-ended questions** to allow students to discuss and explain their thinking more.

I will invite more students to **respond to one another's answers** so they can clarify their thinking, learn from one another, and I can assess their reasoning or spot misconceptions."

Challenges

- Personal hand phones are not ideal recording devices.
- Difficult to capture students seated far away from the recording device.
- Transcribing the recording is tedious and time consuming.

Department Level Initiatives

Integrating Talk with Writing in the Mathematics Department

Learning and Implementation

- **Cascading learning:**

  Staff PD → department sharing → level sharing → classroom implementation → peer critique

- **Buy-in:**

  HOD/Math, LH/Math & ST/Math shared Math new syllabus document (2013), adapted strategies, developed examples and shared with teachers

- **Application:**

  Integration into SOW & classroom practice

- **Reflection:**

  Audio and video recording & peer critique

Buy-in

ASSESSMENT OBJECTIVES (UCLES, 2016, p. 2)

The assessment will test candidates' abilities to:

AO1: understand and apply mathematical concepts and skills in a variety of contexts

AO2: organise and analyse data and information; formulate and solve problems; including those in real-world contexts, by selecting and applying appropriate techniques of solution; interpret mathematical results

AO3: solve higher order thinking problems; make inferences; write mathematical explanation and arguments.

Learning and Implementation

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- **Reflection:**

  Audio and video recording & peer critique

Aligning Effective Questioning Techniques with Talk Moves

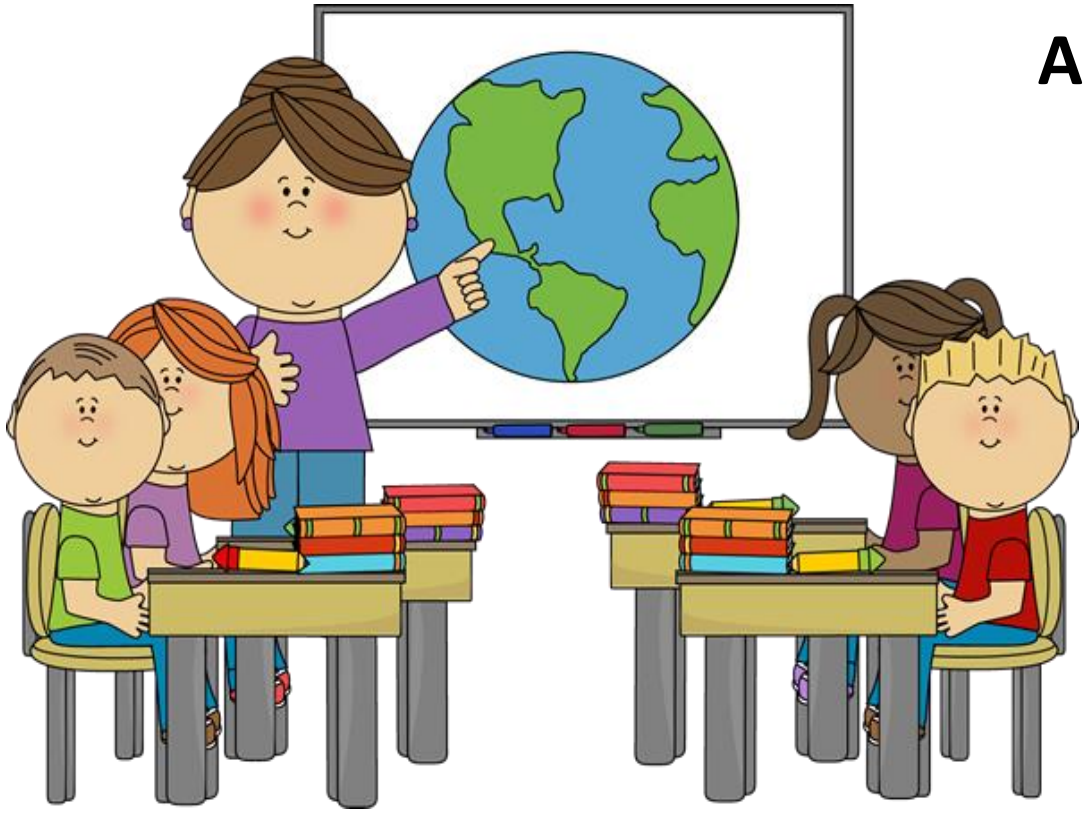
Bloom's Taxonomy	Specific Examples
Interpreting	What are the common factors?
Exemplifying	Show how you find the HCF of 3 and 6.
Classifying	Classify the elements of each term into coefficients & variables.
Summarizing	Summarize the steps required to factorise an expression.
Inferring	Do you think there is a common factor between x^2 and x?
Comparing	Compare the difference between $3x - 6$ and $3x^2 - 6x$? Is there additional factor, other than 3, that you would need to take out ?
Explaining	Can you explain why the common factors for 28 are ….. ?
Executing	Simplify $3(x - 2) + a(x - 2)$.
Implementing	Give that A = $3x - 6$ and length = 3 cm, explain how you can find the breadth of a rectangle.

Aligning Effective Questioning Techniques with Talk Moves

Bloom's Taxonomy	Talk Moves	
Interpreting	Focus Area 1: Voice and Clarify a Student's idea	Focus Area 2: Ask a student to restate another student's contribution
Exemplifying	Focus Area 2: Ask a student to restate another student's contribution	
Classifying	Focus Area 2: Ask a student to restate another student's contribution	
Summarizing	Focus Area 3: Deepen a student's reasoning	Focus Area 5: Consolidate discussion points
Inferring	Focus Area 3: Deepen a student's reasoning	
Comparing	Focus Area 2: Ask a student to restate another student's contribution	Focus Area 4: Engage with another student's reasoning
Explaining	Focus Area 3: Deepen a student's reasoning	
Executing	Focus Area 3: Deepen a student's reasoning	Focus Area 5: Consolidate discussion points
Implementing	Focus Area 3: Deepen a student's reasoning	

Extend Talk Moves to Writing

Examples of the Use of Content / Functional Language



A Video Demonstrating Talk Moves

Topic: Sec 3E Trigonometry

Transcript

Teacher	You are given 2 angles and you are given a length. How do you find the distance from B to C?	Clarifying student's idea
Student	You can see angles in a triangle. Then find angle C. Then use Sine Rule.	
Teacher	How do you use Sine Rule? Verbalise. (pause) You mentioned Sine Rule? How do you write it out? (pause) What do you understand by Sine Rule?	Deepening student's reasoning – probe for reasoning
Student	118 over sine….	

Integrating Talk with Writing in Mathematics Classrooms

Ways to Integrate Talk with Writing	Interpretation by Math Department
Understanding the writing task	• Understand what the question wants – **What does the question require me to do? Which topic does this question relate to?**
Analysing and interpreting information	• Identify the **critical information** in the question • Understand the **content vocabulary** – What **concepts** are required in the question?
Turning students' spoken responses into the written form	Using **functional language** for creating logical connections (writing frames): **Since** _____ (some results from calculations happen), **then** _____ (I can conclude as a result….). **Hence** _____ (I can align my conclusion to what the question wants us to conclude)
Thinking aloud about how to write	

Extend Talk Moves to Writing:
Examples of the Use of Content / Functional Language

Topic: Statistics

- **Compare the 2 sets of data using standard deviation.**

  Concept: Small S.D. → data is more consistent / less spread out
  Big S.D. → data is less consistent / more spread out

  The _____ is **more consistent / less spread out** than _____ **because** its standard deviation is **smaller**.

Functional Language

Content Language

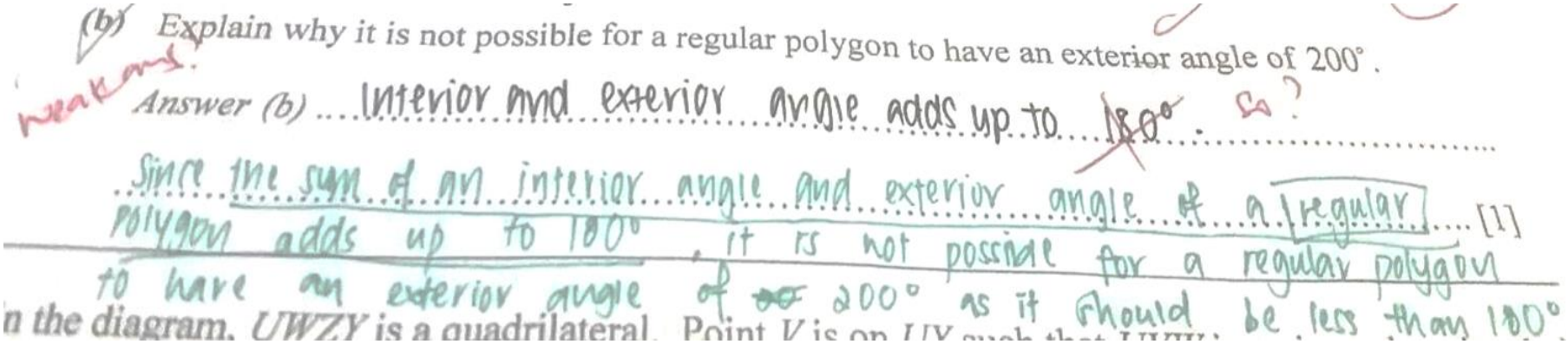
- **Compare the 2 sets of data using median / mean.**

  On average, _____ **performed better / had longer / was heavier** than _____ **because** its mean / median is **larger**.

Extend Talk Moves to Writing:
Examples of the Use of Content / Functional Language

Topic: Polygon

Weak Response



(b) Explain why it is not possible for a regular polygon to have an exterior angle of 200°.

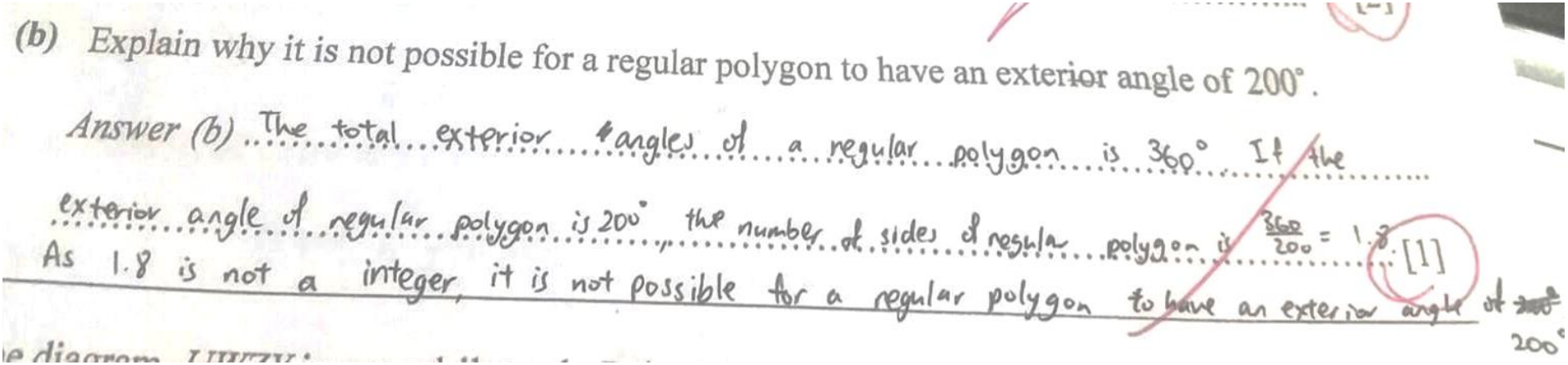
weakness.

Answer (b) ...interior and exterior angle adds up to ~~180°~~. Sa?

...since the sum of an interior angle and exterior angle of a regular polygon adds up to 180°, it is not possible for a regular polygon to have an exterior angle of ~~00~~ 200° as it should be less than 180°. ... [1]

n the diagram, UWZY is a quadrilateral. Point V is on UY such that UWW...

Good Response



(b) Explain why it is not possible for a regular polygon to have an exterior angle of 200°.

Answer (b) The total exterior angles of a regular polygon is 360° If the exterior angle of regular polygon is 200°, the number of sides of regular polygon is $\frac{360}{200} = 1.8$ ... [1]

As 1.8 is not a integer, it is not possible for a regular polygon to have an exterior angle of ~~200~~ 200°

e diagram, UWZY is...

Extend Talk Moves to Writing:
Examples of the Use of Content / Functional Language

Topic: Polygon

Explain why it is not possible for a regular polygon to have an exterior angle of 200°.

Weak Response

Response: Interior and exterior angle add up to 180°.

Good Response

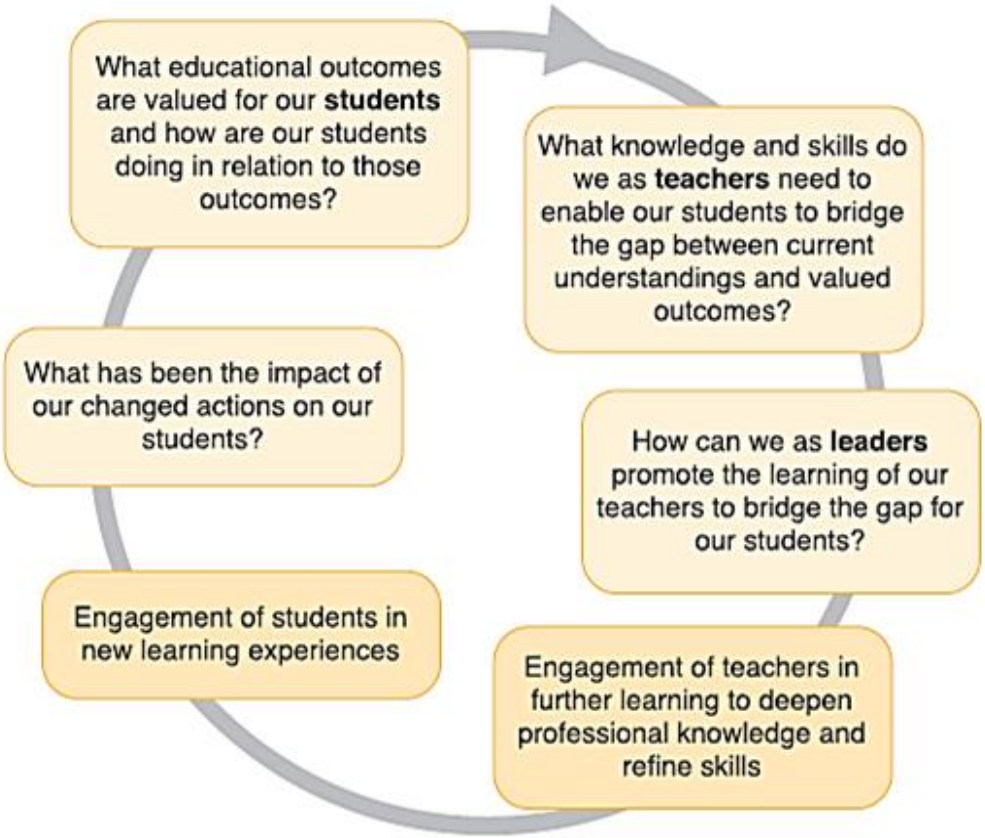
Response: The total exterior angles of a regular polygon is 360°. (concept)

If exterior angle of a regular polygon is 200°, the number of sides of the polygon is 360/200 = 1.8. (supporting calculation with functional language)

As 1.8 is not an integer, it is not possible for a regular to have an exterior angle of 200°. (conclusion with functional language)

What next?

- Increasing use of the strategies and approaches
- More peer observations & teacher reflection
- More teacher research, sharing and collaboration



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