Becoming More Responsive to Culturally and Linguistically Diverse Mathematics Classrooms

Concluding Remarks

Johnson, A. (2010). Teaching mathematics to culturally and linguistically diverse learners. Boston: Pearson.

Examples of "Points to Ponder" in Johnson (2010):

- Some cultures instruct students to show respect for authority (such as a teacher) by never making eye contact, especially when directly addressed.
- Some CLD learners may give brief answers to questions, but that does not mean they have a superficial understanding.
- Head nodding and smiles by CLD learners may not be the answer to a question but simply a reflective response when they do not understand.
- Some CLD learners are taught that it is disrespectful to ask questions of elders.
- ……

Examples of "Points to Ponder" in Johnson (2010):

- Verify that your mathematics textbook offers contexts and cues for CLD learners. If not, it may be necessary to provide them.
- The expression 3 x 5 is commonly understood to represent "five things, taken three times." Some CLD learners understand it to mean "*three* things taken *five* times."
- CLD learners will translate English sentences into mathematics sentences in the order the English presents itself. For example the sentence, "A number is 5 less than an unknown number" would be written as $x = 5 - n$ if the symbols follow the English sentence order.
- ……

Johnson emphasizes that the "Points of Ponder" do not specify which language, ethnic, or national groups are being described because:
- there is a great diversity even within language/ethnic/national groups;
- individual students may not carry all the general characteristics that could be assigned to their CLD group.

Johnson (2010), p. ix

… providing specific characteristics of any ethnic, cultural, or national group can feed or lead to ==stereotyping==.

Stereotyping is one of the destructive factors that must be dealt with in order to effectively teach CLD learners in mathematics.

Johnson (2010), p. x

"Teachers need help to understand the strengths and needs of students who come from diverse linguistic and cultural backgrounds. … To accommodate differences among students effectively and sensitively, teachers also need to understand and confront their own beliefs and biases" (NCTM, 2000, p.12)
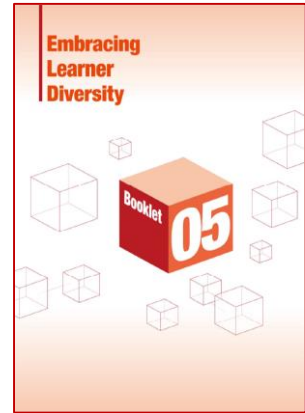
Embracing Learner Diversity

Secondary Education Curriculum Guide: Booklet 5 (Curriculum Development Council, 2017)
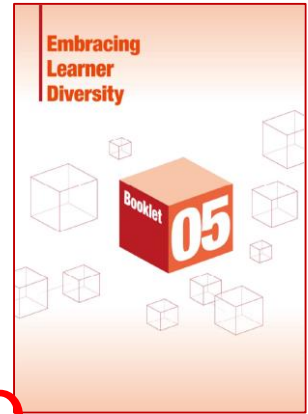
… Greater diversity in the demographic make-up of Hong Kong is now observed in schools with an increasing number of newly arrived children (NAC) from the Mainland and NCS students …
(CDC, 2017, p. 2)

Embracing Learner Diversity

Secondary Education Curriculum Guide: Booklet 5 (Curriculum Development Council, 2017)

As students differ in many ways, including their needs, interests, backgrounds, experiences, learning styles, aspirations and levels of readiness to learn, we need to understand, respect and respond to their individuality and uniqueness. With learner differences in mind, we have to differentiate our instruction and provide students with different avenues to acquire the learning content, to process or make sense of new information and ideas, and to apply and demonstrate their learning. … (CDC, 2017, p. 4)
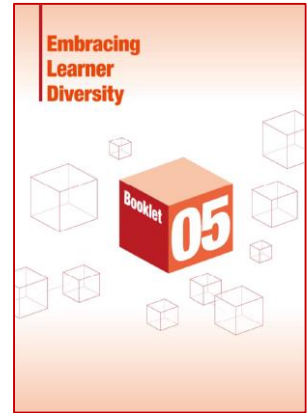
Debunking the Myth:

"Catering for learner diversity is about treating each learner the same and minimising the difference in student achievement."

- In education, fairness or equity does not mean treating every student in the same way or providing each student with the same kind of instruction or learning support. As students differ in many ways, including their needs, interests, backgrounds, experiences, learning styles, aspirations and levels of readiness to learn, we need to understand, respect and respond to their individuality and uniqueness. With learner differences in mind, we have to differentiate our instruction and provide students with different avenues to acquire the learning content, to process or make sense of new information and ideas, and to apply and demonstrate their learning. In so doing, we aim to realise each student's potential and narrow the learning gap, i.e. the gap between a student's actual achievement and his or her potential for achievement.

- To equate catering for learner diversity with the narrowing of an achievement gap could be problematic, as the latter, which generally refers to effort made to minimise the difference in achievement between groups of students, implies that all students are expected to achieve the same learning targets or reach the same performance standards.

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Mathematics Classroom of **Cultural and Linguistic Diversity**
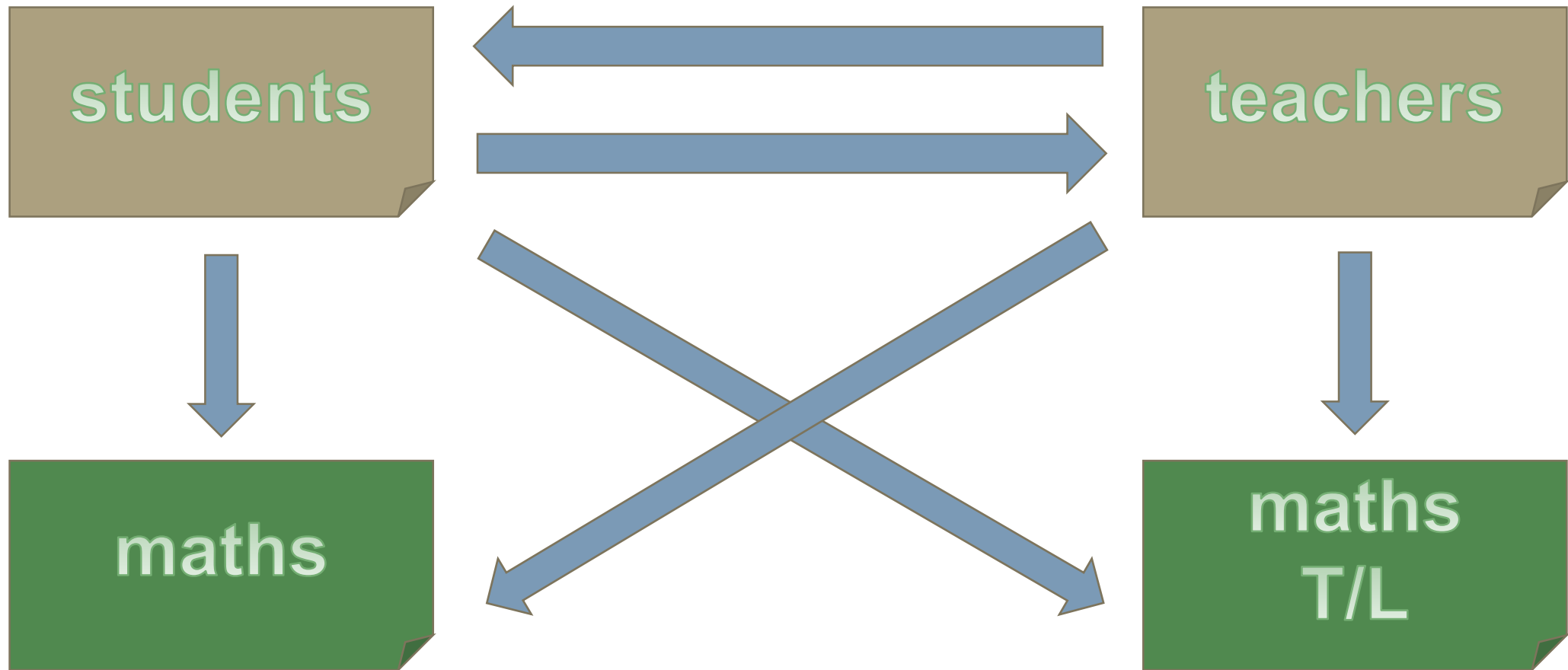## (CLD / CaLD)

"Diversity is not something to be tackled but rather something to be celebrated. …

Students with DIVERSE needs

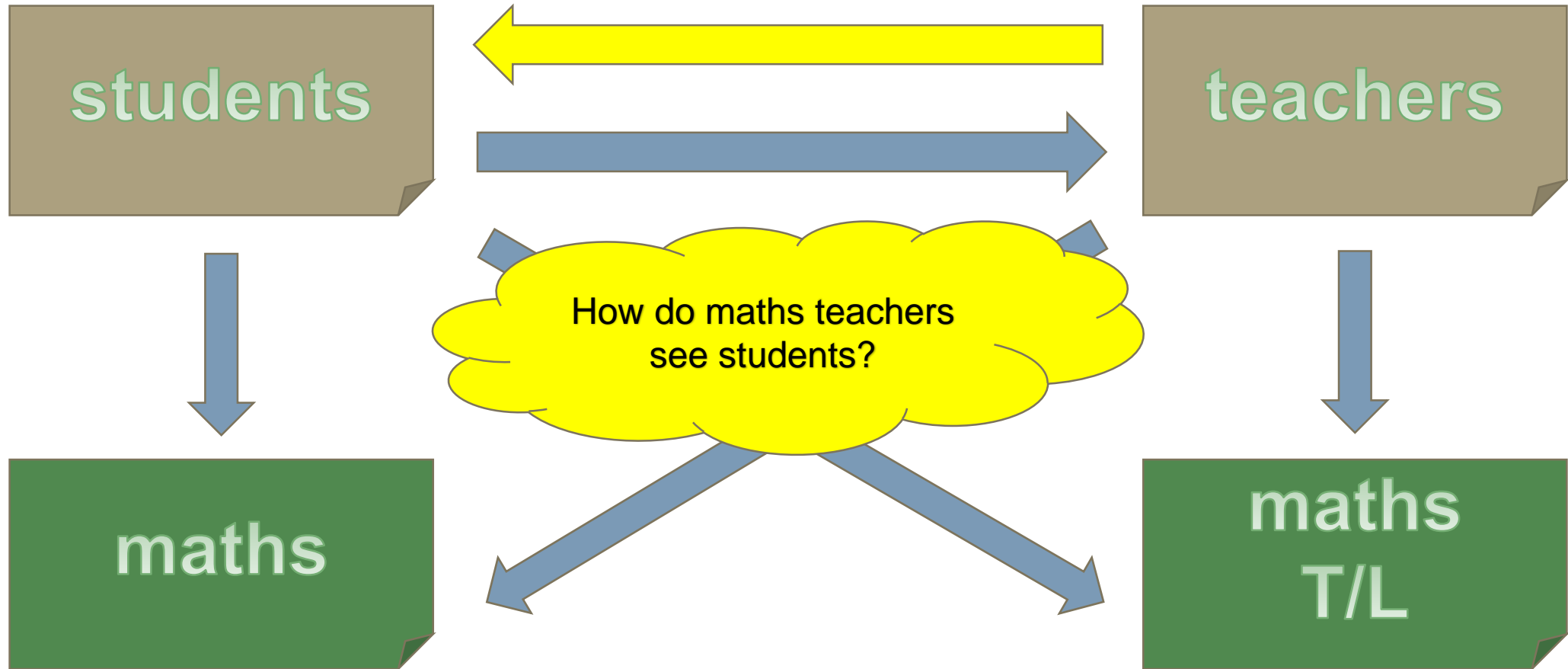"… By embracing diversity among students, teachers would value diversity as an asset, making it an opportunity for enhancing their repertoire of teaching skills as well as professional capacity and development." (CDC, 2017, p. 4)
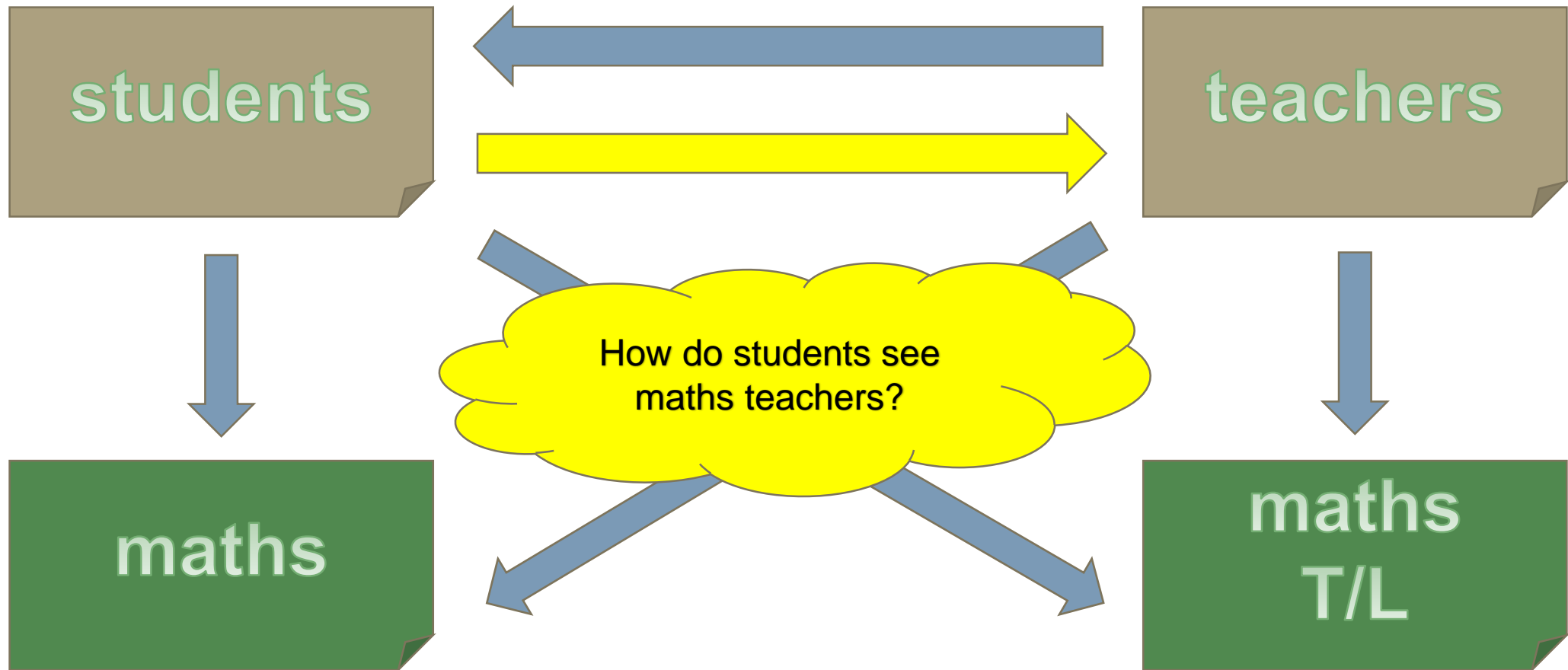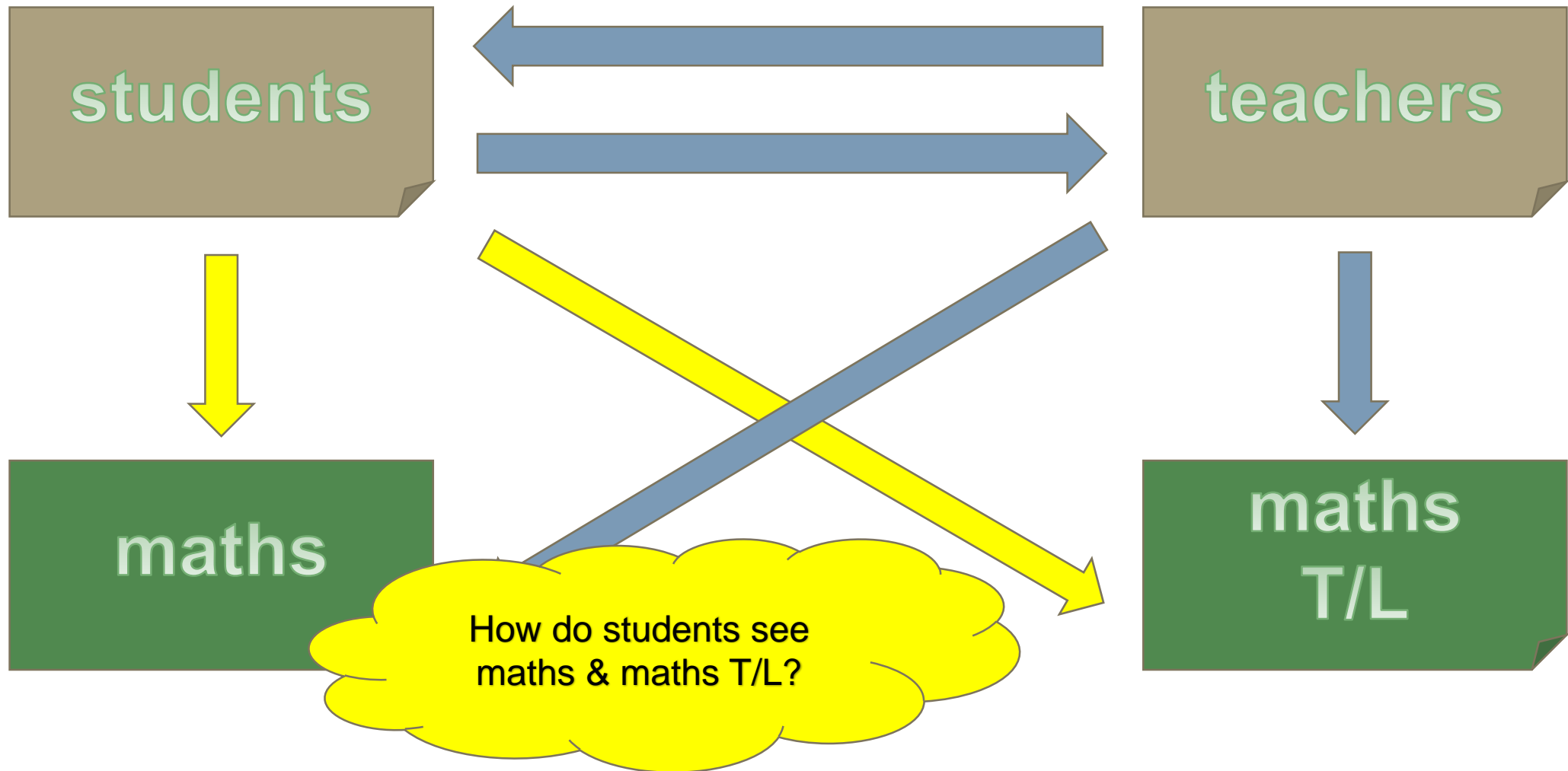
Embracing Learner Diversity

Booklet 05

照顧學生的多樣性

分冊 05

優質教育基金
Quality Education Fund

Faculty of Education
The University of Hong Kong
香港大學教育學院

More about stereotyping

More about stereotyping

More about stereotyping

More about stereotyping

More about stereotyping

students

teachers

maths

maths T/L

How do teachers see maths & maths T/L?
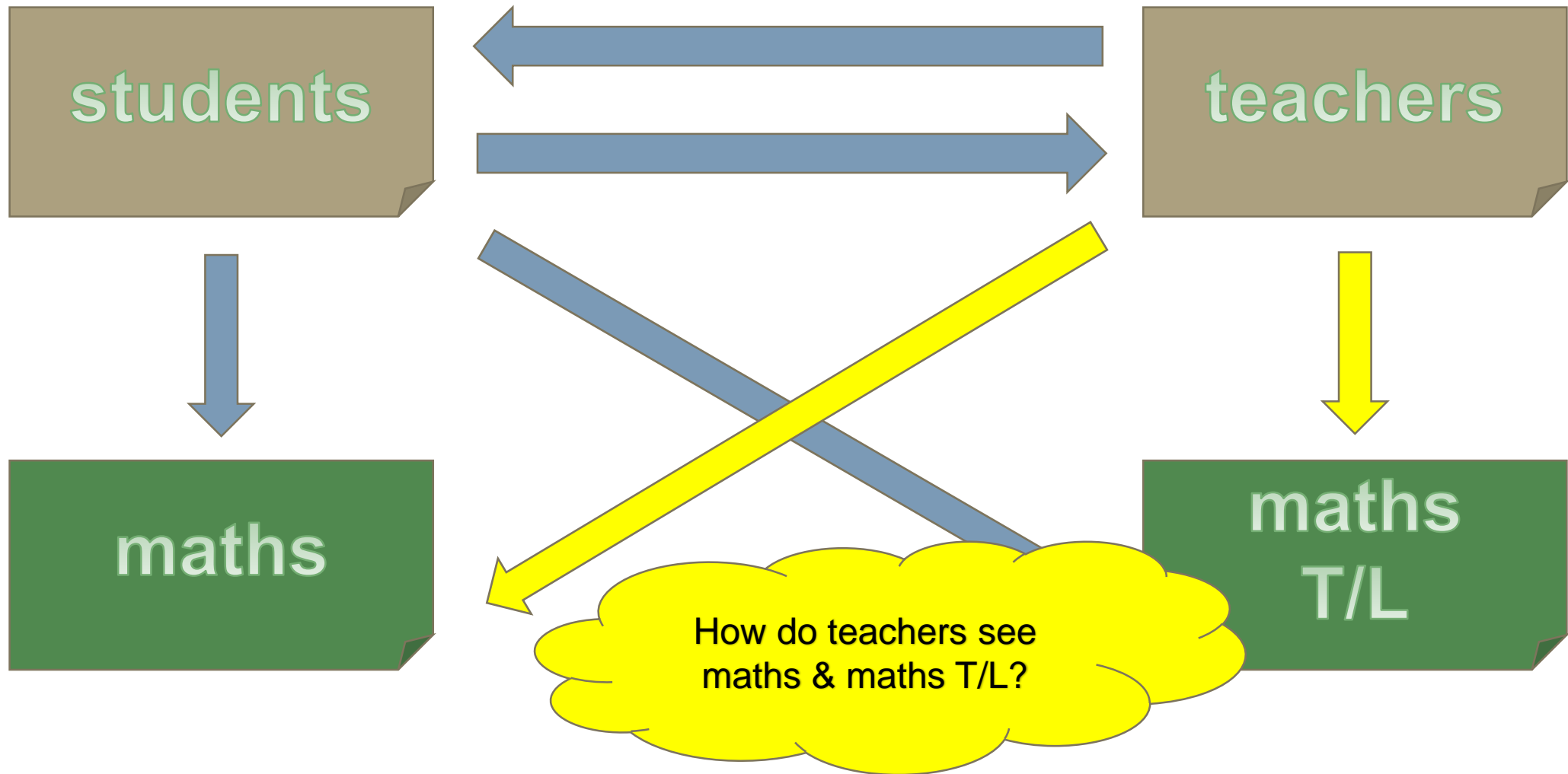
Avoiding shape stereotyping

Shape work with young children is at its best when there is a focus on clear, logical discussion about shape properties rather than mere naming and shape recognition. Many children in early primary school build up a body of knowledge about shapes and shape names which is relevant but underdeveloped. It therefore hinders their subsequent development and understanding. Ryan and Williams (2007) have referenced one of these limitations as 'prototyping'. It doesn't just refer to shape and space but it is relevant here. This occurs when a rule that has some relevance is assumed to have universal relevance. For example, a child thinking that because most numbers seem to get bigger when multiplied, that would always be the case. In shape work there has been a tendency to present shapes in standard and regular forms and with a particular orientation. This has had the effect of children prototyping shapes by focusing on the name as a link to the orientation rather than the shape properties. Thus, the square has often been presented as a shape with a pair of horizontal and vertical lines rather than emphasising that the sides and angles are equal; so long as those properties are true on a four-sided flat shape it will be a square (Figure 10.1).

Newell (2017) p.236