

## Improving content in writing through a thinking routine and a part-whole thinking chart

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### Abstract

*This study focussed on whether teaching Primary 4 students a thinking routine for story writing would help them develop their stories better. Students practised focussing their attention on specific thinking moves that could help them explain what, why and how something happened in their stories. The method was paired with a part-whole thinking chart as a visual technique to document their thinking and vocabulary use. Findings of the study showed that the difference within the intervention group compared to the comparison group, and the difference between the two groups, were not significantly different over the period of time the study was conducted. The possible reasons for these findings will be discussed for future research in the area.*

### Introduction

In an increasingly global world brought about by technological advancements, learning, communication and the way business is conducted are constantly evolving. According to Dr Andreas Schleicher, the education and skills director of the Organisation for Economic Cooperation and Development (OECD), 'increasingly, schools also have to ensure that children develop the navigation skills ... that will help them find their own way through an uncertain, volatile and ambiguous world ... Many of the skills that schools have traditionally emphasised, requiring students to master content, are becoming less important for success in the real world ... In contrast, creative thinking, teamwork and social skills are becoming more important' ([Davie, 2016](#)). In short, our students will need to be able to know what to do with the knowledge they have, and this brings to the fore their ability to think creatively and critically, among other types of thinking.

With the revision of the Primary School Leaving Examinations (PSLE) English Language Examination syllabus for Primary 6 students in 2015, the Continuous Writing task in the PSLE has also been revised. This is to allow students greater scope and flexibility in choosing how they want to approach a given topic. With this revision, there is a necessity to reconsider how teaching in the school can be improved to better prepare students for the writing assessment.

[Goodwin \(2014\)](#) pointed out that, for students to learn to write, they need to learn to think. [Swift \(1973\)](#), illustrated the chicken-and-the-egg situation of thinking and writing with the following: '... if the manager writes well, he will think well. Equally, the more clearly he has thought out his message before he starts to dictate, the more likely he is to get it right on paper the first time round. In other words, if he thinks well, he will write well.' According to David McCullough, a two-time Pulitzer Prize winner, 'Writing is thinking. To write well is to think clearly. That's why it's so

hard.' (In an interview with the National Endowment for the Humanities (NEH) Chairman, Bruce Cole, cited by [Beatty, 2002](#)) What they are all saying is students who have not learnt how to think are likely to have difficulty writing, much less develop the ideas in their writing.

## Literature Review

[Elder and Paul \(2010\)](#) pointed out that we, as educators, must treat quality thinking as our highest priority. When students and teachers learn together as developing thinkers to raise our levels of thinking, school will then become a place for everyone to discover the power of lifelong learning, which is what it should be.

A longitudinal research study conducted by [Olson and Land \(2007\)](#), involving approximately 2,000 students per year, highlighted the efficacy of implementing a cognitive strategies approach for English language learners. In the study, the researchers used a range of pedagogical strategies to make visible for the learners the thinking tools accessed by experienced readers and writers during the process of constructing meaning.

In a study investigating whether writing could measurably influence critical thinking performance in general education biology, it was found that the variable that had the largest effect on critical thinking gains was prior critical thinking skills. That is, students who have not been taught thinking explicitly may not reach the same potential as their peers who have been taught how to think, not because they lack the cognitive ability to perform but because they lack the tools to help build their knowledge ([Quitadamo & Kurtz, 2007](#)). The results of the study reinforce the idea that students should be explicitly taught thinking skills and practise them at an earlier age so that they can refine and hone these skills as they progress through the education system.

In Singapore, the English Language Syllabus 2010 ([Curriculum Planning and Development Division, 2008](#)) states that 'teachers will teach pupils how to generate ideas appropriate to the writing ... using a range of learner strategies' (p. 62). This is because learners will need explicit instruction in the skill of idea generation (Learning Outcome 3, p. 69). This makes scaffolding the lesson to prepare the students for writing crucial in the instructional process for writing. One way cited to help students generate ideas is through the use of visual techniques. In addition, students are expected to be able to develop these ideas (Learning Outcome 4, pp. 70-71). At the text level, they are expected to be able to develop the plot, and at the paragraph level, they have to be able to elaborate on each main idea by providing descriptive, emotive or sensory details. These are some of the expected learning outcomes spelt out in the primary school EL syllabus for writing and representing skills and strategies.

[Ritchhart, Church and Morrison \(2011\)](#) wrote about the teacher's role as that of fostering students' engagement with ideas so that they not only learn, but also learn how to learn. That is, they are equipped with learner strategies to access learning. According to the authors, a teacher interested in both students' learning and understanding will create opportunities for thinking and make the students' thinking visible. This is because being clear about the thinking students need to do to develop understanding allows teachers to target and promote those kinds of thinking in their questioning and interaction with them. To the extent that students can develop a greater awareness of thinking processes, they become more independent learners capable of directing and managing their own cognitive actions. In short, they know how to learn. Citing Vygotsky (1978), [Ritchhart et al. \(2011\)](#) stated that in learning to learn and learning to think, students rely on models. Our students need to see an image of teachers as thinkers whom they can imitate and learn from. Students' thinking can be made more visible through questioning, listening and documentation practices. Visibility afforded by documentation 'demystifies the learning process... building greater metacognitive awareness' (p. 39). To that end, a thinking routine, which is 'any procedure, process, or pattern of action that is used repeatedly to manage and facilitate the accomplishment

of specific goals or tasks' (p. 45), can help teachers to make thinking visible, in addition to scaffolding and supporting the students' thinking.

This research team is especially interested in helping our students to develop or "flesh out" their ideas in their narrative writing, specifically at the paragraph level, to elaborate on or support the main idea by providing relevant descriptive, emotive or sensory details, using appropriate vocabulary. These are two of the SSABs (Skills, Strategies, Attitudes and Behaviours) listed under Learning Outcome 4 (LO4) in the English Language Syllabus 2010 ([Curriculum Planning and Development Division, 2008](#)). LO4 is concerned with developing, organising and expressing ideas coherently and cohesively in writing and representing for a variety of purposes, audiences, contexts and cultures. According to [Laman \(2013\)](#), developing a story would require the students to 'take a small moment from a bigger story and develop it through details. Small moments do not mean just a little bit of writing. They mean a lot of detail about just one thing that happened' (p. 54).

With the above in mind, the purpose of the research team was to investigate whether Primary 4 students who were explicitly taught thinking skills through a thinking routine using a part-whole thinking chart would in fact be better able to 'elaborate on the ideas' in their stories. The thinking routine would provide them with a mental framework for focussing their attention on specific thinking moves that could help them build an understanding of and explain *what*, *why* and *how* something happened in their stories. The part-whole thinking chart would serve as a visual technique to document their thinking and vocabulary use. More specifically, this chart provided a structure for the students to zoom in to elaborate on an identified critical scene by thinking about the associated actions, descriptions, dialogue, thoughts/feelings (ADDT) that would help to develop that one scene already identified, and recording them on the chart (see Appendix 1). The thinking routine, together with the part-whole thinking chart, would serve the dual purpose of providing structures for whole-class, as well as small-group discussions.

Our research question was:

*Do Primary 4 students who are explicitly taught a thinking routine with a part-whole thinking chart score higher for content in their writing?*

## **Methodology**

In the intervention, the students were asked to generate and/or gather ideas for their stories through brainstorming. They then developed the story plot (e.g. series of events building towards the complication and resolution) at the text level (LO4).

At the paragraph level, students in the intervention class elaborated on, explained and/or justified the main idea or a 'critical scene' (used to describe a key/important scene in the story) by providing relevant descriptive, emotive or sensory details (LO4). It was at this level that the thinking routine was applied to develop or 'flesh out' each of these critical scenes.

As often stressed by [Ritchhart et al. \(2011\)](#), thinking routines were structures to work within and adapt to meet the needs of the content and students, that is, they were tools that, first and foremost, must support the exploration of the content. However, the kind of thinking that the team identified as something we were trying to elicit from the students did not appear in [Ritchhart et al. \(2011\)](#). Hence, there was a need to adapt one of the thinking routines they presented.

The team looked into 'The Explanation Game'. This thinking routine is designed as an exercise in the deconstruction of a thing or in understanding the whole by looking at its parts. In using this routine, students focus more on the parts than the whole. The routine is powerful for developing understanding because students get to notice the parts and generate explanations about the

relationships between those parts and the whole. In short, this routine is useful for content that has various parts and features to be examined.

This routine resonated with the team because we were looking for a thinking routine that would encourage the students to create a whole story by developing/'fleshing out' its parts (i.e. the critical scenes in the story). Instead of looking at an object or a phenomenon as in the original version, the students, in following the modified version, deconstructed their story into multiple scenes, and looked at the scenes to identify the ones that they deemed critical. These would be the scenes they would spend the time developing (by thinking about the associated ADDT), so as to present a whole, engaging story once they wove the critical scenes back in the story.

Table 1  
The Explanation Game

The Explanation Game (original)		Modified version		Specific thinking moves
<b>Set up</b>	Take a close look at the object you are trying to understand.	<b>Set up</b>	Take a close look at the different scenes of the story plot generated.	
<b>Name it</b>	Name a feature of the object you notice.	<b>Identify it</b>	Identify the critical scenes and tick (✓) each of them. → <b>WHAT?</b>	
<b>Explain it</b>	What could it be? What function might it serve? Why might it be there?	<b>Explain it, giving reasons</b>	What function might the scene serve? (E.g. sets the atmosphere for the story, shows the character's personality, etc.)  What makes you say that? (E.g. creates suspense, the character's bad temper would get him into trouble later on in the story, etc.) → <b>WHY?</b>	<ul style="list-style-type: none"> <li>• Building explanations</li> <li>• Connection making between the different scenes in the story</li> </ul>
<b>Give reasons</b>	What makes you say that?			
<b>Generate alternatives</b>	What else could it be? What makes you say that?	<b>Describe it</b>	<b>A: Action</b> <b>D: Description</b> → <b>HOW?</b> <b>D: Dialogue</b> <b>T: Thoughts/ feelings</b>	<ul style="list-style-type: none"> <li>• Describing</li> <li>• Activating prior knowledge</li> <li>• Perspective taking</li> </ul>

The part-whole thinking chart was then used for the students to share their thoughts and contributions to their group discussions, hence making their thinking visible. The teacher could

then observe and monitor the learning process. It was also used as a recording sheet to track the vocabulary (words and phrases) the students generated in the context of their story writing so they could refer back to it when they were finally ready to write their stories.

### Samples

For this study, two Primary 4 classes with enrolments of 40 and 39 formed the intervention and comparison groups. Each group consisted of both boys and girls. These were higher-progress students based on their SA2 results obtained when they were in Primary 2. As there was no streaming at the end of Primary 3 in the school, the students moved *en bloc* from Primary 3 to 4. The classes were selected because they were taught by the same English language teacher. This was to eliminate the teacher effect.

### Intervention

The intervention lessons were carried out as part of the students' writing lessons, following the school's scheme of work for Primary 4. The first lesson plan was drawn up for the second composition in Term 2. This was because the first composition in Term 2 was used as the pre-intervention piece of writing by the students in both the intervention and comparison groups. It was also not possible to start in Term 1 because the teacher had to conduct writing lessons using the school's composition starter pack for the level to reinforce the features of narratives with the students at the start of the year. During this period, the students wrote based on the tasks prescribed in the pack itself.

Prior to conducting the first intervention lesson, the authors analysed with the teacher the lesson plan that had been drawn up, drawing her attention to key stages of the lesson and the intent of each stage of the lesson. These were also clearly spelt out in the lesson plan for the teacher's study and reference. The teacher conducted the lesson with the intervention group and then reflected on what went well and what could be improved on.

The second and third lessons were each observed by a member of the research team. Again, the teacher reflected on her lessons and feedback was given to her by the observers. The lesson plan for each subsequent lesson was then modified to take into account the improvements to be made. Some of these changes were as follows:

- Providing more thinking time for the students when they had to explain and give reasons why they had identified a particular scene to be a critical scene in the class generated story plot.
- Modifying the lesson plan to include simple vocabulary that the teacher could model for the students when explaining a possible function of a critical scene after it was discovered that the students lacked the language to justify their claim as to why a particular scene was a critical scene in the story.
- Modifying subsequent lesson plans to reduce the amount of teacher talk time and modelling, and instead allowing for more group discussions after the same few students were observed to be volunteering responses while the rest of the class seemed to be getting restless. The original lessons had involved quite a bit of modelling by the teacher. This progression was thus thought to be apt because modelling and demonstration had been provided in the earlier lessons so it was time to let go and allow the students to engage with one another in their respective group settings. This also afforded the teacher time to circulate around the classroom to listen to the students, observe their recordings and provide feedback if necessary. It also gave her the opportunity to value add to the students' learning by helping them with the essential vocabulary/language that they needed but lacked.

For the purpose of this study, a total of five intervention writing lessons were conducted over a period of slightly more than four months from the end of April 2016 to the beginning of October 2016, excluding the June holidays. During the same period of time, a similar number of writing lessons was also conducted in the comparison class according to the scheme of work for the level. The composition topics used were also similar for both the intervention and comparison groups. However, the comparison group did not use the thinking routine and was not provided with the part-whole thinking chart.

### **Data collection**

A pre-test using one of the composition topics and task sheets prescribed in the school's scheme of work was administered to all the students in both the intervention and comparison classes. The students' compositions were scored and the content marks (out of a maximum of 10 marks) were recorded by the teacher using a set of pre-determined rubrics. A t-test comparing the two classes' scores was then performed. This was done to determine if there was a statistically significant difference between the two groups before the start of the intervention. All the students in the intervention class underwent intervention lessons while those in the comparison class underwent their normal course of writing lessons as spelt out in the scheme of work for the level during the same period of the study.

After the period of intervention, all the students in the two classes sat for a post-test which was their SA2 composition. As each composition script was marked by two markers to improve reliability, the students' averaged content scores were calculated and recorded. The pool of approximately 16 markers marking the scripts for the entire Primary 4 level included the teacher of both the classes involved in the study. However, random pairs of teachers marked the scripts. This meant that each of the scripts from the two classes might or might not have been marked by their EL teacher. The two markers used the same set of rubrics used to score the scripts in the pre-test to assess the students' writing for SA2. The changes (positive or negative) in the content scores were measured in two ways: By using a t-test to (i) compare the differences in SA2 (post-test) content scores between the intervention and comparison groups, and to (ii) compare the changes in the pre-test and SA2 (post-test) content scores for each group.

All the students in both classes responded to a perception survey about the effectiveness of the lessons conducted to help them write and develop their stories.

After the period of intervention, the students in the intervention group also sat for an additional timed writing 'test' conducted after their SA2. This consisted of a story parallel to the one they had written in the pre-test prior to the intervention. The objective was to facilitate a qualitative analysis in the area of content development after intervention. The topics presented in the pre-test and SA2 (post-test) were different so it would have made comparisons more difficult due to the varied story plots.

Lastly, group interviews were also conducted at the end of the intervention period with six randomly selected students each from the intervention and comparison groups. The students were interviewed to find out their learning experience and whether they found the lessons effective in helping them to write and develop the ideas in their stories.

### **Findings**

The total data obtained thus included both a quantitative measure of the students' performance in the area of story development and the effectiveness of the thinking routine used, as well as a qualitative data in the form of students' statements about their writing in the area of the

development of ideas and the effectiveness of the lessons conducted to help them write. The analysis of the quantitative data is presented first, followed by analysis of the qualitative data.

### Quantitative

The mean marks for the two groups in the pre-test were 6.20 for the comparison group and 6.46 for the intervention group (see Table 2). The results of the t-test indicated that the marks of the two groups were not significantly different,  $t(77) = 1.14$ ,  $p = .26$ . Hence, the results of the pre-test and post-test enabled us to establish that the two groups were similar in ability before the intervention period.

Table 2

*Analysis of mean content marks of students from the intervention and comparison groups for the Pre-test and SA2 (Post-test) (SD in Parentheses)*

	Mean content mark for Comparison Group	Mean content mark for Intervention Group	T Stat	p-value	SMD
(Pre-test)	6.20 (1.18)	6.46 (0.82)	1.14	.26	.22
SA2 (Post-test)	7.49 (0.86)	7.60 (0.97)	.56	.29	.13

At the end of the intervention, the mean mark for the intervention group had increased from 6.46 to 7.60 with an increase of 1.14 and that for the comparison group from 6.20 to 7.49 with an increase of 1.29. However, the p-value of .29 was greater than the .05 level of significance. Therefore, there was insufficient evidence to conclude that the difference between the two classes was significant, contrary to expectations.

Table 3

*Analysis of mean content marks obtained in the Pre-test and SA2 (Post-test) by students from the intervention and comparison groups (SD in Parentheses)*

	Mean content mark (Pre-test)	Mean content mark SA2 (Post-test)	T Stat	P-value: one tailed t-Test	SMD
Comparison Group	6.20 (1.18)	7.49 (0.86)	5.58	$p < .001$	1.09
Intervention Group	6.46 (0.82)	7.60 (0.97)	5.59	$p < .001$	1.39

From Table 3, we can see that there was a significant difference in the mean content marks between the pre- and SA2 (post-test) for both the comparison and intervention groups, with  $t(39) = 5.58$ ,  $p < .05$  for the comparison group and  $t(38) = 5.59$ ,  $p < .05$  for the intervention group. The SMD for the comparison group was 1.09 and that for the intervention group was 1.39, indicating a

large effect size in the mean differences between the pre-test and SA2 (post-test) for both groups, but with a larger effect for the intervention group.

Table 4

Student Perception Survey

	*Comp	#Interv	Comp	Interv	Comp	Interv	Comp	Interv
	Strongly Agree		Agree		Disagree		Strongly Disagree	
Q1. I have more ideas to write a good story/composition.	19.5%	60.0%	53.7%	37.1%	17.1%	0%	9.8%	0%
Q2. My story/ composition is longer now because I know how to write more.	24.4%	62.9%	65.9%	37.1%	7.3%	0%	2.4%	0%
Q3. I know how to describe what happens to make my story/ composition interesting.	26.8%	51.4%	61.0%	42.9%	9.8%	7.3%	2.4%	0%
Q4. I know more words I can use to show what happens in my story/composition.	34.2%	65.7%	58.5%	31.4%	7.3%	2.9%	0%	0%
Q5. I know how to identify Critical Scenes in my story/composition.	-	65.7%	-	34.3%	-	0%	-	0%
Q6. I know how to develop or write more about the Critical Scenes in my story/ composition.	-	48.6%	-	48.6%	-	2.9%	-	0%
Q7. Being able to identify Critical Scenes in a story is <u>useful</u> as it is easier for me to write a story this way.	-	80.0%	-	20.0%	-	0%	-	0%
Q8. Adding descriptions, actions, dialogue or thoughts and feelings (ADDT) is a <u>useful</u> way to develop a story or write a longer story.	-	77.1%	-	22.9%	-	0%	-	0%
* Comparison Group    #Intervention Group								

The percentage of ‘Strongly Agree’ respondents from the intervention group was much greater than that for the comparison group for Q1-Q4. The data seemed to indicate that more students in the intervention group compared to the comparison group were confident about their writing competence after the intervention as they felt that they (1) had more ideas to write good stories (2) knew how to write more (3) knew how to describe what happened to make their stories interesting and (4) knew more words they could use in their stories.



The buy-in among the students in the intervention group for the thinking routine used in the study was surprisingly good. All the students strongly agreed/agreed (with a much larger percentage for strongly agreed than agreed) that identifying critical scenes in a story was useful as it made writing a story easier for them. Also, they felt that adding ADDT was a useful way of thinking to develop their stories. Except for one student (2.9% ) who disagreed that he/she knew how to develop or write more about the critical scenes in a story, the rest strongly agreed or agreed that they were competent in identifying the critical scenes in their stories, and developing them.

### *Qualitative*

Analysis of the students' writing in the pre-intervention test (Pre-test) and post-intervention test (Parallel Writing Post-test conducted after SA2) showed that many of them were more able to elaborate on their main ideas by providing descriptive, emotive and sensory details after the intervention. Their stories were also more coherent, with improved accountability for key characters in the story. Excerpts of a student's stories before and after intervention are included below.

#### **Pre-intervention test (Pre-test):**

[Paragraphs 3-5]

There was a cyclist behind the old man. He was oblivious to his surroundings. The reckless cyclist did not know the old man was in front of him. So, he just kept cycling forward, when he made contact with the old man...

'Crash!' The old man fell on the road. He lay down on the road unconscious. I turned my neck around immediately and Remus did the same. We were shocked when we saw what happened. We rushed to help the old man. "We have to call an ambulance now!" I hollered.

I ran to the nearest telephone booth and dialled...

#### **Post-intervention test (Parallel Writing Post-test conducted after SA2):**

[Paragraphs 2-4]

As we walked, a skateboarder, wearing protective gear, was following us. It looked like he was oblivious to his surroundings because he was facing backwards. He was skating his skateboard at lightning speed, which is very dangerous as there is a risk that an accident will happen.

Suddenly, there was an ear-piercing scream and a loud thud! Remus and I quickly turned our heads around and our hearts skipped a beat when we saw that the skateboarder had collided with the little girl. Without hesitation, we quickly ran to the little girl to help her up. She laid sprawled on the path. She was also moaning and groaning in pain. The skateboarder was apologising profusely to the little girl, who was unconscious.

Remus decided that we take the little girl to the clinic and I agreed...

The first excerpt lacked the descriptive and sensory details which were better expressed in the second excerpt: "skating...at lightning speed, ear-piercing scream and a loud thud". In contrast to telling the reader the emotions of the boys, who "were shocked", in the first excerpt, the student was able to show the emotions in the second excerpt: "turned out [our] heads and our hearts skipped a beat". The student also went on in this excerpt to express the suffering of the girl: "moaning and groaning in pain". Vocabulary use was also more sophisticated in the second excerpt, "sprawled on the ground", compared with that in the first, "lay down on the road". There was also an attempt made to describe the reactions of the antagonist, the skateboarder, in the

second excerpt: “apologising profusely to the little girl”. This was lacking in the first excerpt where the antagonist, the cyclist, went totally unaccounted for from the fourth paragraph right until the end of the story.

### *Group Interviews*

The students in both the intervention and comparison groups agreed that the composition lessons were useful to help them write. The students in the intervention group had some general metacognitive awareness of the process that helped them write e.g. they could mention the routine used, the identification of critical scenes and then thinking about the ADDT to elaborate on each scene. Some of their responses included:

*The thinking routine helps us to identify critical scenes, why they are critical, and how to develop them.*

*Use good words and phrases and elaborate more on critical scenes. By elaborating more, it makes my compositions more interesting and the reader more interested in reading it.*

*ADDT has really helped me by allowing me to elaborate more about the critical scenes, so the content is more elaborated.*

*I stretch critical scenes by using ADDT and have more good words and phrases to use.*

*By using ADDT, I stretch my paragraph to write longer and better compositions so that the reader can be more interested.*

Students seemed to be very concerned about using vocabulary (‘good words and phrases’) in their writing as evidenced from the above utterances. This was expected as language constitutes 50% (10 marks) of the weighting in their composition assessments. Their responses also revealed, to some extent, that their awareness of the reader in the writing process had been heightened while learning how to write using the thinking routine. Unfortunately, they failed to articulate the specific thinking moves they used or practised when using the routine in their responses during the group interview though they frequently used the word ‘describe’ during the lessons. The students may need to have more modelling of the language used for thinking, including the different thinking moves used in the lessons.

When probed, they were able to explain critical scenes as follows:

*The parts where you can ‘stretch’ to elaborate more.*

*Main parts of the story, the more important parts.*

They were also able to share why identifying critical scenes was useful.

*By developing critical scenes in the story, we can make the readers more interested to read our stories.*

*Critical scenes are important because we can elaborate more there.*

*It makes composition writing easier.*

*It makes composition writing easier and more enjoyable. (A few students added after a student shared the response above.)*

However, these utterances did not show that they were able to think through and sufficiently justify their claims. The students will need to be helped to understand what makes a scene critical, for instance, with more modelling of the language that can be used.

In contrast, the comparison group shared the following:

*In planning of story. It helps me to think through what I want to write about in my composition*

*I learn how to plan my story so that when the exam comes, I can think clearly and not hesitate... and also learn to write my main points properly.*

*Our teacher explains the words and phrases to us. (Referring to the vocabulary lists given to the students to aid writing.)*

They were able to use the word 'plan' but were unable to explain what the planning entailed, showing a relative lack of metacognitive awareness.

## Discussion

Findings indicated a greater positive change in mean content marks for the comparison group compared to the intervention group, which was contrary to expectations, although the statistical analysis of the data showed that the difference in scores between the two groups was not significant. Some possible reasons as to why there was no statistically significant difference between the two groups are presented below.

Firstly, it might be the teacher factor. The teacher taught both the intervention and comparison classes. When teaching the comparison group, she also led the students through strategies such as brainstorming and class/group discussions to develop ideas in their stories, though without highlighting thinking or the processes of thinking to the students. Then, like all the other classes in the level, a list of vocabulary was given and discussed with the students in the comparison group. Though the vocabulary words/phrases were not structured according to ADDT, they were classified by the key scenes in each story to be written. The word 'scene', however, was never included on the list. The purpose of the vocabulary lists was for the teacher to introduce new words to the students to help boost their repertoire of words learnt in the context of writing. In brainstorming and developing ideas, the teacher might have inadvertently led the students to focus on developing scenes critical to the story without actually verbalising the term 'critical scene' itself. This was possible because the teacher was also privy to the critical scenes in each research writing piece as the lesson plans were shared and discussed with her prior to each lesson with the critical scenes identified beforehand. In addition, the teacher was familiar with the use of the part-whole thinking chart, having used it with her classes prior to the research. The students in the intervention group, on the other hand, were made to think about each scene and generate the vocabulary to specifically develop ADDT in their stories.

In hindsight, the instructional methods to prepare the students to write might not have been too different, except that thinking was explicitly emphasised and practised by the students in the intervention group, while those in the comparison group did not receive the treatment. In a normally timed composition test, the results might not be significantly different, but with continued talk about thinking and practice, we suspect that the students exposed to the explicit teaching of thinking skills are very likely to fare better in writing in contexts which require the application of their thinking skills in new/unfamiliar situations, where they will deliberate over what to write and how to engage their readers in what they intend to write. In short, their thinking will more likely than not, change and lean towards what writers think and do, that is, their craft.

Secondly, the five composition lessons conducted during the period of intervention might not have been enough for the teacher to sufficiently model thinking for these young students. They would have needed more time to learn and develop the words to talk about their thinking. Likewise, working on deepening the students' thinking, especially when the skills had only been taught during composition lessons and not across the other subject disciplines, would have certainly required more time. This was evident in the responses in the group interviews. Students in the

intervention group seemed to have some general metacognitive awareness about the process that helped them write, that is, to identify the critical scenes and then elaborate on them by thinking about the ADDT to 'stretch' a scene. Their responses also revealed that their awareness of the author's craft had, to some extent, been heightened in the process of learning how to write using the thinking routine. Unfortunately, they were still unable to articulate the specific thinking moves used in the thinking routine adopted. The students will need more help with thinking, with the teacher deliberately modelling questioning and language use. As emphasised by Ritchhart et al. (2011), 'teacher's language supports and advances students' learning.' The Education for Thinking Project (Kuhn, 2005) proposed that meta-level awareness and understanding of skills should be promoted by helping students to reflect on what and how they know and what they are doing as they acquire new knowledge. The students might need guidance in how to reflect on their use of thinking after their writing lessons.

However, what was obvious in the perception survey and group interviews was that there was a lot of buy-in for the thinking routine used among the students in the intervention group. They found the routine useful as it made it easier for them to write. This could be due to the mental scaffold it had provided for them to direct their thinking. As a result, there were more students in the intervention group compared to the comparison group who seemed confident about their writing competence after the intervention.

As observed from the qualitative analysis of the students' writing samples, they were still weak in certain areas e.g. developing/describing the actions as they unfolded in the story and even using dialogue to add interest to the story. It seems that the students will need further guidance through the entire writing process including revising and editing their stories. Through post-marking feedback, they will not only get to learn about their areas of strength which will motivate them to go on to write more, but also the areas of weakness to work on. Conferencing with identified students, if necessary, will be useful too, as will mini-lessons to teach the use of dialogue and characterisation, as well as other areas of the author's craft. Lastly, teaching writing using a thinking routine alone will not work because there is no one best way to teach or learn. The use of a thinking routine or routines has to be combined with providing students with opportunities to engage in other learner strategies. Thinking cannot take place in a vacuum. Hence, some of these learner strategies will have to include reading books and friends' essays, discussing stories/books, analysing texts including mentor texts, and even more writing, among other things.

## **Conclusion**

The results of this study have failed to support the idea that explicitly teaching thinking skills to students through a thinking routine has a positive impact on their ability to develop their story ideas better, hence improving their writing. However, as the students go through the process of attempting to differentiate the critical scenes from the non-critical ones and give justifications for their claims, they learn to think like writers and make the all-important decision about what will most likely interest their readers and how to keep them interested, e.g., through the use of ADDT. The results of the student perception survey also suggest that the thinking routine adopted in the study, when paired with the use of a part-whole thinking chart using ADDT to document the students' thinking and vocabulary use, was a useful tool to help students scaffold their thinking as they wrote. It rendered the writing process easier for students and enabled them to generate more ideas to write good stories.

There is no doubt that thinking can occur in all classrooms as students engage in their learning. However, the students must be taught and given opportunities to regulate their own thinking so they can engage better with what they are learning and, in the process, become more self-directed. For this to happen, their thinking has to be surfaced and made more visible for them. This is because they are unlikely to monitor or transfer any learning or, for the purpose of this discussion,

any thinking move used, if they are not even cognizant of it. We teachers have our part to play through our questioning, listening and deliberate talk about the thinking moves so that learning for the students is not just about getting the right answers. Education in the constantly changing world of the 21<sup>st</sup> century is also about learning how to think. Ultimately, the students, and teachers too, must believe that thinking is worthwhile. After all, according to the writers of the Education for Thinking Project (Kuhn, 2005), if children are to invest into the sustained effort required to develop and practise their intellectual skills, they have to believe that learning and knowing are worthwhile.

Longitudinal studies on the effects of using the thinking routine adopted in this study (and possibly other thinking routines) could be conducted to ascertain the long-term effects of making thinking visible in writing, especially in developing content.

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## Appendix 1: Part-Whole Thinking Chart

Name: \_\_\_\_\_ ( )

Class: P4. \_\_\_\_\_

### Composition Practice

### Part-Whole Chart (Focus: Analysis and Elaboration Skills)

**WHAT?**

**HOW?**

**Critical Scene 1:**

**Elaboration**

<u>Action</u> •
<u>Description</u> •
<u>Dialogue</u> •
<u>Thoughts and Feelings</u> •

**Critical Scene 2:**

**Elaboration**

<u>Action</u> •
<u>Description</u> •
<u>Dialogue</u> •
<u>Thoughts and Feelings</u> •