

The Impact of Directed Viewing-Thinking Activity on Students' Critical Thinking: Part II

NEO Chin Ee
Methodist Girls' School

CHEUNG Wing Sum
Nanyang Technological University

Background: Critical thinking disposition is an area that has been overlooked in various academic fields until recent years. Critical thinking occurs only when individuals possess thinking dispositions. This study explores the possibility of using directed viewing-thinking activity (DVTA) to cultivate the critical thinking dispositions of students.

Aim: To investigate if critical thinking dispositions can be cultivated using DVTA.

Sample: Students participating in this study were Secondary 3 Higher Chinese students from one of the researchers' class in a traditional English school. All 18 students were present throughout the six lessons. These students were all females between 14 to 15 years of age.

Method: Pre and post argumentative essay tests were administered to the whole class before and after the students had attended the DVTA lessons. The essays were coded in terms of the indicators of the various thinking dispositions that could be spotted in them. A Wilcoxon Matched-Ranks test was used to analyze the four thinking dispositions: systematicity, open-mindedness, analyticity and truth-seeking.

Results: Based on the given conditions, the study suggests that DVTA has the potential for cultivating critical thinking dispositions.

Conclusion: The findings revealed that it was worthwhile to conduct the study.

Keywords: Critical thinking dispositions, Directed Viewing-Thinking Activity

“劇情導向－思考活動”與批判性思維習性:第二部分

背景：培養學生的批判性思維習性一直是個被忽略的環節。然而，養成這種習性是培養學生的批判性思維能力的關鍵。故此，本文嘗試探討“劇情導向-思考活動”是否有利於營造一個可以培養批判性思維習性的環境。

目的：探討“劇情導向-思考活動”是否有利於營造一個培養學生批判性思維習性的環境。

調查對象：參與研究的是 18 名中三高級華文班的女學生。這些學生的年齡都介於 14 至 15 歲之間。

調查方法：通過分析學生參加 DVTA 之前與之後分別完成的議論文，來斷定學生的思維習性是否有變化。

調查結果：研究資料偏向顯示“劇情導向－思考活動”有利於塑造一個培養思維習性的環境。

總結：研究結果是樂觀的，顯示了 DVTA 對學生的思維習性有正面影響。

關鍵字：批判性思維習性，“劇情導向-思考活動”

Introduction

In Part I of this paper, we presented the impact of directed viewing-thinking activity (DVTA) on students' critical thinking skills and students' reactions about the approach. In Part II, we will focus

on the impact of DVTA on students' critical thinking dispositions.

Critical thinking occurs only when individuals possess critical thinking skills and dispositions (Norris & Ennis, 1989; Swartz & Parks, 1994). A person equipped with thinking skills, but without the dispositions, may not start the process of

critical thinking while a person with the dispositions but without the skills would probably not be able to complete the critical thinking process (Facione, 1998).

Besides, being skilled in critical thinking does not assure that one has the natural tendency to think critically (Ennis & Norris, 1990; Facione, 1998, Heydenberk & Heydenberk, 2000). Likewise, having the dispositions towards critical thinking will also not be assured that one will possess the critical thinking skills (Facione, 1998).

Facione's (1998) study also shows that there is no one-to-one relationship between each specific critical thinking skill and the disposition. However, students with stronger disposition towards critical thinking initially are better in their critical thinking skills at the end of the study than those with weaker disposition initially.

This study (Facione, 1998) implied that critical thinking skills and critical thinking dispositions are mutually reinforcing and thinking dispositions are important elements of critical thinking (Neilsen, 1989; Norris & Ennis, 1989; Paul & Noisch, 1995). Unfortunately, the area of critical thinking dispositions has always been overlooked (Heydenberk & Heydenberk, 2000) as compared to critical thinking skills.

Hence, the aim of this study is to explore the possibility of using the DVTA approach in enhancing students' critical thinking dispositions before, during and after the viewing of selected segments of a television serial.

The question investigated in this study is:

Do DVTA lessons provide the environment for nurturing critical thinking dispositions?

Critical thinking dispositions

According to Dewey (1997), the training of thinking must be based on natural tendencies. Natural tendencies to do things are dispositions (Dewey, 1997; Tishman, Perkins & Jay, 1995). Hence, dispositions are the affective aspects of thinking. These

thinking dispositions cannot be taught but must be cultivated in the context of a culture of thinking (Tishman, Perkins & Jay, 1995). Over time, these dispositions are internalized and take root in the individual's personality (Facione, Facione & Giancarlo, 1997). The overall disposition towards critical thinking is the natural tendency to employ one's critical thinking abilities in deciding what to believe or do in any situation (Facione, 1998; Facione, Facione & Giancarlo, 1997). These dispositions can be diminished or reinforced by successes or failures in attempts to use critical thinking skills in deciding what to believe in or do (Facione, 1998).

Different researchers have listed various different thinking dispositions. For example, Norris and Ennis (1989) have listed ten dispositions that motivate critical thinkers to apply critical thinking abilities to their own thinking. Costa and Kallick (2000) have summarized a list of dispositions from various authors who have studied and analyzed efficient, productive and creative thinkers. Fisher (2000, p.9) has listed three dispositions that are typical of an "ideal critical thinker". The different lists show the saliency and recurrence of the thinking dispositions of 'open-mindedness', 'meta-cognition', 'inquisitiveness' and 'truth-seeking'. Costa and Kallick (2000) have presented the longest list, which according to them is not exhaustive. However as Ritchhart (2002) has pointed out, some of the dispositions that were included are not necessarily linked with thinking like 'humour' and 'responding with wonderment and awe'. Likewise, in the lists compiled by Norris and Ennis (1989) and Paul (1995), non-thinking dispositions like 'seeking reasons', 'developing empathy' were also included (Ritchhart, 2002).

In this study, Facione's list was chosen because the definition coincides with how we define critical thinking. Critical thinking is defined as "reasonable and reflective thinking that is focused upon deciding what to believe or do" (Ennis, 1992; Ennis & Norris, 1990; Norris & Ennis, 1989,

p.3). Hence, the aim here is just to list the dispositions that will help one to decide what to believe or do in any situation.

Facione and his colleagues identify seven dispositions that they claim will help one to decide what to believe or do. They are: inquisitive; open-minded; systematic; analytical; truth-seeking; self-confident in critical thinking and judicious in decision-making (Facione, 1998; Facione & Facione, 1996; Facione, Facione & Giancarlo, 1997, 1998; Facione, Giancarlo, Facione & Gainen, 1995). These dispositions are discipline-neutral according to them and can therefore be employed for the purpose of this study. As there are some overlaps amongst the different lists, Table 1 has been compiled to show a list of indicators suggested by

different researchers based on the seven dispositions listed by Facione and his colleagues.

The left column in Table 1 attempts to list the seven dispositions and what each disposition is measuring for based on the California critical thinking disposition inventory scales defined in Facione, Facione and Giancarlo, (1997, p.4-5). The right column attempts to list the indicators of critical thinking dispositions from various researchers based on the seven dispositions identified by Facione and his colleagues (Facione, 1998; Facione & Facione, 1996; Facione, Facione & Giancarlo, 1997, 1998; Facione, Giancarlo, Facione & Gainen, 1995).

Table 1: Indicators of Critical Thinking Dispositions

Disposition	Indicators
Inquisitiveness: The intention to learn things even if their immediate applications are not apparent	<ul style="list-style-type: none"> • Try to be well-informed (Norris & Ennis, 1989) • Being curious about how things work (Facione, Facione & Giancarlo, 1997) • Always eager to know more about any topic (Dewey, 1997; Facione, Giancarlo, Facione & Gainen, 1995) • Urge to question, probe further, look beyond what is given (Chaffee, 1998; Tishman, Perkins & Jay, 1995) • Students begin seeking problem to solve themselves and perceive the delicate worth, uniqueness, and relationships of everything and everyone they encounter (Costa & Kallick 2000)
Open-minded: Tolerance for new ideas and divergent views	<ul style="list-style-type: none"> • Explore alternative points of view, flexible, try new things and ideas (Norris & Ennis, 1989; Tishman, Perkins & Jay, 1995) • Tolerant of divergent views and sensitive to the possibility of one's own biases (Facione, Giancarlo, Facione & Gainen, 1995) • Can be heard considering, expressing or paraphrasing another person's point of view or rationale (Costa & Kallick 2000) • Give several ways to solve the same problem (Costa & Kallick 2000) • Take time to reflect on an answer before giving it, gathering more information before they begin on the task, making sure they understand directions before beginning a task (Costa & Kallick 2000) • In discussions, they listen carefully to every point, evaluating each perspective carefully and fairly (Chaffee, 1998)

<p>Systematic: Inclination to be organized, including being focused, diligent and persevering</p>	<ul style="list-style-type: none"> • Approach things in a methodical fashion, urge to be orderly and logical, planful, think ahead (Norris & Ennis, 1989; Tishman, Perkins & Jay, 1995) • Focus the question before attempting to answer, not easily distracted (Facione, Giancarlo, Facione & Gainen, 1995) • Systematically persisting even when solution is not immediately apparent (Costa & Kallick 2000; Facione, Facione & Giancarlo 1997)
<p>Analytical: Alertness to potential difficulties and being alert to the need to intervene by use of reason and evidence to solve problems</p>	<ul style="list-style-type: none"> • Inclined to anticipate the consequences of events and ideas and to use reason to address serious problems. (Facione, Giancarlo, Facione & Gainen, 1995) • Being alert to potential problem situations and potential difficulties (Facione, Facione & Giancarlo, 1997) • Take into account the total situation (Norris & Ennis, 1989) • Reason clearly and carefully (Tishman, Perkins & Jay, 1995)
<p>Truth seeking: Intellectual honesty, the courageous desire for the best knowledge in any situation</p>	<ul style="list-style-type: none"> • Not afraid to disagree with the group opinion (Chaffee, 1998) • Asking tough but important questions in pursuing reasons and following evidence wherever they may lead (Facione, Facione & Giancarlo, 1997) • Remains receptive to giving serious consideration to additional facts, reasons or perspectives, even if this should necessitate changing one's mind on some issues; continually evaluates new information and evidence (Facione, Giancarlo, Facione & Gainen, 1995) • Support views only to the extent that they are justified by available information (Fisher, 2000)
<p>Critical Thinking (CT) self-confidence: Trust in one's own reasoning and ability to guide others to make rational decisions</p>	<ul style="list-style-type: none"> • Use critical thinking skills to confront problems and meet challenges, instead of simply responding passively to events (Chaffee, 1998) • Display confidence in own reasoning and take pride in ability to understand the opinions of others (Facione, Giancarlo, Facione & Gainen, 1995) • Being appropriately trustful of own ability to reason and make sound decisions (Facione, Facione & Giancarlo, 1997)
<p>Judicious: Inclination to see the complexity in problems and to desire prudent decision making</p>	<ul style="list-style-type: none"> • Approaches problems, inquiry, and decision making with a sense that some problems are necessarily ill-structured, some situations admit more than one plausible option, and many times judgement must be made based on standards, contexts and evidence which preclude certainty (Facione, Giancarlo, Facione & Gainen, 1995) • Seeing that there are times when decisions need to be made, revised or deferred (Facione, Facione & Giancarlo, 1997) • Take a position and change a position when the evidence and reasons are sufficient to do so (Costa & Kallick 2000; Norris & Ennis, 1989)

Directed Viewing – Thinking Activity

DVTA employs Directed Reading-Thinking Activity (DRTA¹) as a model to facilitate communication and learning through viewing activities (Minor & Cafone, 1977). In this study DVTA is carried out using selected segments of a television serial. The DVTA process consists of before, during and after viewing activities² (Minor & Cafone, 1977).

The pre-viewing stage

The pre-viewing activities call for speculative thinking. It involves the teacher in the role of the agitator, asking the viewers to predict what the show is about (Hoskisson, 1973; Minor & Cafone, 1977; Stauffer, 1969, 1971; Stieglitz & Oehlkers, 1989) based on the title of the show. The teacher starts the discussion by asking: “What do you think will happen in the story?” (Dixon & Nessel, 1992; Haggard, 1988; Hoskisson, 1973; Minor & Cafone, 1977). A question of this type will elicit a wide range of predictions about the show (Minor & Cafone, 1977). The students would be encouraged to contribute freely while the teacher makes no judgements. Structuring such diversities enhances the decisions that are made and also stretches students’ capacity for flexibility and empathy (Costa, 1999). As students voice their different opinions, they become aware of discrepancies between theirs and others’ interpretation of the same information. As a result, every student will have the chance to consider the story from different angles (Haggard, 1988; Spiegel, 1981) and inevitably become curious about how the story will develop. As they move on

¹ The DRTA developed in 1969 by Russell G. Stauffer, involves a three-step process towards greater reading comprehension. It provides a “scaffold of how experienced readers ask questions of a text and predict what will happen next” (Boyle & Peregoy, 1990, p.197).

² These activities and the questions that follow were used by the teacher in the study.

to the viewing stage (i.e. watching the show), they would seek supporting evidence for their predictions and thus establish the purpose for viewing (Dixon & Nessel, 1992; Minor & Cafone, 1977).

The viewing stage

At the ‘viewing’ stage, the students would have to look for evidences that will help them evaluate their predictions (Dixon & Nessel, 1992; Kuhrt & Farris, 1990; Nessel 1987). The teacher assists the students by asking some follow-up questions: “Which of these ideas do you think would be the likely one?” and “Why do you think that idea is a good one?” (Hoskisson, 1973, p.160). The class would be able to refute or support the predictions based on the progress of the episode. When more information is presented, the teacher will stop the show and ask: “Does anyone wants to change their mind about what they thought would be in the show?” “Why do you want to change?”, “What did you see that made you think your predictions are still possible or not?” (Minor & Cafone, 1977, p.19-20). Students must be allowed to change a prediction whenever they find new evidence, since the directed-thinking activity is designed to encourage flexible thinking (Richek, 1987; Stauffer, 1971). Through the questions, the students are prompted to evaluate and judge their original ideas about the storyline of the show. This activity is intended to involve the student in varying levels of thinking and as an active participant in a decision-making situation created by the teacher (Minor & Cafone, 1977).

The post-viewing stage

After viewing, the students participate in activities that are tied to the teacher’s purpose in showing the television serial (Minor & Cafone, 1977). In this study, the after-viewing activities are tied to the students’ ability to justify predictions. Here, the students are asked to rethink predictions by citing evidence from the episode to defend their judgement (Dixon & Nessel,

1992; Nessel, 1987). The students are not evaluated on how true their predictions are but rather on their reasoning ability to support their decisions (Kuhrt & Farris, 1990). To round up the discussion about the show, the teacher will ask: "Were you right about what you said?" (Stauffer & Cramer, 1971, p.46); "What do you think about your original ideas?" (Dixon & Nessel, 1992, p.28); "Where in the story do you get the information to support that idea?" and "How does that information support your conclusion?" (Hoskisson, 1973). These questions help to build up "metacognitive awareness" (Dixon & Nessel, 1992, p.16). Teachers should remain neutral throughout the discussion. The "feedback on the correctness of predictions comes from the viewers in their use of the show content to defend or restate their positions" (Minor & Cafone, 1977, p.20). The students should also realize that although their predictions may not be the same as the show, their predictions could have been as good as the show as long as they are able to defend their predictions with good reasons (Dixon & Nessel, 1992; Minor & Cafone, 1977). Alternatively, teachers may help the students discover the clues which may have misled them or which they have missed (Stauffer & Cramer, 1971).

After the students have discussed their predictions in the light of the evidence, they begin the cycle: predict, view, and rethink again (Dixon & Nessel, 1992).

DVTA provides an environment that nurtures thinking

The researchers believe that DVTA is able to foster critical thinking dispositions because DVTA provides an environment that nurtures thinking.

According to researchers (Facione, Facione & Giancarlo, 1997), people who possess the dispositions to make thoughtful judgments come from an environment that nurtures thinking. DVTA is capable of promoting a network whereby students become the active participants in discussions

while the teacher's role is to assist the students by monitoring the process. Such a network is an "all-channels-open-network" (Petre, 1971, p.3), the implications of having such a network are:

1. More students are able to use their critical thinking and;
2. Students are allowed to do more critical thinking. (Petre, 1971)

The researchers believe that this network provides the learning environment for students to nurture good thinking dispositions. This is because according to Hung, Chen and Cheung (1998), critical thinking can be fostered in an environment that allows students to socially construct their knowledge through interactions among their classmates. DVTA provides such an environment by allowing the students to discuss with their classmates. As students discuss, they build their knowledge base, extend their understanding, and are "empowered to improve their judgment" on the position they are defending (Tama, 1989, p.64).

The interactive conditions would also help to sharpen their thinking process (Beyer, 1992; Richek, 1987; Tama, 1989). This is because in daily decision-making, our decisions are also usually influenced by the opinions, advices and experiences around us (Neilsen, 1989). The interactive conditions provide an ideal environment for the students to learn to decide what to believe or do based on informed choices.

Methodology

Participants

The eighteen participants, all female, Chinese, between fourteen to fifteen years of age from this study come from a traditional English school. They would be required to do a pre-post argumentative essay test with no control group. A control group was not feasible since the study was carried out in one of the researchers' class.

Data Collection Procedures

Data on the students' critical thinking dispositions will be collected using the argumentative essay, one week before the start of the DVTA lessons. All students were given a week to complete the essay as homework, such that students have time to consider the assignment and give thoughtful responses. The essays were collected and the presence of the dispositions displayed in the essay test was identified. One week later, the DVTA instructional approach was implemented. The study lasted for six weeks.

At the end of the study, all the students took a post-argumentative essay test. The students were again given a week to complete the same argumentative essay test that they had done for the pre-test. The essay test was coded in terms of the dispositions that could be identified in it by the same marker who was an experienced teacher familiar with thinking dispositions.

Instrument

The instrument used to detect the students' critical thinking dispositions was the essay test. It required the participants to give their views on the same controversial issue so that thinking dispositions could be observed. However, students were not informed of the purpose to prevent the possibility of them attempting to exhibit the desired dispositions in the essays.

The various indicators for the different dispositions would be coded each time it appeared in the essay. These indicators can be found in Table 1. A Wilcoxon Matched-Ranks test was used to analyse the data.

The critical thinking dispositions based on Facione's study are: inquisitiveness, open-mindedness, analyticity, systematicity, truth-seeking, self-confidence in using critical thinking

skills and judiciousness in decision making (Facione, 1998; Facione & Facione, 1996; Facione, Facione & Giancarlo, 1997, 1998; Facione, Giancarlo, Facione, & Gainen, 1995). However this study only collects data on the dispositions of open-mindedness, analyticity, systematicity and truth seeking due to the limitations of the instrument. The essay test used in this study allows only one-way feedback. However, as seen from the indicators in Table 1, the dispositions of inquisitiveness, self-confidence and judiciousness would require two-way feedback in order to detect them. Hence, these dispositions were not reflected in this study.

Reliability of Instrument

The inter-coder reliability for coding the critical thinking dispositions is reflected using the Kappa value. This is measured by a comparison of the scoring by the two independent markers for coding the critical thinking dispositions that are displayed in the essays. According to experts, the different ranges of values for Kappa signify the different degrees of agreement between the two markers (Fleiss, 1981, p.218). Their interpretation of the Kappa value is presented in Table 2.

Table 2: Interpretation of Kappa Value

Kappa value	Interpretation
>0.75	Excellent
0.40-0.75	Fair
<0.40	Poor

The Kappa values for coding the indicators of different dispositions are shown below. They range from fair to excellent.

Kappa values for coding:

Indicators of Dispositions	Kappa Value
Open-Mindedness	
• Explore alternative points of view, flexible, try new things and ideas (Norris & Ennis, 1989; Tishman, Perkins & Jay, 1995)	0.46
• Tolerant of divergent views and sensitive to the possibility of one's own biases (Facione, Giancarlo, Facione & Gainen, 1995)	0.56

- Can be heard considering, expressing or paraphrasing another person's point of view or rationale (Costa & Kallick 2000) 0.42
- Give several ways to solve the same problem (Costa & Kallick 2000) 1
- Take time to reflect on an answer before giving it, gathering more information before they begin on the task, making sure they understand directions before beginning a task (Costa & Kallick 2000) 1
- In discussions, they listen carefully to every point, evaluating each perspective carefully and fairly (Chaffee, 1998) Not relevant

Systematicity

- Approach things in a methodical fashion, urge to be orderly and logical, planful, think ahead (Norris & Ennis, 1989; Tishman, Perkins & Jay, 1995) 0.6
- Focus the question before attempting to answer, not easily distracted (Facione, Giancarlo, Facione & Gainen, 1995) 0.46
- Systematically persisting even when solution is not immediately apparent (Costa & Kallick 2000; Facione, Facione & Giancarlo 1997) 0.63

Analyticity

- Inclined to anticipate the consequences of events and ideas and to use reason to address serious problems. (Facione, Giancarlo, Facione & Gainen, 1995) 0.49
- Being alert to potential problem situations and potential difficulties (Facione, Facione & Giancarlo, 1997) 1
- Take into account the total situation (Norris & Ennis, 1989) 1
- Reason clearly and carefully (Tishman, Perkins & Jay, 1995) 0.59

Truth-seeking

- Not afraid to disagree with the group opinion (Chaffee, 1998) 0.62
- Asking tough but important questions in pursuing reasons and following evidence wherever they may lead (Facione, Facione & Giancarlo, 1997) 0.73
- Remains receptive to giving serious consideration to additional facts, reasons or perspectives, even if this should necessitate changing one's mind on some issues; continually evaluates new information and evidence (Facione, Giancarlo, Facione & Gainen, 1995) 1
- Support views only to the extent that they are justified by available information (Fisher, 2000) 1

Results

Does DVTA provide an environment for fostering the dispositions for critical thinking? In order to answer this question, argumentative essays were used.

The critical thinking dispositions that the students showed were inferred from their essays based on the indicators listed in Table 1.

A Wilcoxon Matched-Ranks test was used to analyze the four thinking

dispositions: Systematicity, Open-mindedness, Analyticity, and Truth-seeking.

Systematicity

The results showed a significant increase in Systematicity, ($p=0.016$, within the ranks for increases totalling 12 and the ranks for decreases totalling 2).

Analyticity

Analyticity ($p=0.009$, within the ranks for increases totalling 11, and the ranks for decreases totalling 5).

Truth-seeking

Truth-seeking ($p=0.006$, within the ranks for increases totalling 12, and the ranks for decreases totalling 3).

Open-mindedness

However, there was no significant difference found for Open-mindedness.

Discussion

From this exploratory study, the findings of interest are these:

- Dispositions can be cultivated
- An improvement in one disposition would not bring about an equal change in other dispositions
- The DVTA program may not be equally effective in cultivating all the dispositions

Generally, the critical thinking dispositions displayed from the pre- to the post- essay tests had increased. This would probably suggest that the DVTA approach could have been helpful in fostering dispositions. The study also suggests that dispositions can be cultivated.

As seen from the findings, the extent of increment for the different dispositions is different. A significant increase was found for the disposition of systematicity while no significant difference was found for open-mindedness. As for analyticity and truth-seeking, although there were more increases than decreases, it was only at a relatively lower significant level.

Possible reasons for the significant increase for systematicity are:

The disposition of systematicity is easier to be fostered. Alternatively, this could be due to a smaller number of students displaying this disposition during the pre-test and thus it gave room for improvement. However, this improvement in systematicity has been a great encouragement and has indicated that DVTA could promote the environment to nurture the dispositions for critical thinking.

On the other hand, the lower significant level for analyticity and truth-

seeking could be due to the nature of dispositions and the relatively short time frame. Research (Facione, Facione & Giancarlo, 1997) has shown that dispositions appear to be stable over a period of years but there is definitely room for significant growth. Hence, according to Paul and Nosich (1995), any testing for dispositions would have to take place over an appropriate period of time. Since this study stretched only over a period of 6 weeks, the findings should be justifiable.

The results for these three dispositions implied that DVTA has a positive impact for nurturing critical thinking dispositions although one may also argue that the findings were such probably because the dispositions might have been displayed by chance in the post- essay test.

As for open-mindedness, the results were not significant. This probably implied that DVTA might not be effective in cultivating this disposition. However, it is also possible that the students possessed these critical thinking dispositions even before the DVTA lessons began and hence there was not much room for improvement during the post-test. It is also likely that the facilitator had not given much emphasis to open-mindedness while conducting the DVTA lessons.

Conclusion and Suggestions

We conclude by returning to the aim of our research. Does DVTA have any impact on students' critical thinking dispositions? The results only suggest that DVTA may be able to provide an environment that nurtures critical thinking dispositions due to the various limitations of the study. However, the study outlines the importance of nurturing critical thinking dispositions and therefore the task to nurture the dispositions should be encouraged.

The following are some suggestions for future studies.

A major limitation of the study is the time frame. Hence, a suggestion is to lengthen the period of study. This is because

any gains may not last unless it is sustained by subsequent instruction. Perhaps future studies could be conducted over a longer period of time and follow-up tests to be administered at different stages of the education process in order to have a clearer picture of the impact of DVTA on students' critical thinking dispositions.

Perhaps it is also possible to look into the impact of DVTA on critical thinking dispositions such as inquisitiveness, critical thinking self-confidence and judiciousness, which are not explored in this study.

Future studies could also look into the evaluation of critical thinking dispositions. Since one of the main aims of education in the recent years is to develop students' critical thinking and critical thinking dispositions is an area that has been overlooked over the years, an instrument should be developed to measure students' critical thinking dispositions in order to evaluate outcomes. Unfortunately, there are currently no instruments relevant to the local context available for measuring the impact of an approach on students' critical thinking dispositions.

Would it be more beneficial to start nurturing critical thinking dispositions in early childhood? The DVTA approach may be used with a younger age group. This is because predicting the development of the story might help children use and further develop their schemata, their structures of knowledge about stories, non-fictional topics and the world (Blachowicz, 1983). However, would the DVTA approach have an impact on the critical thinking dispositions of these younger children?

Future studies could also focus on a variety of television programmes of different genres and different backgrounds. With technological advances, other sources of viewing activities such as multimedia storybooks could also be a resource for DVTA. Will a difference in media make a difference in nurturing critical thinking dispositions?

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Authors

NEO Chin Ee
Methodist Girls' School, Singapore
Email: neo_chin_ee@moe.edu.sg

CHEUNG Wing Sum
National Institute of Education, Nanyang
Technological University
Email: wscheun@nie.edu.sg

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