Improving students' critical thinking skills through the use of the QARED model

Chapter 10
Improving students critical thinking skills through the use of the QARED model

Tharach Puttarak

Teaching experience	**Area of interest in teaching**
14 Years	Speaking, Listening, Grammar and Teaching Evaluation

Introduction

Bunyawat Witthayalai School is located in Lampang, in the northern part of Thailand. One of the many goals of the school is to promote students to have 21st century skills, specifically critical thinking and problem-solving skills. My study refers to the class 'English for Presentations' and attempts to blend critical thinking skills with giving presentations and develop critical presentation skills. In classes with oral presentations, students are expected to present information critically. However, when students present information, they do not display the ability to think critically about a topic or supporting information. For instance, students might copy and paste from the internet without engaging in any thinking. Another issue is that students provide very broad information lacking in detail or specifics. Students may also include irrelevant information or details when presenting on a topic. These observations from my teaching suggest that students do not display criticality when they search for, select, and present information. These issues are increasingly important to the education of upper secondary school students in Thailand. As the nation moves towards its goal of a competency-based curriculum by 2024, active learning is gaining more attention. In fact, because one of the six core areas of the competency-based curriculum is higher-order thinking skills (Equitable Education Fund, 2021, p.21), this study is extremely timely for curriculum development.

Method

The study included 43 students from Grade 12 (typically 17 years of age) who were in the Science, Mathematics, and English programmes. The 'task-teach-task' approach was used to identify issues particular to the cohort of students in my class currently. In this approach, students were first asked to present without direction or influence from the teacher. This allowed me to observe and then tailor the 'teach' phase to the immediate needs of these students (as opposed to using approaches created for students of previous years). The second 'task' allowed students a second chance to re-do their presentation and hopefully improve following input.

The topic assigned to students in both tasks was 'the medicinal benefits of perilla seeds'. The students were instructed to cover or include the three following areas in their presentations:

- WHAT benefits perilla seeds provide.
- HOW these benefits work.
- WHY they think these benefits can be trusted.

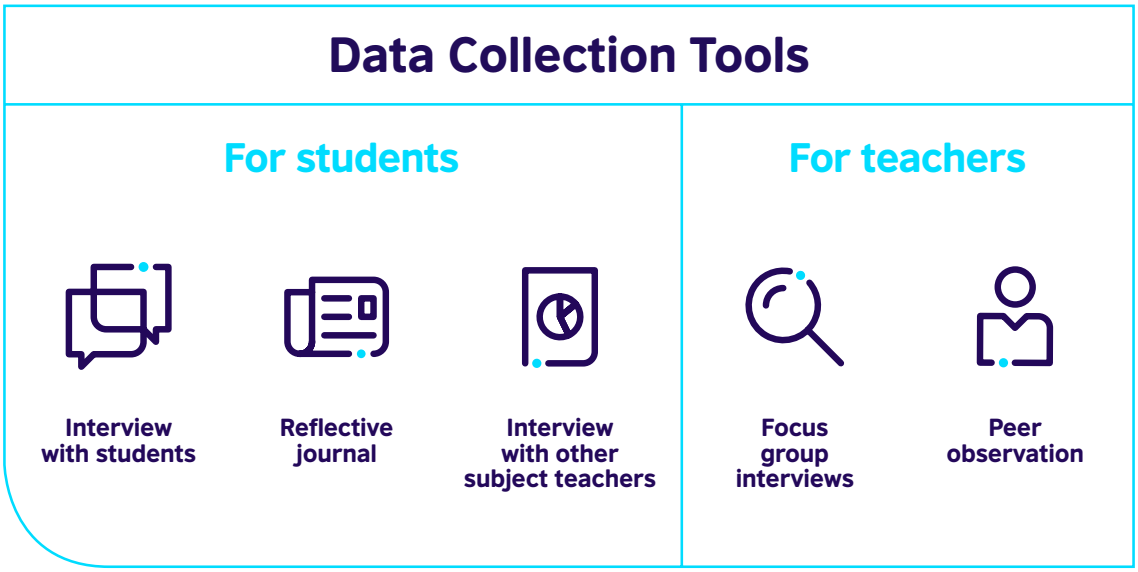

Figure 10.1. Data Collection Tools

In the first 'task', I found that while students could assert their main point or main line of enquiry, none of them displayed adequate reasoning or evidence in their presentations. As discussed in the introduction, the issue was that students presented broad information without any explanation, included irrelevant information, and/or copied and pasted whatever they found without analysing the information.

To help the students stay focused, I developed a critical thinking model called 'QAREP'. QAREP is based on Cottrell (2014)'s critical thinking skills as the stages or steps students should follow to complete the objectives and outcomes successfully. Table 10.1 below gives an overview of the QAREP steps and what each letter represents. As can be seen in the table, the main assessment, in accordance with Cottrell, is in the A, R, and E steps. These are the most visible stages for an audience and provide most of the evidence base of whether or not students displayed criticality.

Letter	Stands for	Description of what students should do
Q	Question	Students should engage in questioning by asking 'What do I want to know'.
A	Assertion	Students should assert their chosen main point/line of enquiry.
R	Reasons	Students should engage in reasoning by providing arguments or ideas.
E	Evidence	Students should provide evidence for their reasoning (data, statistics, and facts).
P	Presentation	Students deliver a presentation containing A, R, and E.

Table 10.1. QAREP Model

Although A, R, and E contain most of the students' preparation work, the presentation (P) is very important because it allows for peer review. The audience — fellow students — pay close attention to the A, R, and E steps to gauge whether the presenter has made a strong enough case.

The six-step sequence of activities I used to employ the QAREP model is described in Table 10.2.. This table displays the events in order and acted as a lesson plan.

Actions taken by the teacher	Actions taken by students
The teacher applies a 'task-teach-task' model by asking students to present without any specific input from the teacher. The teacher evaluates their unaided performance during their presentations.	Students research, prepare, and present.
The teacher asks students to brainstorm about critical thinking, criticality, and what elements might be included in critical thinking presentations.	Students discuss and share their ideas.
The teacher provides examples of QAREP, especially A, R, and E (Table 10.1) through videos of desirable presentations which are models.	Students reflect on the content of the presentation videos.
The teacher presents on what Q, A, R, E, P is through student activities (e.g. worksheets).	The students learn from the teacher and complete activities to reinforce understanding.
The teacher asks students to re-do the presentation (i.e. task-teach-task).	The students present on the same information as in step 1.
The teacher evaluates the students' presentations on the basis of A, R, and E (Table 10.1).	The students incorporate feedback by editing their presentations.

Table 10.2. Activities Undertaken to Enhance Criticality in Presentations

Findings

The 42 students who did their initial presentation (task-teach-task) failed to display any ability to provide reasoning or evidence. However, when engaged in their second try of the same presentation (task-teach-task), their performances improved without exception. For example, in the first round of presentations, one student asserted their line of argument, as follows:

Assert
'Perilla seeds can prevent depressive disorder'.

However, this claim lacked any development. Nevertheless, after the QAREP model was introduced and the activities (Table 10.2) completed, the student could expand and develop through reasoning:

Reason
'The reason is because perilla seeds are rich in Omega-3 and Apigenin. Omega-3 contains Docosahexaenoic Acid (DHA) and Eicosapentaenoic Acid (EPA.)'

Furthermore, the student could provide some evidence to support their claim:

Evidence
'Chinese researchers from Guizhou University found that the essential oil from perilla seeds can reduce depression symptoms in rats'.

Thus, after being introduced to the QAREP model, engaging in activities such as watching examples of presentations, and being given a second chance, all students displayed the ability to reason and provide evidence.

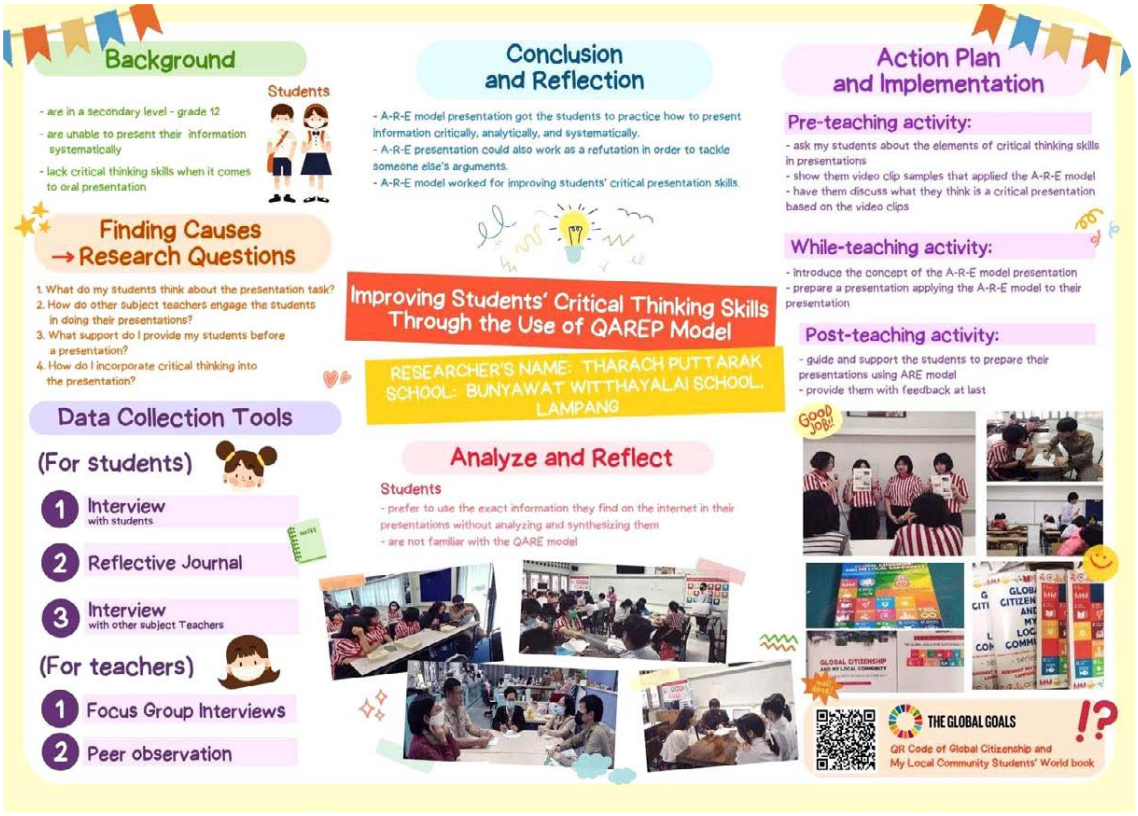

Figure 10.1. Poster Presentation

Discussion

Interestingly, the last step in the QAREP model, Presentation 'P', was found to be extremely important for the students. Because they listened to their friends' presentations, and questioned, commented, and — importantly — made a decision about whether or not to believe their friends' information, they seemed to become more critically aware. For instance, when presenters (their friends) covered or addressed the steps in the model successfully, the audience did not have many questions to ask. This reinforced the idea in students' minds that the information was generally more trustworthy and credible. Nonetheless, if the audience questioned or highlighted any issues, this signalled to others that there may be some reason to question the credibility or trustworthiness of the information. Lastly, a very interesting point was that in my QAREP model, the Q was also found to be influential. Students not only used Q when starting their own presentations, but also used it when listening to those of their friends.

In conclusion, the steps taken in the QAREP model appeared to improve students' criticality. The task-teach-task approach also appeared to have an effect on the improvement. Even though students improved their critical thinking presentation skills, it took a long time for them to understand how to present their information in the A, R, and E pattern because they were extremely unfamiliar with this requirement or need. If critical thinking is to be improved among Grade 12 students, it will require additional time for teachers as well as space on the syllabus.

References

Cottrell, S. (2014). *Critical Thinking Skills: Developing effective analysis and argument.* New York: Palgrave Macmillan.

Equitable Education Fund (EEF) (2021) *Teachers and Equitable Education.*