深度討論和高層次思考：

台灣大學生之研究

Quality Discussion and High-Level

Comprehension: An Analysis of

Taiwanese College Students

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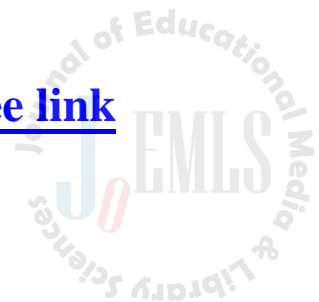E-mail：bettyeleven@gmail.com

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Quality Discussion and High-Level Comprehension: An Analysis of Taiwanese College Students

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Abstract

Reading has been a focus of research attention because it is one of the important skills to achieve academic success and become life-long readers. Most research in reading puts focus more on how readers can comprehend information from reading; however, only a few studies have focused on how reading can facilitate readers' critical thinking. One teaching approach, Quality Talk (QT), has been found to enhance students' literal comprehension and critical thinking, but these studies have been conducted in classes where English was students' first language. Therefore, the present study aimed to examine the effects of QT on Taiwanese students' reading comprehension in English and the development of critical thinking. Two classes were randomly assigned as a control and an experimental group respectively. While the students in the control group received regular English class, the students in the experimental group received a training session including how to ask questions and how to conduct group discussions. The students' reading comprehension was evaluated through multiple choices and open-ended questions; and their development of critical thinking was evaluated through group discussions which were recorded, transcribed, and analyzed. The results have shown that scores of the reading comprehension test in the experimental group were significantly higher, which suggested that the training session made the students more involved in the text and they thus had better understanding on the text. The experimental group students further used significantly more authentic questions, which suggested that the students were able to relate their personal experience and information of outside world to the text.

Keywords: *Text-based discussion, Discourse analysis, Group discussion, Reading comprehension, Critical thinking*

Introduction

Being able to comprehend and analyze the reading texts are critical requirements for students to achieve academic success and important skills for

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life-long readers (National Academy for Educational Research, 2015; National Assessment Governing Board, 2013). Because reading is a dynamic process that involves a range of complex cognitive and meaning making processes (e.g., Goffman, 1959; Nystrand, Wu, Gamoran, Zeiser, & Long, 2003), researchers have strived to construct what reading is and how reading relates to performance in order to plan on reading processes and to evaluate reading achievements. National Assessment Governing Board (2013) substantiate readers' cognitive abilities in reading from basic to advanced levels: to "locate and recall", "integrate and interpret", and finally "critique and evaluate". The advanced level of reading comprehension refers to the ability to "integrate, interpret, critique, and evaluate" in the present study.

In order to help students to achieve advanced level of reading performance, many teaching interventions in reading are proposed; group discussion is one of the effective approaches (Higham, Brindley, & Van De Pol, 2014; Nystrand et al., 2003). The following describes two theoretical frameworks that explain why learning is achieved in group discussion and why discussions can facilitate students' high-level comprehension. First, learning is taken place through participating in social activities (Rogoff, Matusov, & White, 1996; Vygotsky, 1962). The learning in group discussions can be realized through the "guided participation", which means that more competent individuals, students or teachers, provide assistance for less competent individuals to comprehend content knowledge and also learn to solve problems (Rogoff, 1990; Rogoff et al., 1996). Tharp and Gallimore (1988) provided a successful documentation of how guided participation can be achieved in Kamehameha Elementary Education Program (KEEP) project in which teachers gave guidance by asking authentic questions, modeling and giving feedbacks for low achievers during group discussions.

The other theoretical framework, Dialogism suggested by Mercer (1998, 2000, 2002) and Heath (1983), explains why dialogic discourses can benefit high-level comprehension. They propose that language is a tool for interlocutors to think collectively. When individuals engage in discussions, the context of the discussions become a "shared framework of understanding" (Mercer, 1998, p. 5). In order to achieve mutual understanding in the context, individuals/learners must understand interlocutors' meanings and then be able to respond by offering their own ideas, that is, using language as a vehicle to "co-reasoning". In this process of "co-reasoning", Mercer (1998) further suggests that the students can thus enhance cognitive ability and critical thinking skills. In contrast, monologic discourse involves exchange of the "truth" or "known" in which students have little chance to contributes their ideas or participate actively in the construction of knowledge (Bakhtin, 2010).

Based on the above studies, the group discussion seems to be a potential approach for learning. Therefore, recently there was an increased attention to the group discussions as teaching interventions on reading. Despite the fact that the group discussions seem to be theoretically effective, not all discussion approaches are equally effective in enhancing students' literal and high-level comprehension. This can be observed in Murphy, Wilkinson, Soter, Hennessey, and Alexander (2009). They conducted a meta-analysis aiming to examine the effects of text-based discussion approaches on both literal and high-level comprehension. In their review of 42 quality journal papers, most of the discussion approaches[1] were effective in enhancing students' literal comprehension; however, only a few studies focused on enhancing students' high-level comprehension, such as *Junior Great Books*, *Collaborative Reasoning*, and *Philosophy for Children* (adopted from Murphy et al., 2009).

In particular, *Book Club* was effective especially in enhancing students' metacognitive ability in a pre- and post-test experiment design. Murphy et al. (2009) concluded that while different discussion approaches were designed for different learning goals,[2] only a few text-based discussion studies aimed to enhance both literal and high-level comprehension. Therefore, Murphy and colleagues identified the benefits of the text-based discussion approaches and proposed Quality Talk (QT), which aimed to enhance both literal and high-level comprehension (Murphy, Firetto, Greene, & Butler, 2017). In particular, students' use of questions and feedback in group discussion was taken as discourse indicators of high-level comprehension because it was found that asking questions and having elaborated explanation (EE) and exploratory talk (ET) indicated students' critical thinking and reasoning in discussions (Soter, Wilkinson, Murphy, Rudge, Reninger, and Edwards, 2008). QT has been implemented in some studies and they were reviewed below.

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[1] The reviewed discussion approaches are *Instructional Conversations, Junior Great Books, Questioning the Author, Collaborative Reasoning, Paideia Seminars, Philosophy for Children, Book Club, Grand Conversations,* and *Literature Circles*.

[2] The goals of learning are divided into three types: Expressive, Efferent, and Critical analytical stance. The expressive stance indicates that students' discussions are more affective oriented. This approach requires more of participants' personal opinions, which includes *Book Club, Literature Circles,* and *Grand Conversations*. The efferent stance means the purpose of the discussion is to acquire information. This approach requires students to remember the factual information, which includes *Instructional Conversations, Junior Great Books,* and *Questioning the Author*. The critical analytical stance gives prominence to asking questions and understanding the underlying information of the text, which includes *Collaborative Reasoning, Paideia Seminar,* and *Philosophy for Children*.

Literature Review

The Discussion Approach: Quality Talk (QT)

Reninger (2007) examined the effect of Quality Talk (QT) on eight low-achievers' (four and fifth grade) reading and high-level comprehension. Because the researcher adopted a qualitative view, the data included the researcher's observation notes, transcriptions of student interviews, transcriptions of group discussions, and the students' writings. The students' reading comprehension was evaluated through their writing, while their high-level comprehension was evaluated through their group discussions. The data analysis revealed that the students' reading and high-level comprehension scores have improved. The students were able to give factual information extracted from the text in their writing and to use examples and reasons to support their claims (i.e., EE) in their discussions.

Davies and Meissel (2015) also adopted Quality Talk and investigated the effects of which on students' high-level comprehension in a New Zealand secondary school. In their study, they observed their students' performance in a control (i.e., regular group discussion) and an experimental (i.e., with Quality Talk) group on three time spots (before, during, and after intervention). All of the discussions were audio recorded. Through analyzing the students' group discussion recordings, the results have shown that the students of both groups interacted in a turn taking style at time one; however, when the students were more familiar with each other and the QT discussion approach, they were more engaged in the interaction at time three. In terms of students' quality of discussions, the students had more cumulative talk (CT, contributing one's ideas to a dialogue without challenging each other), and fewer ET at time three. Davies and Meissel (2015) explained that the students made gains in high-level comprehension, but not yet ready for challenges and disputes.

Li et al. (2016) compared the effects of three types of teaching interventions on fourth and fifth grade students' reading and high-level comprehension: TWA, QT, and Hybrid. TWA suggested a before, during, and after reading strategies teaching approach. Before reading strategies helped students foster their background information; during reading strategies helped students monitor their reading processes and made connections between texts and their background information; after reading strategies required students to identify a main idea of texts. QT intervention included teachers' teaching on how to ask questions and to make responses and teachers' scaffolding based on a set of pedagogical principles, such as promoting dialogic inquiries and productive discussions. Finally, the hybrid suggested a combination of both TWA and QT interventions. The students' reading comprehension and group discussion recordings were examined. It was

found that the students of the experimental groups (TWA, QT, and Hybrid) have improved their literacy understanding based on a multiple choice questions test; however, only the students in the QT group showed high-level comprehension by using significantly more authentic questions, EE, and ET. This suggested that the students have improved both literal and high-level comprehension through QT teaching intervention.

Discussion Approaches Used in Taiwan

Although QT has yet implemented in Taiwan, other text-based discussion approaches have been implemented. For example, Shen (2013) investigated three text-based discussion approaches (*Book Club*, BC; *Literature Circles*, LC; *Instructional Conversations*, IC) and compared their effects on students' literal and high-level comprehension. Four classes were assigned as basal, BC, LC, and IC group and were taught by four different instructors. All of the students underwent three major phases over a five weeks experiment: pre-test (comprehension tests and essays; in the first week), teaching interventions (not for basal group; for three weeks), and post-test (comprehension tests and essays; in the last week). There was no difference in the students' literal comprehension among four groups of students, but the students from BC, LC, and IC group outperformed the students in basal group in two tests (interpretive comprehension test and theme-related essays). Although these text-based discussion approaches did not aim for critical analytical stance (BC and LC for expressive stance; IC for efferent stance), text-based discussion approaches can benefit their students' high-level comprehension to some extent.

Based on the above discussion, it seemed that QT discussion approach was a helpful reading intervention to achieve literal and high-level comprehension, including the ability to critique and evaluate text content. However, the participants in the previous studies of QT were native English speakers. Therefore, the present study aimed to investigate its effect on Taiwanese college students. Two research questions were listed below.

1. Does QT group discussion approach influence college students' literal reading comprehension?

2. Does QT group discussion approach influence college students' high-level comprehension as evidenced by student-initiated discourse elements?

Method

Participants

Two classes were randomly assigned as a control and an experimental group, respectively. There were 38 students in the respective class, 20 female and 18 male students in the control group and 29 female and 9 male students

in the experimental group. They were eighteen and nineteen years old. All of the students were at higher intermediate English proficiency level based on a placement test administered by a national university located at northern part of Taiwan. Their proficiency was comparable to B2 level of Common European Framework of Reference for Languages (CEFR), which was a commonly used criterion for language proficiency worldwide. The students were non English major (mostly from college of humanities and education) and received two hours of freshman English course every week for 7 weeks in total in this study. The students have learned English for more than ten years and have experienced in group discussion activity in senior high schools.

Teaching Procedures

The students in both control and experimental group used the same designated textbook (*Q: Skills for* success *4*), but received different teaching interventions. The major differences were that the students in the experimental group received training on six types of questions in the first week as shown in Table 1: authentic, uptake, speculation, high-level thinking, affective, and connection questions (Murphy et al., 2017); definitions were shown in Table 2 (Full examples were presented in Appendix 1). In addition to the question lessons, the students were encouraged to give supports to their claims in their responses. Whenever the students made any claim about their feelings or thoughts, they were encouraged to give reasons, evidence or any kinds of supports to explicate their ideas.

Table 1   Teaching Schedule

Week	Control group	Experimental group
1	Grouping	Six question types introduction Grouping
2	Unit 1	Unit 1 (Question type practice: SQ and HLQ/Generalization)
3	Unit 1	Unit 1
4	Unit 2	Unit 2 (Question type practice: HLQ/Analysis and AfQ)
5	Unit 2	Unit 2
6	Unit 3	Unit 3 (Question type practice: Speculation and Connection question)
7	Unit 3	Unit 3

In the control group, the students had a traditional English reading class in which the instructor explained unfamiliar words and usages and interpreted English texts in Mandarin Chinese. After the explanation, the students conducted a group discussion in Chinese for about 20 minutes based on ten questions prepared by the instructor (Appendix 2). There were 10 groups in the control group (three to five students in a group). The students were then required to complete a comprehension test, which included five multiple-choice questions and

Table 2   Definitions for Six Question Types and Three Response Types

	Discourse element	Definition
1	Authentic Question (AQ)	AQs are open-ended and require thinking about, around, and with the text; there is no one "correct" answer.
1-1	Uptake Question (UQ)	UQs ask about something that someone else said previously. They must be content related and can be directed to a group or an individual.
1-2	Speculation Question (SQ)	SQs require students to consider alternative possibilities.
1-3	High-level thinking Question (HLQ) (Generalization and Analysis)	HLQs require students to build up ideas and generate new information by tying concepts and ideas together.
1-4	Affective Question (AfQ)	AfQs elicit connections between a student's life experience and the text.
1-5	Connection Question (CQ)	• CQs elicit connections to information that is commonly known in the discussion group. • CQs elicit connections between two or more textual materials.
2	Test Question (TQ)	TQs presuppose one or a set of "correct" answer(s); the answer(s) usually can be found in the textbook.
3	Responses	
3-1	Elaborated Explanations (EE)	EE consists of a statement of a claim and include at least two pieces of support (e.g., reasons or evidence).
3-2	Exploratory Talk (ET)	ET occurs when students share, evaluate, and build knowledge over at least three turns. Students reason collectively by challenging each other and responding to challenges with reasons and evidence.
3-3	Cumulative Talk (CT)	CT occurs when students build positively, but uncritically, on what others have said in episodes of at least three turns. Instances of cumulative talk do not include a challenge.

Source: Murphy et al. (2017, pp. 2-4).

three short answer questions (Appendix 3).

In the experimental group, the students also received vocabulary instruction on the meaning and word usages in Mandarin Chinese. After vocabulary introduction, the students in the experimental group read texts by themselves, and were required to underline important ideas and to write down comments or questions for about 30 minutes. After the reading, the students were required to propose two questions of one designated question type for practice. Two types of question were assigned for each unit. For example, they were required to propose two speculation and two connection questions in Week 6 on a group basis. There were 36 questions from 9 groups in the experimental group (four to five students in a group). These questions were submitted to the instructor in Week 6 and reviewed in the Week 7 in order to correct students' grammatical errors and confirm their understanding of question types. The assigned question types were presented in Table 1 above.

Before the group discussions, the students were required to recite 8 ground rules listed below (Davies & Meissel, 2015; Reninger, 2007; Reninger & Wilkinson, 2010; Soter, 2007).

1. Share our thoughts and listen to other's ideas

2. No need to raise hand to speak (One speaks at a time)

3. Interact with group members instead of your teacher

4. Respect others' points of view

5. If someone remains silent, ask him/her questions

6. It is OK to disagree with others' opinions

7. Raise new questions

8. Build connections between texts and self

They conducted the group discussions in Chinese based on the same ten questions and then completed the same comprehension test. Details of teaching procedures of each unit were shown in Table 3 below.

Table 3   Teaching Procedures in Unit 3

	Control group	Experimental group
Week 6	1. Warm-up (whole class discussion)	1. Warm-up (whole class discussion)
	2. Vocabulary introduction	2. Vocabulary introduction
	3. Guided reading (first half)	3. Silent reading
		4. Question types practice
Week 7	4. Guided reading (second half)	5. Review students' proposed questions
		6. Review ground rules
	5. Group discussion	7. QT group discussion
	6. Comprehension check	8. Comprehension check

Because the students needed time to practice and familiarize themselves with how to ask questions, how to give responses, and following the ground rules, only the group discussions in the third lesson (Unit 3) were analyzed and compared with the discussions recorded in the control group. Unit 3 described the lives author spent with her father and how she learned writing. The group discussions in the first and second lesson were treated as practice sessions.

Discourse Analysis

Data of the present study included two parts: the students' comprehension test scores and the students' group discussions. The students' literal comprehension was evaluated through a comprehension test, which included five multiple choice questions and three short answer questions. The former required the students to answer information about the text, such as "**what is the turning point of the author's life event?**", while the latter required the students to propose personal ideas and support one's idea based on the text, such as "**why**

does the author choose to have the same job as her father?" The analysis of the short answer questions was based on the following rubrics. When the students wrote a thesis statement and one kind of support (i.e., reason, evidence, example, or personal story), the student received two points (i.e., one point for thesis statement and one point for a piece of support). The students scored five points at most for each question. The research assistant graded the students' short answer questions for the first time and the researcher reviewed the grading for the second time. Agreement reached more than 90%. Figure 1 was one example of marking. There were two pieces of supporting ideas ("S") and one thesis statement ("T"), which were three points in total for this item.

2. You have read how the author's father influence the author to become a writer. Have your parents influenced you similarly or differently?

In my family, my parents influence me by their attitude toward dealing with difficulties. Speaking of my father, he is always patient and perseverance while facing problems. It triggers me that we shouldn't give up every chances which make us grow up. Besides, when it comes to my mother, she taught me to cultivate positive thinkings. It truly helps me a lot when figuring out difficulties. Above all, I'm trained to be a courageous and optimistic person because of my parents' well attitude toward things.

Figure 1   Sample of Short Answer Question Marking

For ease of scoring, the test was presented in terms of 100 points. For example, when a student got two multiple choice questions correct, then he got forty points out of 100; when a student got twelve points from the short answer questions section, then this student got 80 points out of 100 points. The comprehension test scores were the average scores of the two section.

The time of group discussions in Unit 3 were about 250 and 274 minutes in the control and experimental group, respectively. The average group discussion time was around 20 and 30 minutes for the control and experimental group, respectively. All of the students' group discussions were transcribed by the research assistant and analyzed by the researcher/instructor. Five discourse

indicators suggesting high-level comprehension were identified in the students' group discussions: authentic questions (AQs), test questions (TQs), elaborated explanation (EE), exploratory talk (ET), and cumulative talk (CT; Soter, 2007). AQs were sub-divided into five secondary question types: uptake, speculation, high-level thinking, affective, and connection questions. In order to conduct a statistical analysis, the discourse indicators were accumulated and presented in how many times per minute. For example, there were twenty-two AQs in eighteen minutes group discussion, so there was about one AQ per minute.

Results

Normality tests were first used to examine the students' comprehension test scores and the distributions of five discourse indicators of both control and experimental group. Only EE and CT discourse indicators were normally distributed. Therefore, an independent sample *t*-test was adopted to compare the two discourse indicators between the control and experimental group, whilst a Mann-Whitney U test was adopted to compare the comprehension tests and the other discourse indicators (i.e., TQs, AQs, and ET) between the control and experimental group.

The independent *t*-test was adopted to examine EE and CT discourse indicators and there was no significant difference between the students of control and experimental group as Table 4 shows.

Table 4 Independent *t*-test for EE and CT

	Control group		Experimental group		*t*-test
	M	*SD*	*M*	*SD*	
EE	0.25	0.15	0.21	0.14	0.41
CT	0.19	0.07	0.17	0.09	0.35

The Mann-Whitney U test showed a significant difference between the control and experimental group as shown in Table 5 ($Z = -2.10, p = .01$).

Table 5 Mean Scores of the Comprehension Tests

	Control group		Experimental group		Z
	M	*SD*	*M*	*SD*	
Comprehension tests	70.88	16.00	78.53	10.24	–2.10*

*p < .05.

The five discourse indicators were adopted to examine the students' high-level comprehension, "beyond a literal understanding" (Reninger & Wilkinson, 2010) and were compared between the students of the control and experimental group. The Mann-Whitney U test was adopted to examine AQ, TQ, and ET between the two groups. Whilst no significant differences were found in TQ and ET, a significant difference was found in AQ as shown in Table 6.

Table 6   Mann-Whitney U Test for AQ, TQ, and ET

	AQ	TQ	ET
M	0.18	0.06	0.05
SD	0.20	0.07	0.04
Mann-Whitney U	16.00	39.50	35.00
Wilcoxon W	71.00	84.50	80.00
Z	–2.38	–.46	–.832
Asymp. Sig. (1-tailed)	.008*	.333	.217

$*p < .05.$

Discussion

Literal Comprehension

The significant difference between the control and experimental group suggested that the students of the experimental group had better literal understanding than the students of the control group. This might be due to the fact that the students in the experimental group were required to always give supports to their claims during the group discussions. Therefore, they had to re-read the text and extract examples or information from the text in order to support their thoughts and ideas. By doing so, the students were able to demonstrate better literal comprehension (i.e., **be able to locate and recall**).

Example 1 below demonstrated how the students in the control and the experimental group performed very differently in response to the same discussion question: "**How does the author's father influence the author?**" (All examples were translated from Chinese to English. The Chinese of Example 1 was presented in Appendix 4) The students in the experimental group have adopted examples from the text or personal experience to support their ideas, such as Student 1's turn in line 5-8, whereas the students in the control group did not.

Example 1
[Control Group 2]

   Q: How does the author's father influence the author?
 1. Student 1: The author's father influence her by... by showing how to do.
 2. Student 2: Learning by osmosis.
 3. Student 3: Lead by examples.
 4. Student 1: Yes! Learning by osmosis.

[Experimental Group 1]

 5. Student 1: This is from their daily life... She saw her father go nowhere...
 6. didn't go to work. She lived with her father every day... her father made her
 7. breakfast... and kept her company. This was how her father gradually influence
 8. her... Right?!
 9. Student 2: Influence her exactly what?
10. Student 1: It is... I cannot tell specifically.
11. All students: [Laughing]
12. Student 3: I believe that (that) her father is her significant others... who had

13. great influence on her. A writer's child does not necessarily become a writer...
14. But when she observed her father writing every day... and I am wondering if
15. she would like to do the same job as her father.
16. Student 4: So, what you wanted to say was that... (inaudible)... (it was the)
17. process that made the author become interested in writing?
18. Student 3: Exactly! No matter Whether you are truly interested in one type of
19. job is another issue... When your parents or relatives were having the same
20. job, they were doing it every day... and then... it is possible that you want to be
21. in that position or job just like them... This is like a kind of imitation.
22. Student 4: So, just like a doctor family. All of the members in one family are all
23. doctors.
24. Student 3: You are right!
25. Student 1: Do you think her father... have her... expect her to become a writer?
26. Did her father do... train the author intentionally?
27. Student 4: I don't think her father do that on purpose.
28. Student 2: I agree... kind of let this happen naturally...
29. Student 3: I think maybe a little bit... because... because... her father brought her
30. to jail... and taught her writing with the prisoners. This event makes me think
31. that her father do (have some expectation for her daughter to become a writer.)
32. Student 2: From the author's description... her father may simply brought her
33. there without much expectation on that matter.

Example 1 further demonstrated how the students used language as a mean to learn, share knowledge, and reason problems together (Mercer, 2002). In this discussion, Student 1 of the experimental group first gave one's personal opinions on how the author's father influenced his daughter through his everyday behaviors, such as staying at home all day or always making breakfast for her in line 5–8, but Student 1's responses seemed unclear to Student 2 in line 9. Therefore, Student 3 further clarified Student 1's thoughts by proposing the idea of "significant other" in line 12–15. This idea was required to be clarified by Student 4 in line 16–17. Student 3 tried to explain more by making a connection to his personal experience, explaining how one will be influenced by the people around them, and concluding why the author would like to have the same job as her father in line 18–21. Student 4 agreed with Student 3's view point in line 22– 23. In the discussion, students shared their ideas toward this question and they clarified doubts, developed logic, and tried to reach an agreement among members in the process of the discussion.

In contrast, the students in the control group did not provide any reason or explanation for their claims. There was no support for their statements and they completed their discussion within four turns and around 30 seconds. This example can be used to support that although a group discussion approach was theoretically effective for the students to share their ideas and knowledge and improve literal comprehension and high-level thinking (Rogoff, 2008; Wells, 1999), the students needed knowledge and training before discussions (Davies &

Meissel, 2015; Higham et al., 2014; Li et al., 2016; Li, Murphy, & Firetto, 2014; Mercer, 2002; Reninger & Wilkinson, 2010; Soter et al., 2008)

This finding to some extent challenged traditional style of lecturing, teachers giving detailed explanation or even translation, as indicated by the lower comprehension test scores of the control group. When the students learned how to conduct effective group discussions, were given responsibility to read texts, and were given more power over the discussion, they can learn more from the discussion processes. They not only understood the text content better, but also learned to share and supported their ideas. Therefore, it can be concluded that the QT discussion approach can possibly influence students' literal comprehension.

High-Level Comprehension

Having more AQs is very important for effective discussions and high-level comprehension (Li et al., 2016; Nystrand et al., 2003). Questions are viewed as "sites of interaction" (Nystrand et al., 2003; Wilkinson, Reninger, & Soter, 2010). When the students produced more AQs, it demonstrated their understanding and contribution to the interactions as shown in Example 2 below. Student 4 proposed a series of AQs (in line 6 and 8) to encourage Student 3 to provide more information related to what kind of writings Student 3 has involved in.

Example 2 [Experimental Group 1]
Q: What benefits can writing bring to a person?
1. Student 3: I thinking writing gives you a way of expressing one's... Ah
2. emotions. Before writing you may... you may notice nothing. But when you
3. need to write you will try to observe... this is a great way to release pressure.
4. Student 4: Have you tried to write? [AQ]
5. Student 3: Ah... Not very often... I will try another kind.
6. Student 4: Which kind? [AQ]
7. Student 3: Anything related to art... Writing is a type of art.
8. Student 4: Right...
9. Student 1: Is diary a type of writing? [AQ]
10. Student 3 and 4: Yes, I think so.

Among five discourse indicators, the use of AQs was significantly different between the control and the experimental group. Among five secondary question types (UQs, SQs, HLQs, AfQs, and CQs), it was found that the students in the experimental group used far more UQs (about double) than that of in the control group as shown in Table 7. UQs were follow-up questions that required individuals/respondents to give more information. The more use of UQs might suggest more interactions among the students during the group discussions. For example, two students asked two UQs (in line 5 and 8) in order to know more about Student 2's ideas on the independence (in line 1) as shown in Example 3.

Table 7   Numbers of Questions per Minute

Question types	Control group	Experimental group
Uptake	0.11	0.25
Speculation	0.00	0.04
High-level thinking	0.07	0.07
Affective	0.00	0.02
Connection	0.00	0.02

Example 3 [Experimental Group 3]

> **Q: What is the most important thing your parents teach you?**
> 1.   Student 2: I think... Independence. I have to decide a lot of things by myself.
> 2.   My families are are busy... They don't have time... I was forced to be
> 3.   independent. Just like... like going to school or cram school. I made decisions
> 4.   by myself. Right, I decided on my college. Hahaha
> 5.   Student 1: That sounds great. You were free and disciplined.
> 6.   Student 2: I think choice... choosing colleges is the most important. I made
> 7.   my own decisions. Right!
> 8.   Student 3: Did your parents give you any suggestion? [UQ]
> 9.   Student 2: That is... you should be responsible for your selection.
> 10. Student 3: It seems like...
> 11. Student 1: Do they support your decision? [UQ]
> 12. Student 2: Most of the time... But when I was absolutely sure of something...
> 13. they will show respect for my decision.

Except for AQs, no significant difference was found in other discourse indicators (i.e., TQ, ET, EE, and CT) between the control and the experimental group. This result did not necessarily suggest that the QT discussion approach was less helpful for high-level comprehension because the data of the present study included only discussions of Unit 3. It was possible that the students have learned to ask more AQs, but have yet mastered unfamiliar styles of communication (Davies & Meissel, 2015). For example, Exploratory Talk (ET) consisted of the students' challenges toward others' claims and followed by rebuttals in a dialogue. Both groups of students rarely used challenges in response to others' statements. It was thus speculated that the students were not yet familiar with "challenges" or "disputes". Example 4 below was a typical interactive pattern when the students were confronted with "challenges" or "disputes". Student 3 did not agree with Student 4's statement in line 5–8. However, when Student 2 expressed different opinions in line 9–10, Student 3 did not further explain one's ideas. This dialogue ended and the students continued with another discussion question. This short example demonstrated how Taiwanese students typically reacted to "challenges" or "disputes". Although a few challenges appeared, most of them were about different interpretations of the text (Example 4) or disagreement (Example 5).

Example 4 [Experimental Group 6]

Q: What is the most important thing the author's father teach her? Why?

1. Student 2: ... her father taught her...
2. Student 4: but he (student 4's father) taught me too mostly by example!
3. Student 2: the creative writing program...
4. Student 3: the answer lies in the third phrase.
5. Student 2: I think he taught her to read poetry and then be bold, be original, and... let ourselves
6. make mistakes. [challenge]
7. Student 1: It should be the last part on page 66. "... he helped the prisoners and me to discover
8. that we had a lot of feelings and observations and memories and dreams and opinions we
9. wanted to share..." Writing requires these qualities. Writing requires interactions with
10. oneself... To be able to observe and write them down.

Example 5 [Experimental Group 1]

Q: What qualities should a writer have?

1. Student 4: Appreciate being alone... emotional...
2. Student 3: If it is me... But why appreciation for being alone is important
3. quality for writers? If a group discussion over a writing task can also be part of
4. writing, too. [challenge]
5. Student 4: Right...
6. Student 2: Why do you think writers should appreciate being alone?
7. Student 4: Hmm... I think so because of the image of writers. They will usually
8. stay alone in a café... and observe others... and observe the environment, and
9. write their own stuff.

Furthermore, it was interesting to observe again Student 4's responses as shown in Example 5 above. Student 4 first proposed one's personal opinions toward the discussion question in line 1 and was refuted by Student 3 using one example in line 2–4. Although Student 4 can voluntarily further argued for one's personal opinions, one did not do so. Instead, Student 4 explained one's viewpoint only after when Student 2 asked a follow-up question. In this example, it seemed that a socio–cultural issue, facework (first proposed by Goffman, 1959), may cause student 4's reluctance to respond to the challenge. The construct of facework included maintaining one's and others' face during interactions. Taiwanese students were likely to avoid challenging others' ideas or opinions in order to save others' face and to remain silent when confronted with challenges in order to save theirs.

Because the challenges were not preferable styles of interaction for Taiwanese students, a typical interaction was that they tend to paraphrase others' idea in order to reach most possible agreement among members in the group. This was supported by more Cumulative Talk (CT) from both groups. In Example 6, Student 1 first pointed out that the author should be very observant and must have observed everything in her everyday lives, since her father was a writer in line 1–4. Student 2 and 3 paraphrased and extracted specific examples from the text to support Student 1's claim in line 5–6 and 7–9, respectively. Then, Student

3 made a conclusion based on the interactions. This was the typical interactive pattern, CT, in Taiwanese students' text-based group discussions. The different use of ET/CT discourse indicators found in the present study seemed to be the typical interactive style in Taiwanese students because such differences were not found in Davies and Meissel (2015) or Li et al. (2016).

> Example 6 [Experimental Group 5]
>
> **Q: How does the author's father influence the author?**
> 1. Student 1: Her father's job was a writer... so so she was also very observant.
> 2. She observed and learned from her father... when she was young. Also, her
> 3. father also taught her to live... experience everything in life. Write whatever
> 4. she wanted to.
> 5. Student 2: I think the influence was... was from the everyday life and... what
> 6. he had done. The author watched... lived... and learned from her father.
> 7. Student 3: This is more observational. The author observed whatever her
> 8. father did in everyday life. Her father got up early in the morning and did daily
> 9. routines. Was her father a writer?
> 10. Student 2: Yes. He taught writing in jail.
> 11. Student 3: Through the author's observation on her father's everyday behavior,
> 12. she had some thoughts on... and made some reflections... This is how the
> 13. author was influenced by her father.

Conclusion

There were two major findings based on the results of the present study. First, QT group discussion approach was an effective text-based discussion approach to facilitate students' literal comprehension compared with monologic lecturing style. After the students received discussion instructions, were given responsibility of text comprehension, and were given power over discussion, they showed a good understanding of the text (i.e., be able to **recall** and **integrate** text information). Therefore, it is suggested that teachers provide more chances for students to create dialogic interactions in class. Secondly, the students demonstrated high-level comprehension by using more authentic questions in the group discussions. Furthermore, it was also found that Taiwanese students consistently used more CT over ET possibly because the students felt that it was culturally inappropriate to challenge each other.

An inherent limitation was due to authentic classroom settings. In QT teaching approach, teachers participate in students' group discussion and play a role as facilitator. The researchers made a modification that the teacher took turns to participate in group discussions because of practical concerns without compromise with QT teaching principles. In QT teaching, teachers' participation in the group discussion should be gradually decreased and students have the ownership of text interpretation. Therefore, this partially explains why the researchers only use Unit 3 for data analysis.

The other limitation was relatively few test items. The researchers made such decision because of two concerns: time and aim of the test. First, two weeks to complete a QT discussion teaching procedure has been seriously discussed and decided to be the best plan in college contexts. Including more test items meant taking more time on comprehension tests, which may cause a delay of schedule. Second, the goal of the test was to ensure whether the students understood the main idea of the text instead of details.

Although this study provides a preliminary result on the effects of dialogic style on Taiwanese students' literal and high-level comprehension, it is interesting to explore whether students will acquire different styles of communication (e.g., EE or ET) when they have more time to practice QT. Moreover, since QT is a new discussion approach, it will be interesting to further explore how other factors possibly influence its effect, such as the language used during discussions, the number of participants in a group, teacher's engagement in the discussion, or types of text.

Acknowledgement

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Appendix 1

Examples for Six Question Types and Three Response Types

	Discourse element	Example
1	Authentic Question (AQ)	*Q: "What did you think was worse: the Titanic or the Edmund Fitzgerald?* *R: "I thought the Edmund Fitzgerald was worse because they went sailing when they were not supposed to. It was only a couple of years ago, so it should have been more advanced and prepared."*
1-1	Uptake Question (UQ)	*Q1: "What if Paul Revere failed his mission?"* *R1: "That would be really bad. Maybe… the British would take over..."* *Q2: "Would he be as popular?" (Uptake)* *R2: "No. I think we would be overruled by the British today though. It would not be too bad, like Britain today is not that bad. No one would like, tell us what to do. We just would not be as strong as a country."*
1-2	Speculation Question (SQ)	*Q: "What if the big horse did not get destroyed?"* *R1:"Then I think he would have been a lot happier."*
1-3	High-level thinking Question (HLQ) (Generalization and Analysis)	*Q: "How would you describe the Queen of the Sea?"* *R:"I think I would describe her as a nice, humble lady because her daughter was suffering, and she gave her what she needed to stay with her husband."*
1-4	Affective Question (AfQ)	*Q: "How would you feel if you were trying to solve the case in the story?"* *R:"I would feel a lot of pressure and stress because everybody would be looking at me, and usually, I do not do very well on stage because I have stage fright."*
1-5	Connection Question (CQ)	*Q: "What did you think of the talent show?"* *R: "It was good but kind of childish. I think our talent show had a lot more singing and stuff like that in it. We even had someone do baton."*
2	Test Question (TQ)	*Q: "What was their initial goal for inventing the machine?"* *R: "That they would get first place in the science fair."*
3	Responses	
3-1	Elaborated Explanations (EE)	*R: "I would probably feel pretty fortunate [claim] because my family was given the opportunity to go out west and start this new life [reason]. I would not think of the chores as boring. I would think of them as fun because of the space I had to do them in [reason]."*
3-2	Exploratory Talk (ET)	*Q: "Does Seeker of Knowledge remind you of Navajo Code Talkers?* *R1: "This story does remind me of Navajo Code Talkers because they are both codes. I mean, this one is on paper and it was hard for them to figure it out and the Navajo code talkers had to figure it out and stuff."* *R2: "I disagree, because in Navajo Code Talkers it's all about 29 men trying to figure out one code, and in this story, it is one man trying to make his dream come true about discovery. And in Code Talkers it's about 29 men trying to figure a code out so other people would not know what they are saying, and this is about one man trying to break the code, so people would know who he was.* *R1: "But it says in the story that there were many other people… like, scholars and Napoleon were also trying to figure it out."*
3-3	Cumulative Talk (CT)	*Q: "Why did Tony buy back his grandma's bracelet."* *R1: "Because he knew that his grandma was feeling really sick and that she missed her bracelet. He wanted to get it back for her so that she would not be as sad about being sick."* *R2: "Because she had had the bracelet for a long time."* *R3: "She had a lot of good memories of it, so it would help her not be so sad"*

Source: Murphy et al. (2017, pp. 2-4).

Appendix 2

Ten Questions for Group Discussion

1. How does the author's father influence the author? (HLQ)
2. What do you think of the author's personality? (HLQ)
3. What is the most important thing the author's father teach her? Why? (HLQ)
4. What benefits can writing bring to a person? (CQ)
5. What qualities should a writer have? (HLQ)
6. What qualities should a story teller have? (HLQ)
7. What qualities should parents have? (HLQ)
8. To what extent, do you think parents influence their children? (HLQ)
9. What is the most important thing your parents teach you? (CQ)
10. Have you thought about having the same job as your parents? Why? (CQ)

Appendix 3

Reading Comprehension for Unit 3

Unit 3 Bird by Bird   姓名＿＿＿＿＿＿＿＿＿ 學號＿＿＿＿＿＿＿＿

Choose the best answer for each question.

( ) 1. Which of the following statements is **CORRECT**?
   A. The author's father enjoy teaching at the Prison.
   B. The author and her father share common interests.
   C. The author never figure out how to make her story telling interesting.
   D. The author thought writing down ideas is not difficult.

( ) 2. What is **NOT** true about the author's father?
   A. He has a nice office job.
   B. He wakes up early every morning.
   C. He enjoys writing a lot.
   D. He cares a lot about his family.

( ) 3. What did the author's father **NOT** teach her about how to be a good writer?
   A. To pay attention to our surroundings.
   B. To start the habit of writing as early as possible.
   C. To read books or plays that are consider great work.
   D. To be bold and original.

( ) 4. Which one of the following is **NOT** the gift of being a writer as mentioned in the article?
   A. To have the excuse to do things.
   B. To go places and have chance to explore.
   C. To pay close attention to the things happen around you.
   D. To be funny and love to read.

( ) 5. What is **TRUE** about the author?
   A. She hoped that her father could work at home.
   B. She dislike writing because of fly in the ointment.
   C. She was inspired to become a writer because of her father.
   D. She decided to become a writer when she was young.

Answer the following questions with thesis statement and supports

1. After reading the story, why does the author choose to have the same job as her father?

_____
_____
_____
_____

2. You have read how the author's father influence the author to become a writer. Have your parents influenced you similarly or differently?

_____
_____
_____
_____

3. Do you think parents are children's best teachers in life? Why or why not?

_____
_____
_____
_____

Appendix 4

Example 1 in Chinese

[Control Group 2]

問題：你認為作者的父親如何影響作者？

1. Student 1：藉由親身實行，就是……親自……就是（就是）自己做然後……示範給作者看。
2. Student 2：耳濡目染。
3. Student 3：以身做則。
4. Student 1：對耳濡目染。

[Experimental Group 1]

5. Student 1：應該就是從日常生活中……就是他看到他父親都沒有去…就是出去
6. 上班。因為他每天都會看到他父親……幫他們做早餐什麼之類的…所以就逐漸
7. 影響到作者，這樣嗎？
8. Student 2：影響了他什麼啊？
9. Student 1：就是……我也不知道……
10. All students：哈哈呵呵！
11. Student 3：我覺得就是在……他就是在這種，就是他小時候的重要他人。帶給他
12. 的影響是非常巨大的，他不一定是從事作家這個行業，他可能每天看父親
13. 寫作，然後就是自己也會想要嘗試看看那種東西。
14. Student 4：所以就是你覺得他是這樣子的過程來引發他（inaudible）對自己寫作
15. 的那種興趣？
16. Student 3：對拉就是！不管有……你是不是真……就是……一定對它非常有熱忱。
17. 你看到父母都在從事那個行業，也不一定父母，反正就是你父親或母親其中
18. 一個，然後你每天看到他這樣……這樣做他的這樣的工作。你可能也會就模仿
19. ……這是一種模仿的行為。
20. Student 4：所以就有點像醫生世家阿那種。
21. Student 3：欸對！
22. Student 1：那你覺得就是他爸爸對他有……就是……也可以當作家的期望嗎？
23. 就是他爸爸有……就是刻意的要影響作者去……？
24. Student 4：我覺得沒有刻意耶。
25. Student 2：我覺得還好欸……有點順其自然的發展的感覺。
26. Student 3：是他爸爸也有……可是……把他跟那些就是……就是……在監獄裡面那些
27. 犯人，就是抓來跟他們一起教寫作文。我覺得還是有一點期望。
28. Student 2：感覺是帶著他去……就他的態度好像也不算到期望的感覺。

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研究論文

深度討論和高層次思考：
台灣大學生之研究

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摘要

閱讀能力對於取得專業知識或是對於終身學習，是很重要的一項能力。多數的閱讀相關研究著重於讀者如何增進閱讀理解，較少研究著重於如何透過閱讀增進批判性思考能力。應用深度討論教學法（Quality Talk）之研究發現，此種教學法可以有效地促進閱讀理解和高層次思考能力。但是 Quality Talk 的相關研究中，學生皆以英文為母語，因此本研究探討 Quality Talk 對於非以英文為母語的學生之閱讀理解和批判性思考能力的影響。本研究將兩班的學生分成實驗組和控制組。控制組的學生接受一般的英文閱讀課程，實驗組的學生接受深度討論教學法的訓練課程。透過紙筆測驗和言談分析，評量兩班學生的閱讀理解和高層次思考能力。結果顯示實驗組學生獲得較好的閱讀理解，也展現高層次思考的能力。

關鍵詞：文本討論，言談分析，小組討論，閱讀理解，批判性思考

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