Investigating the use of talk in middle and secondary classrooms

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Abstract

This thesis describes two projects which investigated effects of systematic interventions upon students’ patterns of productive engagement and discussion in group learning contexts. In the first study, the Paideia method was applied with middle school students. In the second study, the framework of Quality Talk and the principles of dialogic teaching were employed with senior school students to encourage their interactions and their questioning skills. In each study, intervention classes were able to be compared with non-intervention classes, and students in both studies also participated through online discussion. Classroom interactions were recorded and coded.

In Study 1, it was found that the use of the Paideia method occasioned increased volume and complexity of student responding especially on measures of student-to-student interaction. The complexity of these interactions increased significantly for students in the mid-level and high socioeconomic intervention classes but less so for the students in low socioeconomic classes. Differences between intervention and non-intervention students for classes in the mid-level to high socioeconomic classes achieved statistical significance but not for the low socioeconomic classes.

Study 2 investigated the framework Quality Talk and principles of dialogic teaching in assisting students to use question-asking strategies, such as authentic questions, uptake questions, high-level questions, intertextual questions and affective response questions and within a classroom environment that encouraged trust and respect. Results showed students increased their use of authentic questions, uptake questions and high-level questions. In turn, the use of these questions appeared to stimulate more complex dialogue, more reasoning words, dialogic spells (a stretch of discourse starting with a student question and followed subsequently, thought not necessarily immediately, by at least two more student questions) and elaborated explanations (a statement or claim that is based on at least 2 reasons). Further, there was a significant change in writing with students in the intervention classes demonstrating increased writing with a critical analytical stance compared with the writing of students in the non-intervention class.
The data from Study 2 showed the effect of a recurring pattern of teaching practice. Analyses revealed that productive student interactions became relatively disrupted through teachers joining into group discussions and immediately asking procedural or managerial questions. When teachers listened to student-to-student interchanges for several minutes before speaking, however, such disruption effects were not evident. It was also found many teachers inconsistently applied dialogic teaching methods but, using different types of feedback to students, appeared to have a positive influence on students’ ability to talk and write with a critical analytical stance.

When student discussions were held in groups online rather than in face-to-face groups their use of uptake and high-level questions increased, as did their dialogic spells.

Results indicate that interventions to increase dialogic discussion can be effective with secondary students, can transfer from spoken to written work, and can be generated in an online environment. The study’s findings also have implications for professional development for teachers in the use of classroom discussions.
Declaration

This is to certify that:

The thesis comprises only my original work towards the PhD except where indicated in the Preface.

I have made due acknowledgement of the contribution of Anne Sinclair in Chapters 3 and 4 as these chapters were based on publications.

The thesis is fewer than 100,000 words in lengths, exclusive of tables, maps, bibliographies and appendices.
Acknowledgements

I have worked extremely closely with my friends and colleagues Anne Sinclair and Frank Walton and to them I will always be indebted. We argued, we agreed, we disagreed and we questioned each other constantly. It was having these two close professional relationships that consolidated my thinking around the importance of quality dialogue. I am immensely proud of the work that I produced with both Anne and Frank and believe that it was our conversations that were the key to our success.

In 1964, Elwyn Richardson famously said that learning is emotional. Writing a PhD uncovers every emotion there is—fear, lack of confidence, elation. I have gone like many before me through the process of knowing little about the topic, thinking I know just about everything there is to know about the topic and then ending with feeling that I have contributed something back to the field. Having friends through the good times and bad and feeling supported is fundamental to success. I wish to thank my two BFFs—Sue Spooner and Christine Robson and my lovely and supportive friend Paul Heyward. Thank you to Ben Spooner for the salads!

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What drives my desire to complete meaningful research and to lecture to a high standard is always the teachers’ and students’ in the schools so lastly, my utmost gratitude to the teachers and students of the schools who participated in this study. Unfortunately I cannot name any of you for ethical reasons.
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Chapter 1
Positioning Myself as a Researcher

The principal research question of why talk is important for learning emerges from my own experience as a teacher (eight years in three different schools) and later as a lecturer and supervisor of pre-service teachers. I have taught in early childhood and primary pre-service programmes, and I currently teach cognitive development theories to secondary pre-service teachers and to students enrolled in liberal arts programmes.

During my teaching time in schools I studied for a Diploma in Mathematics Education and as part of the assessment requirements I was required to inquire into my own practice. I researched providing early adolescent students with the opportunity to talk to each other when solving reasonably difficult mathematics problems. My small inquiry revealed that motivation and engagement levels remained high and the students’ talk appeared to be at a high level, and what surprised me the most was that the students’ talk remained on task despite my not being part of the conversation. I became interested in talk and its capacity to provide benefits to students’ learning. Influential to my thinking was the work of Jacqueline Eccles, who contended that early adolescents benefit from learning in an environment where pedagogy allows for students talking to each other as peer group influences become increasingly important. The alignment of pedagogy with the developmental changes for early adolescents is named “stage–environment fit” (Eccles, 2004; Eccles et al., 1993; Eccles & Roeser, 2009). I remain interested in pedagogy that aligns with adolescent development, particularly as many adolescents enjoy and benefit from talking to each other about what they are learning.

When I was invited to join the Auckland College of Education 13 years ago, this was based on recognition of high quality teaching. To join the lecturing staff today entails quite a different pathway. Currently, to gain a similar position, it is a prerequisite to hold a PhD and to have published about five publications. “Ako” is a Maori term which describes the blurring line between teacher and learner—“ako” is therefore, an appropriate term to describe those of us in this position. We have been students,
needing to gain higher qualifications, while holding the positions of lecturers, but I believe this has been mutually beneficial. Having to learn yourself puts you in an ideal position to teach how to learn.

The introduction of online learning came in my early years of lecturing, and my colleague Anne Sinclair and I became interested in researching “talk”. Our small-scale research was qualitative and exploratory, and indicated to us that a key feature of talking online was the documentation of the learning: the learner and the lecturer could “see” the learning. The learner and the lecturer could revisit the material and participants found this suggested to them that they engaged in the dialogue in a more intellectually rigorous manner than they would if the discussion took place face to face (Sinclair & Davies, 2005).

**Paideia Method Pilot Study**

A chance conversation with a principal of an Intermediate School ignited a pilot study that led to the two studies that comprise in this thesis. While on a school trip to Japan with his students from New Zealand, the principal asked one of these students how his year had been and, to his surprise, the student replied that he had not had an enjoyable year because his teacher talked too much. The principal asked me and my colleague Anne Sinclair how to reduce the amount of talking by his teachers and, after consultation, we decided to trial an intervention that not only reduced the amount of teacher talk but increased the quality of the students’ talk. In 2008, we trialled the Paideia method (Adler, 1982) in two classrooms (ages 11 to 13) in this principal’s school. In his book, *The Paideia Proposal: An Educational Manifesto*, Adler (1982) argued that although most children experience equal amounts of time spent in school, they are not receiving the same quality of education. He proposed Paideia as a model to rectify this inequality. Adler drew on Dewey’s (1933) theories of active learning, a commitment to a democratic education and equity, and a belief that rigorous and high standards must be applied to intellectual endeavours. Within the Paideia method, students are encouraged to discuss a topic while sitting in a circle facing each other, with the desks pushed back. This discussion is called a Paideia seminar. The students prepare for this discussion after a question had been following a question negotiated
by the teacher with the class. For our pilot study, the question was “Freedom is a state of mind”. The study found that the complexity of the discussion increased when teacher talk was reduced and the interactions included mostly student-to-student responses—that is, student-to-student responding with a question, challenge, or expansion of ideas. Ensuring these conditions and outcomes occur required a provocative question developed by teachers and students, high-quality preparation by the students on the content knowledge of the question, and post-seminar feedback discussion.

With the two teachers from the pilot study, we presented the results to the staff at the school and to interested members of staff at the University of Auckland’s Faculty of Education. The paper was published in the Australian Curriculum Studies Association’s journal *Curriculum Perspectives* (Sinclair & Davies, 2011).

**Study 1**

Interest in the results of our small pilot study was high, so we decided to increase the study to a larger scale. I became principal investigator, enrolled in my PhD, gained ethics approval, and successfully sought funds from the North Shore Trust Fund ($9000) and the University of Auckland Teaching Learning Development Fund ($5000). This much larger study of the Paideia method involved six Auckland intermediate schools. In New Zealand, an intermediate school is the equivalent of the first two years of a middle school, with students aged between 11 and 13 years. For the purposes of this thesis the term middle school will be used as this is more familiar to an international audience. Of the six schools, two were low socioeconomic status (SES), two mid-level, and two high. The study was conducted in 12 experimental classes and 12 control classes, involving a total of 720 students, with the classes engaging in online discussions and face-to-face discussions. This study comprises Chapters 3 and 4 of this thesis.
Study 2

Several changes occurred after Study 1. My colleague and co-researcher retired from her position at the Faculty of Education and my teaching of pre-service teachers had changed to all secondary, and so my focus shifted from middle school education to senior secondary (15–16 years). I sought to further explore the use of the dialogical discussions, in both face-to-face and online discussions, in senior secondary schools; in particular, the online discussions in Study 1 had shown promise for the online environment to be conducive to dialogical discussions. A further aspect was that although the interactions in Study 1 in both the online and face-to-face discussions had shifted from recitation, characterised by IRE (initiation–response–evaluation) patterns and teacher test (one answer) questions, to discussion characterised by open-ended conversational interactions, I felt the exchanges could have been deepened further by the use of questions. In Study 1, the students had struggled to ask Socratic questions of each other, and so different types of questions to promote more complex discussions were sought as an intervention to trial in Study 2. The interventions of a pragmatic framework Quality Talk (Wilkinson, Soter, & Murphy, 2010) was therefore trialled as the key features of the Quality Talk approach are authentic questions; uptake questions and high-level questions, which include generalisation, speculative and analytical questions (Applebee, Langer, Nystrand, & Gamoran, 2003); reasoning words; and elaborated explanations (Chinn et al., 2001) alongside the principles of dialogic teaching (Alexander, 2008a): collective; reciprocal; supportive; cumulative; and purposeful. This second study comprises Chapters 5, 6 and 7 of this thesis.

Outline of Thesis

Following this introductory chapter, Chapter 2 presents a literature review of the historical background to dialogical discussions. Chapters 3 and 4 discuss Study 1. Chapter 3 explains the results when the students were engaged in face-to-face dialogue, while Chapter 4 explains the results when the students were engaged in discussions in online exchanges. The data in these two chapters have been published as articles in the journals Technology, Pedagogy and Education and Research Papers in Education (Davies & Sinclair, 2013, 2014). Chapters 5, 6, and 7 discuss Study 2. Chapter 5 explains the results of the interventions using the Quality Talk programme.
and dialogic talk on students’ abilities to talk face to face and to write in a more complex way, namely in a “critical analytical” way. This chapter, in a slightly different format, has been accepted for publication by the *British Educational Research Journal*. Chapter 6 explores shifts in teachers’ behaviour and in the nature of their exchanges, while Chapter 7 examines the nature of the students’ dialogue, using the interventions of quality talk and dialogic talk, when they are discussing online. Chapter 8 summarises the major themes from the studies, presents conclusions, and explores directions for new research.
Chapter 2
Historical Background to Dialogical Discussions

Socrates is considered the “father” of dialogical education. The new technology of the alphabet was spreading through Greece and Socrates worried about the input of the written word (Wegerif, 2013). Socrates practised philosophy as the pursuit of truth through dialogues in which all claims are tested and his own ignorance is discovered along with the ignorance of his interlocutors. Socrates was aware of his own ignorance whereas many others believed in their claims to knowledge (Wegerif, 2013). This type of dialogic teaching was demonstrated in the Socratic method described by Plato (Plato, trans. 1962). Plato (circa 425 BC–347 BC) described a celebrated dialogue between Socrates and a boy named Meno, where Socrates (circa 470 BC–399 BC) led the youth through a series of questions about virtue. This celebrated conversation illustrated the beginnings of dialogic discussions. At first, the boy claimed to know the true essence of virtue. Through questioning, however, Socrates challenged Meno to realise that neither the boy learner nor the man teacher truly knew what virtue was. The boy then asserted that since neither the student nor the teacher knew the true meaning of virtue, there would be no point in discussing virtue. Socrates then continued the dialogue to convince the boy that the inquiry alone is a worthy exercise for mind and soul (Plato, trans. 1962). This is an example of the Socratic method. Nearly everything Plato wrote took the form of a Socratic dialogue. His writing was not in the form of drama but took the form of philosophical discussions—“debates” would, in some cases, also be an appropriate word—among a small number of interlocutors, many of whom could be identified as real historical figures.

A Socratic dialogue is one in which one individual poses an initial or primary question (usually philosophical and abstract, e.g., What is knowledge?) to another individual, who responds to the question usually with a statement based on what they think. In most of the Platonic dialogues, Socrates served as the questioner and some less knowledgeable individual served as the responder. After this initial exchange, the questioner asked a series of follow-up or secondary questions to test the truth.
value of the responder’s initial statement. In essence, the *Socratic method* is a form of intricate refutation or cross-examination (Robinson, 1953). The underlying belief is that, as with a court, only under rigorous questioning will the truth become evident. Socrates is also famous for the eponymous paradox, which states that only when we understand that we are ignorant can we truly have any hope of understanding the topic (Bostock, 1988).

Socrates’ ideas have come under some criticism. Rigorous interrogation assumes that the refutation of the responder is incorrect, but fails to explain to them why their reasoning is flawed (Robinson, 1953). There may be risk that the responder might lose confidence and miss the point of the exercise. Hence for the method to work well, it is essential to have a competent teacher or questioner. Mastusov (2009) also criticised Socrates’ assertions and, after analysing Socrates as reported by Plato, concluded that he did not find any evidence of Socrates’ students seeking something new from participating in the dialogues. Rather Socrates tried to bring other participants to something he already knew (Matusov, 2009).

In later dialogues, Plato altered his method so that the exchanges were friendlier and the discussion elicited greater participation. There was less of a sense that the questioner or initiator was the judge, and the responder was on the stand. Platonist questioners more readily acknowledged their attempts to refute the initial claim and the responders’ attempted to defend their claims (Gadamer, 1980).

Aristotle (384 BC–322 BC), by contrast, saw value in persuasion. He considered persuasion to be a particularly effective means of instruction when someone failed to be convinced by scientific arguments. Essentially, he felt there were two types of proofs: artistic proofs (i.e., evidence or arguments created by the author) and non-artistic proofs (e.g., laws, witnesses, or contracts). Whereas non-artistic proofs are present at the outset of any oratory, artistic proofs must appeal to the knowledge and beliefs of the audience through persuasive use of rhetoric (Cooper, 1932).

Those who believed that knowledge is not automatic but that reasoning from sense, experience or observation provided the mechanism for obtaining substantive knowledge and truths about the world in turn influenced the development of
dialogical discussions. This methodology/ideology became known as empiricism and one of the most well-known empiricists was John Locke (1632–1704). He asserted that deductions or inferences must be based on sensory experience (Lowe & Gottlieb, 2013). In essence, the mind is a blank slate on which sensory experiences are imprinted for future reflection (Lowe & Gottlieb, 2013). Therefore, in a text-based discussion, the discussion itself would serve as a sensory experience that can be imprinted. Locke suggested that there were two routes to knowing: (1) contemplation (i.e., keeping the perception active); and (2) memory (i.e., storing perception for later retrieval). Locke in 1690 claimed that remembering or revising memories required active processing of these memories. He also argued that the building of complex or compound ideas involves skills such as discerning and clarifying. Without the refreshing of both simple and complex ideas, these understandings would decay and be forgotten. Discussions allowed students to both revisit the perceptions they held during reading and to add perceptions from the other members of the group (Lowe & Gottlieb, 2013).

The 19th century saw a renaissance in theories about the role of discussion in teaching. Dialogical discussions were deemed “superior” to traditional discussions because they exposed students to the varying perspectives of members of the group. Perhaps thinking around the role of discussions during the 19th century was influenced by Karl Marx (1818–83), who claimed that what matters most is not society or the individual, but the relations between individuals. Another vocal advocate at this time was Cooley (1864–1929) who devoted his life to arguing the dangers of being insular, both individually and as a society at large. Both Cooley and Marx believed in the inseparability of the individual and of society.

The philosopher Buber (1878–1965) was instrumental in the emergence of “monologic” and “dialogic” being ubiquitous terms in current literature in dialogic education. Buber had a huge influence on the work of Rupert Wegerif and his ideas on “dialogic space” (Wegerif, 2013). Buber argued that the external “objective” view that locates things in their proper place was “monologic” because it assumed a single true perspective within which everything could be situated or located (Merleau-Ponty, 2005). He argued that dialogic meaning must assume at least two perspectives at
once. The moment there are at least two perspectives, the gap between them opens up the possibility of an infinite number of potential new perspectives and new insights (Merleau-Ponty, 2005).

Perhaps the biggest influence on researchers and writers in the field of dialogical education is that of the Russian literary theorist Bakhtin (1895–1975), who contended that it was through struggling with another’s discourse that individuals came to ideological consciousness. Bakhtin was heavily influenced by Socrates. He was dismayed by the narrow frames of reference within which most people limit their thinking and proposed the use of broader methods and references, which he called “great time”. He argued that thinking and discussing this way unites all cultures (Bakhtin, 1986). Moreover, Wegerif (2010) argued that if students were taught thinking through the dialogic model advocated by Bakhtin, then those with narrow views will start thinking more universally. Thinking universally would take students closer to the potential of Bakhtinian “great time,” a space where an individual is able to make sense of themselves in relation to others (Wegerif, 2010). Bakhtin’s work had a major influence on three of the most important researchers in the field of dialogic education: Wegerif (2008, 2010, 2013; Wegerif & Dawes, 2004; Wegerif, Mercer, & Dawes, 1999); Alexander (2000, 2004, 2005, 2006, 2008); and Nystrand (2006; Nystrand & Gamoran, 1991; Nystrand, Gamoran, Kachur, & Prendergast, 1997; Nystrand, Wu, Gamoran, Zeiser, & Long, 2003).

At the intersection of anthropology and education was the work of the Brazilian educator and social activist, Freire (1921–97). Dialogue for Freire was also not simply the description of an interactive exchange between people, but a normative definition of how human relationships should be formed—namely, on the basis of equality, respect and a commitment to the authentic interests of participants. Freire’s theory was developed from his experiences as an adult educator in rural Brazil in the 1960s where the people were not only illiterate in the language of the ruling class, but also were oppressed economically and culturally. Education, based on the traditional curriculum and methods employed in Brazil, further oppressed the local people because it inducted them into the language and knowledge of the ruling class and alienated them from their own cultural practices and traditional knowledge (Freire,
1970). Freire argued for dialogic education in the context of what he called “pedagogy of the oppressed”. Conventional education followed what he called a “banking model” in which knowledge is treated as something to be deposited in the heads of students (Freire, 1970). Matusov (2009) who had criticised Socrates, was also critical of Freire as he argued that Freire’s commitment to dialogue as a means to bring social justice overwhelmed his concern with dialogue as a shared inquiry into truth. Nonetheless, despite this criticism, in current literature on dialogical education, authors for example, Boyd and Markarian, 2011, refer to Freire and British researcher Robin Alexander when explaining dialogic teaching.

Another critic of Freire was the English philosopher Oakeshott (1962). Though similar in time in history, his dialogic theory of education did not share Freire’s socialist political assumptions. The goal of education for Oakeshott is the person who is able to participate in the conversation of humanity and to take it forward. In other words, the aim of education is not only an educated person but also a better quality of conversation. The role of teachers was to empower and liberate students so they could acquire their own voice and be able to speak in order to help shape the shared human world of meaning in the future. For Oakeshott, education can only liberate students and help create a better future through first engaging them within their inherited traditions of thought so they can be inhabited and developed from within. He saw dialogue and dialogic education as ends in themselves and not simply as a means to the end of more knowledge or more productivity or more social justice (Oakeshott, 1962). Oakeshott was also another major influence on Rupert Wegerif. Both Wegerif and Oakeshott argued that dialogue should be an end in itself. This is a recurring theme through literature on dialogic education—the argument of whether dialogic education is a means to an end (Freire, 1970) or an end in itself (Oakeshott, 1962; Wegerif, 2013).

Though the Russian, Bakhtin, influenced the work of Nystrand, American researchers in dialogical education have also been highly influenced by the work of Dewey (1859–1952), an American philosopher, psychologist and educational reformer who recognised the liberating power of discussion. The Philosophy for Children and the Paideia method programmes were heavily influenced by Dewey. He believed that
discussion is “bringing various beliefs together; shaking one against another and tearing down their rigidity. It is conversation of thoughts; it is dialogue—the mother of dialectic in more than the etymological sense” (Dewey, 1916, pp. 194–5). Discussion, Dewey argued, embodied the very process whereby ideas are brought together and rigorously contested (Dewey, 1916). Dewey noted that it is the testing of ideas which encourages doubt and inquiry on the part of the discussants, and that this doubt contributes to understanding (Dewey, 1916). The discussant, as a consequence of participating in this meaning-making experience, internalises the process, and later is able to have such discussions within their own thoughts (Dewey, 1916).

Despite numerous theoretical claims about the educational potential of students participating in dialogue, some studies suggest that these claims did not bring about substantial changes in classroom practices. Barnes and Todd’s (1978) secondary study in dialogue showed that pupils were more likely to engage in open-ended discussion and argument when they were talking with their peers outside the visible control of their teacher, and this kind of talk enabled them to take a more active and independent ownership of knowledge. Their findings also demonstrated that students often lacked a clear understanding of how they are meant to “discuss” and “collaborate”. Barnes and Todd (1978) work was highly regarded: following Barnes’ suggestion of treating talk as a site for exploration rather than simply for evaluation, a number of studies investigated the possibilities of making classroom interaction more dialogic (Nystrand et al., 1997; Wells, 1999).

Other seminal studies in the 1970s were conducted by the British linguists Sinclair and Coulthard (1975), whose research in secondary schools in Birmingham showed a constant pattern to the type of exchanges between the teacher and students, namely an initiation–response–feedback (IRF) sequence. The teacher initiated a topic by asking a question, the student responded and then the teacher gave feedback regarding the students’ responses. Sinclair and Coulthard (1975) were not motivated by a wish to improve classroom education; they were using classroom talk as data for exploring the textual structure of interactive spoken language. They were interested in constructing a hierarchial system for describing the structure of classroom talk.
Similarly, the American sociologist Mehan (1979) showed that the predominant type of exchanges in classrooms was a teacher initiation, a student response and then a teacher evaluation of the response. This became known as IRE (initiation–response–evaluation). Mehan’s (1979) research was focused on the social order of the classroom, including its power relations, and demonstrated how talk functioned to sustain that order. Though this was an acceptable exchange, some authors argued that this type of exchange disadvantaged children from cultures in which this form of interaction is constructed because of the perceived power and lack of agency of some children (Lemke, 1990). Wood (1992) endorsed this concern, arguing that IRE exchanges offer few or no opportunities for students to voice their own ideas or comment on those of others. Further research raised concerns about the continual use of IRF/IRE discussions, as there is the danger of student passivity with IRF (Barnes, 2008). Closed initiatives do not always facilitate a range of contributions from students (Littleton & Howe, 2010). More importantly, there was the concern that recitation requires students to report someone else’s thinking rather than think for themselves, and to be evaluated on their compliance for doing so (Hardman, 2008).

In the mid-1970s through to the 1980s, Wells conducted a large research study in Bristol with young children. His analysis of naturally occurring talk between children and parents as well as teachers and co-pupils endorsed the power of talk in externalising, shaping and extending thought (Wells, 1989). Well’s early work focused on home and early school contexts, and he suggested that optimum conditions for the development of language for children involved the children being taken seriously as conversational partners, especially by an adult (Wells, 1989). He drew sharp contrasts between both the quantity and quality of talk once young children entered a classroom to that of the one-to-one interactions with parents (Wells, 1989). Other British studies in the 1980s showed that in primary schools there was little probing, questioning, opportunities for exploratory thinking, or guiding of individual children. When the teachers undertook these activities, it was with the whole class and not with groups (Galton, Simon, & Croll, 1980). In 1987, the British researchers Edwards and Mercer found evidence of students developing shared meaning in discussions but it was under the tight control of the teacher (Edwards & Mercer, 1987).
Wells shifted from Bristol to Toronto in Canada and continued his work on dialogue. Between 1991 and 2004, his studies, with members of the Developing Inquiring Communities in Education Project (DICEP), showed that an inquiry orientation to curriculum made dialogue more likely to occur. The single most important action that a teacher could take to shift the interaction from monologic to dialogic was to ask questions to which there were multiple answers (i.e., open-ended questions), and then to encourage the students who wished to answer to respond to, and build upon each others’ contributions (Wells, 1999; Wells & Arauz, 2006; Wells, 2009).

Other seminal work in the 1990s was that of the Open University academics Dawes, Mercer, and Wegerif, who conducted the study “Thinking Together” (Dawes, Mercer, & Wegerif, 2004). This study originated from improving the quality of talk about computers. The initial “ground rules” included the expectation that students would reach agreement about the group’s decision before anyone clicked the mouse. The children were trained to expect any claims to be questioned or challenged with counter claims and that they would seek reasons in response to challenged (Dawes, Mercer, & Wegerif, 2004). Following these studies on thinking together, the group developed the “exploratory talk” construct (Wegerif et al., 1999). They developed this construct to support the development of children’s capacity to solve problems through discussion and cooperation. Their research showed that those groups who used the framework of exploratory talk shifted away from their initial fixed identity positions, where either individuals identified with a self-image and sought to win the argument (disputational talk) or they identified with a harmonious image and resisted any kind of questioning or criticism (cumulative talk). Interestingly, what emerged was that for the children it became less about either arguing to prove their point or agreeing to keep a peaceful dynamic in the group but recognising that the improved quality of their group relationship could result in more meaningful dialogue (Wegerif et al., 1999). A further study in the United Kingdom and Mexico with primary-aged children showed that the more dialogic relationships in groups’ thinking together was evidenced not through the use of logical connectors such as “because” and “therefore” but in the increasing prevalence of admissions of uncertainty, asking for advice, and individuals changing their minds in the face of evidence (Wegerif, Linares, Rojas-Drummond, Mercer, & Velez, 2005).
Despite these large research projects, further studies in the United States and the United Kingdom repeatedly documented that the dominant discourse in schools remained teacher-centred, monological, and traditional (R.J. Alexander, 2008b; Cazden, 2001; Nystrand et al., 1997; Onosko, 1990). Teachers still almost invariably held interpretive authority and controlled the talk (Murphy, Wilkinson, & Soter, 2011).

As explained, there are a number of different types of dialogism within the field of dialogic education. Dialogic teaching comes predominantly from the work of R. J. Alexander. Alexander (2001) compared talk in primary classrooms in five countries (England, France, India, Russia and the United States) and found similarities across all countries except Russia. In the other countries, teacher–student talk largely comprised rote repetition, recitation, exposition, and some discussion. He discovered that in Russian classrooms, the teacher engaged students in thinking and supported them in long sequences of authentic questions and answers. Alexander called this talk dialogue, influenced by the work of the Russian, Bakhtin, who had distinguished dialogue through the incorporation of questions. The goal of dialogue is more that of shared inquiry and shared thinking rather than just sharing information or feelings. In dialogue, rather than just a simple question and answer, the answer gives rise to another question (Bakhtin, 1986). In sum, dialogic teaching as proposed by Alexander (2008) includes questions that are framed to encourage reflection and complex answers, answers in turn are not end points but a stimulus for further questions, and the teacher’s role is to weave contributions into a coherent whole. The student’s role is to find meaning and to ask further questions.

Cuban (2001) looked at classroom talk over the past 150 years and showed that across this period, classroom talk in general was dominated by the teacher and not student talk, though there was evidence that some teachers shifted from an IRE sequence (teacher initiation, student response, teacher evaluation of that response) to an IRF sequence (teacher initiating, students responding, teacher providing follow up) and this was seen by some as preferable (Littleton & Howe, 2010). Nevertheless, IRF exchanges resulted in a dialogue of a rather limited kind, mainly because of a tendency on the part of the teachers to use closed initiatives (R. J. Alexander, 2008;
Galton, Hargreaves, Comber, Wall, & Pell, 1999; Mercer & Littleton, 2007). A closed initiative is typically a question that permits a single answer, such as “What is the capital of New Zealand?” Closed initiatives do not necessarily constrain contributions to a single student. The whole class could respond with a group response—group responses are a well-documented feature of contemporary classrooms (R. J. Alexander, 2001; Pontefract & Hardman, 2005).

Though the IRE or IRF pattern of discourse can be portrayed as counterproductive to student learning or comprehension (Almasi & Garas-York, 2009; Nystrand, 2006). Research in the use of IRF, however, is not all negative. Barnes (2008) acknowledged that IRF can enable a teacher to lead a class through a complex sequence of ideas. IRF discussions can result in developed discussions (R.J. Alexander, 2008; Cazden, 2001).

Perhaps one of the reasons there has been a mismatch between the espousing of dialogical discussions by researchers and theorists and the reality of the predominance of the monologic discussions in classrooms is because the reality of dialogue in a classroom is that at times a teacher will use monologic because it is appropriate to (Wells, 2007). In practice, classroom talk has different functions at different stages of learning topics as they are taught. Wells (2007) posited that in relation to inquiry learning, for example, it is necessary at the start of a lesson for the teacher to recap key concepts from previous lessons. The discussion would be relatively monologic and possibly a logical precursor for students to then go on generate questions for inquiry study. Wells (2007) argued that it is not that dialogue in the classroom should be either monologic or dialogic but the teacher’s overall dialogic stance that allows the class to move between these two different types of discussions. The purpose of dialogue should engage in knowledge building that enhances both collective and individual understanding (Gutierrez & Larson, 1995; Locke, 1690; Murphy et al., 2011).

Many teachers appear to struggle to make smooth transitions from monologic to dialogue, as Wells (2007) suggested. The difficulty arises because to initiate and sustain an episode of linguistic interaction, participants have to work at establishing
and subsequently maintaining agreement about the topic and purpose of their talk. That is, they continually have to aim for sufficient “intersubjectivity” to allow the conversation to proceed (Wells, 2007). Not only do the students have to identify what is being referred to, they also have to consider the position adopted by the speaker and how they themselves are positioned in relation to it. They then have to decide on the position they will take up in response—whether they will agree or, if not, how far they feel the need to amplify, qualify, or object to what they believe to have been meant by what was said (Wells, 2007). Moreover, dialogic talk is not based on a simple prescriptive model, as it involves many different people providing arguments based on validity and not power claims (R. J. Alexander, 2008). Reznitskaya et al. (2009) perhaps contentiously believed that teachers do not know how to use talk in classrooms to enhance learning and that this is why dialogic talk has not become common. However, it may be that teachers do know how to use talk to increase learning of students but that talk is not used because it is not valued highly.

There has also been conflicting evidence and recommendations over the years about the role of the teacher in promoting dialogic talk. The use of questions, for example, has been contentious. Dillon (1985) contended that it is not questions from the teacher but statements that generate complex discussions. Dillon argued that teacher questions can limit discussion because of their expectation for an answer from a student. He argued that questions tended to generate a discussion between teacher and student instead of discussion between students. Dillon’s research found that unless a teacher asked a question with genuine perplexity, then the question could inhibit discussion. His work showed that the greater the use of teacher statements and signals, the more extended the nature of student talk, and in turn the higher the level of interaction between students (Dillon, 1985). Subsequent work has found that the use of teacher questioning—specifically, authentic questions, uptake questions and high-level questions—can increase the number and length of episodes of dialogic spells (Nystrand et al., 2003).

In the past two decades, other reasons have been offered to explain the slow adoption of dialogic talk by secondary teachers. Burbules (1993) believed that the reasons for the “failure of dialogue” (p. 43) ranged from the discouragement of open
participation, to crowded classrooms, to test-driven instruction. Daniels (2001) argued that schools were far less reflective about what was said than what was written, and so did not place much importance on discussion skills and tools. The fixation of systems and schools on written assessments was explained in part by Wells (2007) who contended that as knowledge was a noun, the term “knowledge” is understood to be about what is already known and is therefore primarily an individual characteristic. Lefstein (2006) claimed that the lack of dialogue was because dialogic education is advocated too idealistically. He called for a more pragmatic approach.

In separate interviews key researchers in the field of dialogic discussions, Alexander, Mercer, Wegerif and Matusov noted that secondary teachers met specific dialogic projects with enthusiasm; however, there has been little research in secondary schools on dialogic discussions to date (Higham, Brindley, & Van De Pol, 2014). Research in dialogical education has taken place mostly in primary/elementary schools (R. J. Alexander, 2001; Mercer, Dawes, Wegerif, & Sams, 2004; Mercer & Littleton, 2007b). There have been some studies in secondary schools but these have been located almost entirely in junior secondary or middle school and in the curriculum area of Science (Coultas, 2006; Mercer & Littleton, 2007; Osborne & Chin, 2010; Scott, 2008; Scott, Ametller, Mortimer, 2010; Scott, Mortimer, & Aguiar, 2006). The research within secondary schools has thus been somewhat limited in scope and breadth; furthermore, no studies have yet focused on the distinct challenges and affordances of promoting dialogue in a secondary context, nor in exploring the notion that the nature of dialogues may be linked to subject epistemology (Higham et al., 2014, p. 88). One of the key reasons identified for the lack of opportunity for students in secondary school to engage in dialogic discussions has been the pressure on teachers to get students ready for high-stakes assessments (Higham et al., 2014). However, Lefstein (2006) argued that assessment in secondary schools should not be an excuse for the lack of dialogic talk. His research in East London schools found that during examination preparation, dialogic indicators “plummeted” in favour of “spoon feeding” but that this did not necessarily lead to an improvement in achievement in those exams.
Six leading researchers in the field of educational dialogue called for more research in the area of “dialogic education” in secondary schools as a means of increasing students’ motivation, enriching their learning and promoting more flexible thinking (Higham et al., 2014). The call for more research in the use of dialogic teaching in secondary schools has gained momentum in the past few years as understanding develops about the role of talk in learning. The majority of these arguments cite improvements to student critical thinking and retention (Higham et al., 2014).

Dialogue is important between students because interaction is important to critical thinking. Habermas (1971) claimed an important component of critical learning is the reflective process and recommended groups of people sharing informed judgements to generate critical ideas or theories about the validity of the issues under consideration.

It is within this research context that, through the two studies that comprise this thesis, I investigated dialogic education within different epistemological frameworks, outside of text comprehension, and with online discussions, with middle and senior secondary students.

The next two chapters present the first of these studies. Chapter 3 examines the impact on the nature of the interactions and the complexity of the interactions between both teacher–student and student–student interactions with the inclusion of Socratic questions within a Paideia seminar. Chapter 4 focuses on the results of the impact of the inclusion of Socratic questions within the Coached Project (the preparation for a Paideia seminar) and the impact of the nature of the interactions and the complexity of these interactions between student–student interactions in online discussions.

These two chapters have been published (Davies & Sinclair, 2013; 2014) but for the purposes of cohesion of the thesis Chapter 4 in particular has been edited to avoid repetition of literature reviews and methodology.
Chapter 3
Socratic Questioning, Dialogical Discussions, and the Paideia Method

This chapter presents one aspect of Study 1, namely the extent to which the nature and complexity of classroom interactions changed over time following the introduction of Socratic questioning during face-to-face Paideia seminars. But first, I outline of the history of the Paideia method, its components, and the role of Socratic questioning.

The Paideia Method

Adler (1982) argued that, although most children experience equal amounts of time spent in school, they are not receiving a sufficiently high quality of education. He stated that, unless we managed to offer all children the same high-quality education, then democracy itself was in danger. Adler contended that to maintain a democratic society, we must simultaneously institute much higher academic standards and render that intellectual rigour accessible to all students. He proposed the Paideia method as a model that might rectify that inequality.

In his book *The Paideia Proposal: An Educational Manifesto*, Adler (1982) offered a systematic critique of American public education. The book was dedicated to three well-known educators who had a profound effect on his thinking: Horace Mann, John Dewey, and Robert Maynard Hutchins. Horace Mann (1796–1859) was the early American educational reformer who articulated the connection between effective “common” schools and democratic well-being. Dewey became the “liberal” influence on Adler that balanced Hutchins’ focus on traditional academic rigour. Robert Hutchins stressed the need for academic rigour based on the intellectual traditions of the human community and became the “conservative” influence on Adler’s thinking, leading to the call for academic standards, which have been at the core of the Paideia philosophy since the early 1980s.
The Paideia method features three complementary teaching techniques or columns of instruction (Roberts & Billings, 1999): didactic instruction, the coached project, and the Paideia seminar (see Table 1).

Table 1
Paideia Structure

<table>
<thead>
<tr>
<th>Didactic Stage</th>
<th>The Coached Project</th>
<th>Paideia Seminar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Videos</td>
<td>Opportunity to practice discussions using Socratic questions.</td>
<td>Students seated in a circle with no desks in front of them.</td>
</tr>
<tr>
<td>Reading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>YouTube clips</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interviews</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The purpose is to acquire the basic “must know information”.</td>
<td>For this study, students were taught to use the online discussion platform, Moodle.</td>
<td>Encouraged to use Socratic questions.</td>
</tr>
<tr>
<td>10–15% of instructional time.</td>
<td>60–70% of instructional time.</td>
<td>15–20% of instructional time.</td>
</tr>
</tbody>
</table>

The Paideia seminar
Paideia seminars were defined by Adler (1982) as a method of teaching intended to engage students in discussion of ideas and values, involving the use of “rich texts” which all students received. Over the past decade, however, there has been a refocusing of the Paideia seminar and with resources provided by the National Paideia Center, the notion of rich texts has been expanded to include the work of local authors, mathematics problems, or pieces of art work. These texts are rich to the degree that they are challenging and allow the development of critical ideas. The teacher becomes the facilitator of dialogue, providing open-ended questions or provocative statements to promote thinking, but refrains from making judgements or evaluating student comments.

Because the Paideia seminar is not a teacher-led instructional method, it is an
opportunity for students to interact and talk with each other, and construct and deconstruct ideas together within the classroom environment (Billings & Fitzgerald, 2002). Additionally, the Paideia seminar encourages dialogue as a “group-think” (Philgren, 2008) where students explore ideas together in a dialogic discourse to come to a shared understanding, rather than having one person’s ideas as the winner (as in a debate). Gellatly (1997) monitored the implementation of Paideia seminars and found that one of the most powerful findings was how important it is for students to be able to talk in school and be heard. He noted that consideration and value placed on student input were the major variables that distinguished the Paideia seminar experience from the rest of the class experiences.

**The didactic stage**

The didactic stage of the Paideia method provides an opportunity for students to gain domain and strategic knowledge for them to participate in the seminars. To be able to respond in a critical analytical way to each other requires students to be highly informed in domain knowledge (Moore & Young 2001). Domain knowledge is defined as all types of knowledge including declarative, procedural and conditional knowledge acquired in a specific field of study, and has an important role in developing expertise (P. Alexander, 1992). Domain knowledge appears to be what distinguishes expert from novice learners, according to P. Alexander and Judy (1988). Moving students from surface to deep learning is predicated on Hattie’s (2009) claim that “you need surface [knowledge] to have deep [knowledge] and you need to have surface and deep knowledge to have an understanding in a context of domain knowledge” (Hattie, 2009, p. 29). Expert learners have enough information and background knowledge about the area of their expertise to allow them to consolidate the newly learned information with more sophistication. Having domain knowledge is therefore essential for students to participate fully in the Paideia seminars and therefore teachers were advised to not hold the Paidea seminars too early in the unit study.

**The coached stage**

The coached project stage of the Paideia method requires students to gain the necessary skills to be able to participate in a Socratic seminar. Biggs and Collis
(1982) alluded to a tension between students who believed the goal was to memorise facts and teachers who believed that the goal was to enhance deep learning. To successfully participate in a Paideia seminar students are expected to go beyond the mere repetition of facts and extend themselves by hypothesising, analysing, explaining and evaluating. This requires that they organise their facts during the coached project stage and make links between various spheres of science, history, personality and context. “When students can move from idea to ideas and then relate and elaborate on them we have learning—and when they can regulate or monitor this journey then they are teachers of their learning” (Hattie 2009, p. 29).

**Socratic questioning**

Research literature (Billings & Fitzgerald 2002; Haroutunian-Gordon 1991, 1998; Orellana 2008; Philgren 2008; D. Robinson, 2006; V. Robinson & Lai, 2006) provided commentaries on the value of Socratic questioning in developing critical thinking skills and enriching thinking through a dialectical approach of dialogue with peers. Therefore as Socratic questioning forms the basis of the Paideia seminar, the Paideia Method was chosen as central to Study One. Central to Socratic questioning is the provision of a thought-provoking, open-ended question which promotes inquiry and allows ideas to be probed, grappled with and tested (Adler 1983). It is not about arriving at a right answer but rather having students focus explicitly on the process of thinking and, in turn, examine their own thinking processes. In the process of cooperative interlocution, no statement is treated as true or false without examination and it is in the flow of exchanges and the collaborative interactivity between the individual and the question which leads the participants closer to a better solution or possibility (Lindström, 1995).

**The Current Study**

Further, the Paideia method was chosen for Study 1 because a meta-analysis of interventions promoting dialogical discussions—namely Philosophy for Children, collaborative reasoning, and the Paideia method—signaled that within a critical analytical stance, Paideia seminars showed moderate to high effects on student talk, teacher talk, and implicit comprehension of text in multiple-group studies (Murphy,
Wilkinson, Soter, Hennessey, & Alexander, 2009). It was deemed that the Paideia method could be used across curricula, and with all students. The Paideia method was not as bound by text as collaborative reasoning, and the uptake of Philosophy for Children in schools was for extension of accelerated students. The Paideia method was therefore chosen as being most likely to be accepted as an intervention by general classroom middle school teachers (i.e., those teaching students aged 11–14). Six schools were selected across a range of socioeconomic contexts—two schools from low, two from mid-level and two from high socioeconomic levels.

The aims were to determine if the use of Socratic questions during the preparation time (the coached project) for a Paideia seminar and during the Paideia seminar itself would change the nature of interactions and the complexity of the students’ interactions.

To this end, the research questions for Study 1 were:

What happens to the nature of the interaction and the complexity of the discussion when students are encouraged to use Socratic questioning in a Paideia seminar? Is this process and the results the same across a range of socioeconomic contexts?

Method

The participants and procedure are explained in this chapter rather than in a separate Method section because the chapter has been published already, although, as explained, in a slightly different format.

Participants

The study was conducted in 12 Paideia classes and 12 traditional across six large state schools in New Zealand, with 720 students aged 11–13 participating. The principal of each schools was asked to choose four classes of Year 8 students (aged 11–13) which were not considered either accelerated or low achieving, had similar numbers of males and females, and did not include students with special needs (i.e., with no extreme behaviour needs). Principals were asked to invite the teachers based on the
criteria above. Levels of teacher experience ranged from two to fifteen years of teaching. There were three male teachers and nine female teachers in the experimental classrooms and four male teachers and eight female teachers in the control classrooms. Two of the classes in each school were randomly assigned to the Paideia condition and two to the traditional condition.

Importantly, the four classes needed to be doing the same topic at the same time of the year. Large state schools were chosen because schools of this size work in teams of teachers who teach the same classes for most of the day. It was essential that the four classes from each school were learning the same concepts so as to be able to compare any differences in the students’ abilities to discuss these concepts and the complexity with which they were able to do this between the students in the control and experimental groups. Each Paideia class was aligned with a traditional class in which students’ results in mathematics and literacy tests—Progressive Achievement Tests (PATs)—were similar.

**Procedure**

Ethics approval was gained through the University of Auckland and informed consent was obtained from the principals, the parents of the participants, and the teachers, from both the experimental and control classrooms. Parental consent was obtained for the students to participate because of the students’ age. On average, 95% of the students in each class were given consent by their parents. All teachers from both the Paideia and traditional groups gave their consent, as did the principals of each of the schools. The students who did not receive consent for this research study went to the library with work related to the study and were supervised by another adult or teacher.

Data were gathered at three time periods: Time 1 (baseline data), Time 2 (first discussion time—online for the Paideia classes and traditional class discussion for control classes), and Time 3 (second discussion time—face-to-face Paideia seminar for Paideia classes and normal class discussion for traditional classes). The data gathering included interviews with six students from each class, both Paideia and traditional, 72 students in all at the three time points. The study included professional
development for the teachers of the Paideia classes and a teacher focus group discussion at the end.

**Time 1.** Data for Time 1 consisted of normative practice data, using a normal class discussion as the data for both the traditional and the Paideia classrooms. Each class was filmed and audiotaped for 20 minutes. The brief to the teachers in both groups was for the teacher to ask the student an open-ended question for class discussion related to their current topic. The topics for both the Paideia and traditional classrooms were the same in each school. The topics varied across schools but not within schools.

The data were coded nominally according to the types of interaction between students, and between teachers and students.

The data gathering information on the complexity of these interactions were analysed using the SOLO taxonomy (Biggs & Collis, 1982), as shown in Table 2, with an ordinal coding system as the numbers represented hierarchy in thinking from surface to deep. This is discussed in more detail in the section below on data development analysis.
Table 2

Explanation of SOLO Taxonomy (Brown, Irving, & Keegan, 2008)

<table>
<thead>
<tr>
<th>Solo taxonomy</th>
<th>Example: Why does it get dark at night?</th>
<th>Ordinal coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prestructural—students acquire unconnected pieces of information, which have no organisation and do not make sense.</td>
<td>Because the earth spins around.</td>
<td>1</td>
</tr>
<tr>
<td>Unistructural—simple but obvious connections are made but their significance is not grasped.</td>
<td>Because the earth is spinning and the sun stays in our place.</td>
<td>2</td>
</tr>
<tr>
<td>Multistructural—a number of connections may be made but the meta-connections between them are missed, as is their significance.</td>
<td>Because the earth is spinning and the sun stays in one place.</td>
<td>3</td>
</tr>
<tr>
<td>Relational—in the relational stage, students can internalise different ideas from other sources and make connections.</td>
<td>Because the earth spins round each day and the sun stays in the one place, any one point on the earth faces towards the sun for about 12 hours and faces away for the other 12 hours. The darkness comes because the point at which we are on the earth has pun away from the sun.</td>
<td>4</td>
</tr>
<tr>
<td>Extended abstract—students make connections not only within the given subject area but also beyond it.</td>
<td>Spherical shapes rotate around an axis in order to stay in balance. This means that, relative to any fixed point in space (eg a star), points on the sphere must systematically face and turn away from that point.</td>
<td>5</td>
</tr>
</tbody>
</table>
Six students from both the traditional and Paideia classrooms were selected by their teachers to represent a range of academic abilities based on standardised literacy tests. These students were interviewed at Time 1, Time 2 (online discussion) and Time 3 (Paideia seminar) to gauge the students’ opinions on the use of discussions and the impact they felt discussions had on their willingness to participate and if they contributed to their learning. These students were asked the following questions at various points in the study:

- What do you think about using Socratic questions to help you understand the key ideas in your current unit?
- What do you think about being part of an online discussion to help you understand the key ideas in your current unit?
- What do you think about using the Paideia seminar to help you understand the key ideas in your current unit?
- Why do you think discussing online/discussing during the Paideia seminar is a good process and why?
- Why do you think discussing online/discussing during the Paideia seminar is not a good process and why?
- Can you remember asking any questions and can you remember what your questions were?
- Can you remember responding to any other students’ questions?
- Did you think the pace of the online discussion/Paideia seminar discussion allowed you to participate—was it too quick or too slow?
- Do you think the online discussion/Paideia seminar discussion was fair in that you all had a chance to participate?
- At what moment during the online discussion/Paideia seminar discussion did you feel most engaged with what was happening and why?
- At what moment during the online discussion/Paideia seminar discussion did you feel most distanced with what was happening and why?
- Was there anything that stopped you participating in the online discussion/Paideia seminar discussion?
• If you were to participate in another online discussion/Paideia seminar would you prepare differently in anyway?

**Professional development.** The researchers conducted two professional development days for the 12 teachers in the Paideia classes. The professional development days included background on Paideia and instruction on the three complementary teaching techniques or columns of instruction: the didactic stage of teaching, the coached project stage, and the Paideia seminar. In addition, the teachers were informed of the principles underpinning the choice of an open, contentious or provocative statement to begin the discussion in order to engage the students. The teacher statement needed to address essential human concerns or big ideas in order to provoke different responses from a variety of students. If the statement was not contentious enough, the case study ran the risk of losing the democratic ideal whereby all students were expected to participate. In line with Adler’s (1982) philosophy, the topic needed to be thought provoking and address ideas of complexity and ambiguity, which could not be disposed of by simply agreeing or disagreeing.

Time was spent during the professional development days assisting teachers to devise provocative questions that the control teachers would likely be willing to use as prompts for a class discussion both face to face and online. For example, the poem “The Rime of the Ancient Mariner” was discussed using the proverb “We are the authors of our own disasters” and by asking the questions such as “What do you think this really means?” and “How does this relate to the Ancient Mariner, and also to other disasters that you know about?” Another set of control/experimental teachers presented a YouTube clip of “Plato’s Cave” to their classes to provide ideas about “identity”, with the statement “How can this relate to cultural identity in a changing world?” In a different school, the story of the Lorax was used as motivation for discussion, using the question: “Are humans parasites?” Another class explored the idea that “Expression is a risky business”, using quotations from Gandhi (“To believe in something, and not to live it, is dishonest”) and Winterson (“What you risk reveals what you value”).

During the professional development days, the Paideia teachers were explicitly taught
Socratic questioning so that they could teach and encourage students in their classes to use Socratic questioning to each other to help shift the complexity of their student discussions from surface to deep thinking. An analysis of the normative practice data had revealed that the majority of the interactions for both the Paideia and traditional classes were at a surface level and the students seldom, if ever, questioned each other. The teachers were encouraged to teach their pupils the forms of Socratic questioning which:

• probed students to provide reasons and evidence, such as “What do you mean by” questions
• probed reasons and evidence such as “Could you explain your reasons?”
• pushed students to explore implications and consequences, such as “What are you implying by that?”

Ongoing professional guidance to teachers in the experimental group was also provided through an online discussion forum for the teachers, emails, phone calls and many visits to the schools. This allowed researchers and teachers to come to a shared understanding of the goals and the processes involved in the principles of the Paideia method.

The teachers in the control classrooms did not attend these professional development days but, following the study, these teachers were given the same two professional development days to address equity issues for students.

**Preparation for Time 3.** The teachers in both the experimental classes and the control classes allocated several weeks of time to which involved the students engaging with domain knowledge of their unit of study in the form of guest speakers, journals, research articles, PowerPoint presentations and DVDs during class time. In the Paideia method this is know as the Didactic stage. During this preparation time the students in the experimental classes only were explicitly taught the skills of Socratic questioning and how to log on to Moodle.

**Time 2.** Time 2 is described in this chapter briefly but Time 2 forms the basis of Chapter 4, as that chapter explains what happened during the online discussions.
During weeks six and seven of the unit study, the students in the experimental classes were asked to discuss the provocative statements online using Moodle. The online discussion was based on the same provocative statement that they would be expected to discuss together during the face-to-face Paideia seminar. Students were able to participate in these online discussions outside of school hours if they wished; however, the researchers coded these discussions through timing the discussions over a 20-minute period. Time 2 for the control classrooms included studying the same topics as the experimental classes but without following the Paideia method. Teachers were asked to continue teaching the topics with their usual practice and the teachers used a variety of pedagogical strategies such as individual writing, peer discussions, group discussions, and cognitive organisers. Time 2 data gathering for the control classes consisted of the same provocative statement being discussed but in a normal classroom discussion which was face to face and not online. The students in the control classrooms were not taught Socratic questioning. Researchers returned filmed and audiotaped 20 minutes’ of the normal classroom discussions in the control classrooms.

**Time 3.** Following the online discussions in weeks 11 and 12 of the unit study, each teacher in the Paideia classrooms set up the classroom for a Paideia seminar. This Time 3 involved the students sitting in a circle facing each other and discussing for 30 minutes the various provocative statements that had been discussed in the online discussions. Twenty minutes of these seminars were coded to remain consistent throughout the study. The traditional classes also engaged in the same 30-minute classroom discussion/debate topic that had been the subject of the Time 2 discussion/debate and the interactions were transcribed and coded for 20 minutes.

The hypothesis for the study was that the Paideia group in the mid-level and high socioeconomic schools would demonstrate an increase in student-to-student interaction and the complexity of these interactions would increase at Time 3 (the face-to-face seminar) when compared to Time 1 (baseline) and that this increase would be above normative increases compared to a control group. A quasi-experimental method was employed because, although the Paideia method was not controlled by the researchers, the researchers did have some control over when to
measure the outcome variables. Using SPSS 18.0, a series of \( t \)-tests and ANOVAs were conducted to analyse data, first for interaction focus and then for complexity, to test for differences between the experimental and the control groups. For the purposes of this study, the five-stage SOLO taxonomy (Biggs & Collis, 1982) was used to categorise the complexity of the discussion. This is discussed further in the section below on data development and analysis.

**Focus group.** A focus group discussion for the teachers was held at the end of the project to establish the beliefs held by the teachers regarding the impact of the Paideia method. The teachers were given these focus questions before the focus group discussion and the questions aimed to gather information on the teachers’ beliefs on the impact of using Socratic questioning on their teaching and if the intervention would change any of their approaches to teaching in the future. The questions were designed to elicit the teachers’ beliefs about whether the Paideia method had an impact on the students learning of the key concept in the unit study and if so what evidence they had of this. Further questions explored which students teachers believed were better or not so good at learning through the Paideia method and their thoughts on the usefulness of the professional development days in preparing them for teaching their students the Paideia method. A copy of these questions can be found in Appendix A.

**Data development and analysis.** The descriptions of classroom discourse and interaction derived from the transcripts of the videotapes were subdivided into two main categories: *complexity of discussion* and *nature of interaction*. For the first category, it was decided to use the SOLO taxonomy developed by Biggs and Collis (1982) to determine the complexity of the discussion and to illustrate and analyse what surface and deep learning looked like. The five stages are prestructural, unistructural, multistructural, relational, and extended abstract (see Table 2). At the prestructural stage, students acquire unconnected pieces of information, which have no organisation and do not make sense. At the unistructural stage, simple but obvious connections are made but their significance is not grasped. At the multistructural stage, a number of connections may be made but the meta-connections between them are missed, as is their significance. In the relational stage, students are able to
appreciate the significance of the parts in relation to the whole, and can internalise different ideas from other sources and make connections. At the extended abstract level, students are able to make connections not only within the given subject area but also beyond it. The responses involve the student going outside the known and being able to elaborate and transfer the principles and ideas underlying a specific instance. “Relational” and “elaborative” processes involve a change in the quality of thinking that is cognitively more challenging than surface learning. The implications are that active learning and deep-level processing are central to success and to the transfer of information where the learner is active in the process of learning.

Each interaction was further coded according to the nature of the interaction, that is whether it was (a) a teacher-to-student interaction; (b) a student responding to a teacher; or (c) a student responding to a student and within these interactions they were coded for questions, expansions of ideas, challenging others’ views, or answering questions.

The audiotapes were professionally transcribed and the resulting transcripts were then coded according to the SOLO taxonomy by two research assistants working independently. These assistants were asked to code every identifiable interaction that occurred. Both individuals had had extensive experience in the use of the taxonomy, and were blind to treatment group allocation; that is, they did not know whether transcripts were from the experimental or the control groups. These codings were reviewed by the research team and disagreements between the raters were then reconciled through discussion and consensus. Time was spent with the coders before coding to ensure a mutual understanding of the complexities of the coding tables. The overall agreements were divided by the agreements plus disagreements. This resulted in an overall inter-observer agreement level of 84%.

Focus group data were examined for emerging themes and categories of response. These were used to identify the successes, gaps, and limitations of the use of Socratic questioning within a Paideia seminar.
Results for Time 1 and Time 3

This section discusses the results for Times 1 and 3 only, as Time 2 is covered in the next chapter.

In all, the raters reported a total of 3,859 codings, of which 2,035 were from the traditional classes, and 1,824 from the Paideia classes. The raw tallies, broken down by treatment group and SOLO level, are depicted as a pyramid panel graph in Figure 1, with seminar time as the panel variable. The Paideia classes are the experimental classes and the traditional classes are the control classes.

![Figure 1. Frequencies of SOLO level codings across two groups and two time periods.](image)

For analysis purposes it was decided to collapse the SOLO levels into two levels: surface and deep. The researchers were interested in whether or not the use of Socratic questioning within the Paideia seminar shifted thinking from surface to deep. Surface-level responding was deemed to be occurring at levels 1, 2, and 3, while deep-level responding was deemed to be occurring at levels 4 and 5. The frequencies generated by this procedure can be seen in Table 3, which also depicts the breakdown concerning the nature of the interactions—teacher-to-student (TS); student-to-teacher (ST); student-to-student (SS) pattern as coded.
Table 3

*Over-time Data Comparing Traditional and Paideia Classes’ Total Interactions/Deep Interactions for Each Type Of Interaction*

<table>
<thead>
<tr>
<th>Tallies</th>
<th>Traditional Classes</th>
<th>Paideia Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time One</td>
<td>Time Three</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>Deep</td>
</tr>
<tr>
<td>All</td>
<td>1207</td>
<td>66</td>
</tr>
<tr>
<td>Teacher to student</td>
<td>601</td>
<td>31</td>
</tr>
<tr>
<td>Student to teacher</td>
<td>526</td>
<td>32</td>
</tr>
<tr>
<td>Student to student</td>
<td>79</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: ‘Total’ refers to the total number of ratings made, whereas deep refers to the frequencies made at SOLO levels 4 and 5 combined. The second, third, and fourth row will naturally tally with the level of the first row except in the case of 24 missing values where raters failed to agree on the interaction focus dimension.

So as to facilitate comparisons, the available frequency data were then converted to percentages of interactions at surface and deep levels. Figure 2 depicts the percentage of responding coded at the deep level across the two time periods within each of the two treatment groups.
As can be seen in Figure 2, at the baseline, the frequency level of deep responses evident within Paideia classes was not significantly higher than the control classes (7.5% against 5.5%) \((p = 0.07)\). However, in the final seminars for the experimental classes, 17.4% of responses were at the deep level, in contrast to the traditional classes where 7.5% were at this level. Chi-square tests indicated that this difference is significant \(\chi^2 (1) = 39, p < 0.01\). The relative increase across sessions within the experimental classes, from 7.5% to 17.4% (Fisher exact test, \(p < 0.001\)), was significant while the increase in the control group was not significant. (5.5% to 7.5%, Fisher exact test, \(p = 0.07\)).

Figure 3 illustrates the frequency breakdown according to the type of interaction pattern.
As can be seen in Figure 3, in Time 3 (final seminar), for student-to-student discussions (SS), 686 responses were tallied, of which 149 (22%) were coded at the deep level. In contrast, in the traditional group, there were 24 deep responses within student-to-student discussion out of 210 responses (11.4%). Thus, the level of student-to-student interaction at the deep level was significantly higher in the case of the Paideia classes, \( \chi^2 (1) = 10.9, p < 0.01 \). Further, it was apparent that in the Paideia classes, the level of student-to-teacher (ST) interaction at the deep level (at 13%) was significantly greater than for the traditional classes (6%), \( \chi^2 (1) = 6.6, p = 0.01 \). However, the difference between groups for teacher-to-student frequencies was not significant \( (p = 0.18) \). Hence, the significant overall differences in deep-level discussions between traditional and Paideia classes appear to be due to student-initiated (SS and ST) discussions, and not teacher-initiated interactions (TS).
A 2 × 3 Chi-square test found a significantly different pattern to types of interactions (TS, ST, and SS), between the Paideia and traditional classes ($\chi^2 (2) = 58, p < 0.01$). This result suggests that the impact of the treatment was stronger for some interactions than others, with far stronger effects being evident in the case of the student-initiated response categories.

The final set of analyses compared the nature and type of classroom interactions across the three school socioeconomic status (SES) classifications: low, mid-level and high. In New Zealand, the socioeconomic status of schools is determined by a decile system that ranks schools by the socioeconomic status of the areas in which their families live. Deciles are based on a formula that incorporates household incomes, level of parental education and the proportion of beneficiaries in a defined area where pupils live. Essentially, decile 1 schools are the 10% of schools with the highest proportion of pupils from low socioeconomic communities and decile 10 at the other extreme with 10% with the lowest proportion of these pupils. For this study, two of the schools were low SES as they were decile 1 and 2 schools, two of the schools were mid-level SES as they were decile 4 and 5 and two of the schools were high SES as they were decile 9 and 10. In the initial baseline data there were no significant differences in classroom interactions across the three levels. However, in the final seminar, significant differences between the traditional and Paideia classes were evident at the high socioeconomic level ($\chi^2 (1) = 40, p < 0.01$), and at the mid-level socioeconomic level ($\times 2 (1) = 8.3, p < 0.01$). Although the low SES students did not make a significantly greater percentage of deep responses in the final seminar Paideia classes than the traditional classes ($\chi^2 (1) = 1.6, p = 0.2$), the low socioeconomic students did significantly increase their percentage of deep responses in the final seminar relative to the percentage shown in the initial classroom discussion ($\chi^2 (1) 3.7, p = 0.0125$). These results are illustrated in Figure 4 below.
Figure 4. Percentage of responses at deep level according to school decile rating (SES).

Figure 5 shows the nature of interactions at Time 3 for both traditional and Paideia groups. Time 3 for the traditional group was a “normal” classroom discussion based on the same unit study as the experimental group. Time 3 for the experimental group was a Paideia seminar. Students sat in a circle facing each other and discussed the provocative statement. As previously observed, the Paideia seminar treatment resulted in higher student-to-student interactions. This graph identifies differences in the type of student-to-student exchanges.
Figure 5. Differences between the traditional and Paideia groups in the types of student interaction at Time 3.

As can be seen, the use of the Paideia method for discussions, following professional learning for teachers and combined with opportunity to practice questioning and discussions online appears to change the nature of the interactions between students to students with increases in elaborations of either agreements or disagreements to justify their responses.

What did this look like in the classroom? The following is an extract of a Paideia seminar from the group whose rich question was “Expression is a risky business”. The students were seated in a circle, facing each other and the teacher had stated the topic at the start of the seminar. This extract is five minutes into the seminar and demonstrates that the nature of the interaction is mostly SSAE (student responds to
student with expansion of their idea), where students agree and then expand on their ideas with further information. This was “typical” in that the teacher’s voice is not apparent and the dialogue continues for some time between students. These statements have also been coded for levels according to SOLO taxonomy (Table 1). The students have been given pseudonyms to protect their identities.

Student 3: I want to build on Jill’s opinion because for example in North Korea if you say something bad about their leader or government you will probably going to be killed or punished or something. *(SSAE—student responds to student with expansion of their idea; relational, making connections)*

Student 4: I agree with Won about the culture, like some, it usually comes and like some people will get this cause they’re like different culture and how they express themselves, through their culture. *(SSAE—student responds to student with expansion of their idea; multistructural, a number of ideas)*

Student 5: The people that went to Vietnam, they wanted to help the people in Vietnam, like the Eye Clinic, and it was very cheap. But they also got killed at the end because they were reading a bible or something. And this, expression is a risky business with religion as well. In some countries like in India they are Muslims and Christians fighting. *(SSAE—student responds to student with expansion of their idea; relational,)*

Student 6: It also depends on whom you’re dealing with. So if it is in World War II and your expression was to disagree with Hitler, then you would probably get killed and punished. *(SSAE—student responds to student with expansion of their idea; relational)*

Student 4: I’m thinking back to Joe’s point, I definitely agree that education on everyone’s belief and culture and the country and everything, so that was how people expressed themselves, so they would keep
their emotions inside, they were scared or something. (SSAE—
Student responds to student with expansion of their idea;
relational, many ideas; SSN—student to student with new ideas)

The following is an example of SSDC interactions (student-to-student with a
disagreement and then challenging the student with why they disagree). This
exchange occurred during the Paideia seminar when the topic was “How can this
relate to cultural identity in a changing world?” (Plato’s Cave).

I disagree with Josh’s point when he said like the woman was wearing
yellow to stop with the heat and everything. I think it’s just a metaphor,
like staying with the darkness of the cave and then the brightness of the
outside world.

Data from these students at Time 1 indicated that although students might have
disagreed with a fellow student they did not elaborate on why they disagreed.

Transcript data analysis showed that not only were more questions generated from
student-to-student (SSQ) but these questions were at a more complex level during the
Paideia seminars than in Time 1, which was their normal class discussion. For
example, one student posed the following question: “But do you agree that America
was the start of stereotypes in movies and television?” This question, posed by the
student, not the teacher, stimulated a robust discussion between the students.

Students who were interviewed and asked the questions indicated earlier said that
they found that the opportunity to express their “voice” was motivating and a positive
experience, similar to the following comments by students:

It’s a lot friendlier and a lot more interactive with all of your peers. It
wasn’t just straight out of a textbook.

(Male, low socioeconomic)
The students we drove the conversations and we understand better from each other than if a teacher were to stand up there and get us to speak.

(Female, high socioeconomic)

Another student noted how the seminars changed the dynamics in the classroom:

A lot of people in our classroom don’t usually speak to each other, like there is a group of boys and a group of girls and then a group of both and they don’t really communicate with each other but I think the seminar was a great way of sharing ideas between different people.

(Male, high socioeconomic)

In terms of fairness and “voice”, two students made these observations:

We all respect each other and we respect each other points of view. Even if you disagreed with someone it was good to be able to understand where they are coming from and just to be able to see two points of view is important, even if you disagree.

(Female, high socioeconomic)

When people don’t understand what people are saying, other people come in and help.

(Male, low socioeconomic)

A student in a low socioeconomic school compared the difference between a normal classroom discussion and a Paideia seminar:

If Mrs E asks us a question in a class discussion, then the students just say yes, no, yes, no with no reason and that’s why we aren’t learning. But with the seminar we still say if we agree or and not agree, but we have to say why.

The results of the focus group with teachers identified a number of themes. A number
of successes with the use of Socratic questioning within the Paideia seminar were identified. Teachers generally agreed that this method allowed and encouraged the children to dig deeper into the many layers of an idea. A number of teachers observed that, during the Paideia seminar, students’ thinking and speaking fed off and enriched each other. Rather than just drawing on a few strong students, the majority of students entered into the discussion, offering lots of different thoughts, probing deeply into the original idea, and exposing multiple layers of connected and related ideas which may never have been considered or even thought of during an ordinary classroom discussion.

One teacher, Anne, added that she believed the quality of what students were saying was at a much higher level when they started to respond to each other, rather than to her: “They started to question each other, which meant students had to justify their thinking”. Several teachers commented that they noticed the students needed to listen to each other as their thinking was at a deeper level: “Class discussions were richer, because they were listening to each other and not just me”. Another teacher, Andres, identified that the Socratic questioning taught to the students was now being used in other subjects: “We are currently doing Literacy Circles in reading and the students are continuing to use the Paideia Language when they interact. They always want to add to each other’s ideas or question and disagree. It’s great that they are more willing and able to justify their ideas”.

One concern raised about Socratic questioning was that one of the teachers believed it suited only the students with good self-management, as they liked having some control over what direction their learning was taking. Another teacher was surprised that some of her “top end kids” struggled with the freedom that this type of learning entailed and they really seemed to flounder. She observed: “Obviously after years of trying to guess what the teacher wants or is thinking they were stuck when expected to think on their own”.

**Discussion and Conclusion**

The main findings demonstrated that the nature of the interactions changed from predominantly teacher-initiated interaction at Time 1 to student-initiated interactions
during Time 2 (online Moodle discussions) and to Time 3 (the Paideia seminars) for the experimental classes. The complexity of these interactions increased from Time 1 to Time 2 and Time 3 as demonstrated by the results in the study. The complexity of the discussions was deeper during the Paideia seminars than in the control classrooms at Time 2 and Time 3 where the students were engaged in their usual classroom discussions. Significantly, the types of interactions which generated higher complexity of thought were students agreeing with each other and then expanding with further information; students disagreeing with each other and then expanding on why they disagreed with each other; students responding back to the student who had disagreed with them and explaining themselves further; and students asking another student a question.

The greatest shift in students’ comments from surface to deep occurred in the high socioeconomic classrooms. Intervention from the teachers in the high socioeconomic classrooms was minimal, and the dialogue almost entirely student initiated. Perhaps this indicates that the students who were from the lower socioeconomic classrooms require greater teacher input as Nystrand (2006) recommends. Of course, it is not that all students in the lower socioeconomic classrooms were low achieving students and that all students in the high socioeconomic classes were high achieving but in general the literacy levels for the low achieving classes were considerably lower than those of the students in the high socioeconomic classrooms.

Though the use of Socratic questioning during the seminars was relatively low, more complex discussions were held throughout the seminars than the traditional classroom discussions within the control classes. A “spin-off” from the teachers’ explicitly teaching the students Socratic questioning appeared to be that the students in the experimental classrooms recognised the importance of having evidence and justifications for their thoughts. Without prompting from the teachers, the students not only initiated discussions with their peers but also invariably made a statement and supported this statement with evidence and justification. These exchanges appeared to feed into a change in the nature of the interactions; that is, more student-to-student dialogues and the change in the complexity of these interactions meant they engaged in a greater percentage of deep-level discussions.
Gaining skills in the use of Socratic questioning is likely to take far longer than the duration of this project. For many students it was a major shift to be given autonomy to have student-initiated discussions and to be expected to provide evidence and justification for their statements. The positive outcomes of this study, however, indicate that teachers explicitly teaching Socratic questioning and providing opportunities for students to practise this type of questioning and reasoning are worth pursuing.

Results of the meta-analysis of dialogical discussions interventions by Murphy et al. (2009) suggested that the approaches exhibited greater effects for students of below-average ability than for students of average or above-average ability. The results of this study did not reflect that finding, as many students in the experimental classes of above-average ability, as reflected by their numeracy and literacy PAT levels, showed a significant shift in their use of complex language post-intervention. But what was similar to this study was their suggestion that the students in the high socioeconomic groups appeared to need little intervention from the teachers to hold dialogical discussions once they were given opportunity to do so (Murphy et al., 2009).

The results of this study show a significant shift in student-initiated dialogue, from teacher-initiated dialogue in the initial classroom discussions to increased student-initiated dialogue in the Paideia seminar. Furthermore, these shifts generated a higher complexity of speaking. What emerges from this study is the potential of the Paideia method to increase the depth of ideas produced and achieve greater autonomy for early-adolescent students. The increase in student-initiated dialogue demonstrates that this pedagogical approach can give rise to opportunities for students to voice their opinions, which may help to realise these young people’s potential. All students, not just those from marginalised groups, seem more eager to enter energetically into classroom discussion when they perceive it as pertaining directly to them (hooks, 1994).

Authentic help means that all who are involved help each other mutually, growing together in the common effort to understand the reality, which they seek to transform. Only through such praxis—in
which those who help and those who are being helped, help each other simultaneously—can the act of helping become free from the distortion in which the helper dominates the helped.

(Freire, 1994, as cited in hooks, p. 54)
Chapter 4
Paideia Seminars Using Online Discussions

This chapter has been published (Davies & Sinclair, 2013), but for the cohesion of the thesis, sections of the chapter have been edited to avoid repetition of the methodology, which has been covered in the previous chapter.

Paideia and Online Discussion

This chapter discusses the coached project stage of Study 1, which involved online rather than face-to-face discussion. The coached project is the second phase of the Paideia method; its purpose is for students to prepare for the Paideia seminar. To date there had been no research conducted in using an online discussion as preparation for the Paideia seminar. The aims of using an online discussion were (a) to see if the nature of the online interactions and complexity of these discussions varied from the control group who were engaged in traditional classroom discussions in preparation for their final class discussion, and (b) to see if the use of Socratic questions by the experimental classes would increase and therefore result in more argument or debate than the control classes.

The Paideia method may be particularly appropriate for early adolescents due to the increased opportunities for students to purposely “argue” in an environment which is less controlled by the teacher and more controlled by the students. The more democratic approach of the Paideia method is likely to increase opportunities for students to sharpen their arguing skills as well as increase their participation. Traditional classroom discussion is a frequently used teaching strategy, but is often unwittingly dominated by teacher talk and teacher questions. A wide range of studies (Cazden, 2001; Lemke, 1990; Mehan, 1979; Newman, Griffin, & Cole, 1989; Wells, 1999) documents the implications of the traditional Initiate-Response-Evaluate (IRE) pattern for teacher talk in conducting class discussions, where the teacher plays a dominant role. Brualdi (1998) counted 200 to 300 IRE exchanges per day, and the majority of these were low-level cognitive questions—60% of teacher questions are recall of facts while 20% are procedural. Teachers see questions as enabling devices
for keeping students active in the lesson, arousing interest, modelling inquiry, and confirming to them that “most” of the students are keeping up. But students are given, on average, one second or less to think, consider their ideas, and respond (Cazden, 2001); the brighter students are given longer to respond than the less able, and thus those students who most need the wait time are least likely to get it. From a sociocognitive perspective, such instruction provides little room for a sustained exploration of ideas, which is a necessary component for the development of deep ideas. Dillon (1994) describes this form of discussion as “recitation”, where there are question/answer exchanges that demand brief factual information responses, but which subsequently shut down discussion.

A prior pilot study (Sinclair & Davies, 2011) indicated that, though both complexity of thinking and participation levels were higher during a Paideia seminar than a normal classroom discussion, the teachers and some students still found the pressures of “arguing” in a face-to-face situation difficult due to “shyness”. It was for this reason that the researchers decided to investigate online learning methods to particularly encourage shy students to engage in the final Paideia seminar. The key research question was how would students engage online after being taught Socratic questioning?

**Online learning**

Being cognisant of many young people’s social networking skills and interests, it was anticipated that the use of Moodle (online discussion platform) could increase the participation of students in discussion. If one accepts that the interactive nature of online learning fosters discussion among learners (Gay, Sturgill, Martin, & Huttenlocher, 1999) then this approach may also benefit students who find it difficult to express ideas or talk at all in a face-to-face discussion. For example, Kassop (2003) found that non-English speakers had more opportunity to put together ideas and construct appropriate and complete responses in the less pressured environment online. Similarly, it may be that the advantage of working in an asynchronous discussion gives the student time to reflect and to think more deeply before committing thoughts and opinions to the forum as some research studies indicate (Kassop, 2003; Moore, 2002; Norton-Meier, 2004).
Past research has identified that simply putting students into online discussions may not be enough (Boulton, 2008; Chen & Wang, 2009; Jahnke, 2009; Kleine Starman, 2003; Quek Choon, 2010; Yu, 2009). Too often, the complexity of interactions remained at a surface level (perhaps similar in complexity to discussions on Facebook). Law, Pelgrum, and Plump (2008) outlined studies conducted in 22 countries, and one of their key findings was that the impact of the use of information technology on learners is “highly dependent” on the “pedagogical orientation” that teachers adopt towards e-learning. It is not always the case that young people are as digitally native as some theorists would have us think (Prensky, 2001); rather, they need guidance through effective pedagogy to learn new concepts and content.

Certainly over the past decade there has been an increasing interest in online approaches for school-aged students and their potential impact on learning (Boulton, 2008; Chen & Wang, 2009; Jahnke, 2009; Kleine Starman, 2003; Quek Choon, 2010; Yu, 2009). There is still, however, a lack of research-based investigation into the teaching and learning process through online learning in schools (Cavanaugh, Gillan, Kromrey, Hess, & Blomeyer, 2004; DiPietro, Ferdig, Black, & Preston, 2008). A recent study in Taiwan by Chiu and Hsiao (2010) of 11–12-year-olds discussing online found that almost 70% of the students in collaborative groups were classified as passive or reticent and frequently off-task. They concluded that there is still a great need for methods such as training or interventions that enhance interaction and improve the quality of discourse in computer-mediated collaboration for school students.

A similar result was found by Haavind (2007) in her review of threaded course discussions of the 112 classes taught in the Virtual High School. By using thread depths of four postings as a measurement of collaborative dialogue, she was able to ascertain whether the students were replying to each other with more than simply “I agree” or “thank-you” as the response. Her research revealed that just 22 classes (19%) demonstrated some collaborative dialogue or extended peer-review activity. The results of her survey suggested that teachers may need to adopt new strategies that support usage of text-based dialogue to foster a community of inquiry. In such communities students listen to one another with respect, build on one another’s ideas,
no longer accept other people’s points of view unquestioningly, challenge one another
to supply reasons for otherwise unsupported opinions, assist each other in drawing
inferences from what has been said and seek to identify one another’s assumptions
(Haavind, 2007).

Similarly, Yap and Chia (2010) demonstrated a not-so-favourable outcome of online
learning. In a study of twelve Grade 8 male students of above-average ability they
showed that self-directed learning through asynchronous discussion needs to be
monitored by facilitators, as learners possess many misconceptions and may mislead
each other. Quek and Choon (2010) studied 276 high-school students in a project-
based learning environment (mediated by an asynchronous computer-mediated
communication tool). They identified high levels of student participation in this
teacher-facilitated learning environment, but found that these responses were located
mainly in phase I (comparing and sharing information, 82.7%) with only 3.7% in
phase III (negotiation of meaning/co-construction of knowledge). It is evident from
these results that future research may need to focus on teaching and learning issues
relating to participation and cognitive interaction in online learning environments.

Socratic questioning
Importantly, the Paideia method includes teaching the students how to participate in
Socratic questioning. Prior research has provided commentaries on the value of
Socratic questioning in developing critical thinking skills and enriching thinking
through a dialectical approach of dialogue with peers (Billings & Fitzgerald, 2002;
Haroutunian-Gordon, 1991, 1998; Orellana, 2008; Philgren, 2008; D. Robinson,
2006; V. Robinson & Lai, 2006). Central to Socratic questioning is the provision of a
thought-provoking, open-ended question which promotes inquiry and allows ideas to
be probed, grappled with and tested (Adler, 1983; Beyer, 1997; Philgren, 2008). It is
not about arriving at a “right answer” but rather having students focus explicitly on
the process of thinking and, in turn, examine their own thinking processes. In the
process of cooperative dialogue, no statement is treated as true or false without
examination and it is in the flow of exchanges and the collaborative interactivity
between the individual and the question which leads the participants towards a better
solution or possibility (Lindström, 1995). Participation, though desirable for students,
is not enough. To achieve deep learning, the students need to have the opportunity to engage in discussions which have the potential to generate complex thinking. “When students can move from an idea to ideas and then relate and elaborate on them we have learning—and when they can regulate or monitor this journey then they become teachers of their learning” (Hattie, 2009, p. 29).

The Current Study

This chapter presents the findings of an intervention which used an online discussion forum underpinned by a comprehensive pedagogic framework, the Paideia method, to examine the nature of interaction and the complexity of the discussion within that forum. The chapter reports on what happened when 11 to 13-year-old students were given the opportunity to practise dialogic discourse online with the emphasis on student-initiated, rather than teacher-initiated, discussion incorporating the use of Socratic questions as a means of preparing the students for their face-to-face Paideia seminars.

Method

Participants

The participants were the same participants as discussed in Chapter 3. However, it is important to note that the students who participated in the online discussions were the experimental classes, as the control classes continued with their normal classroom discussions. The questions were the same for the experimental and control classes—these questions differed between schools but not between the experimental and control classes within schools. There were approximately 360 students in the experimental classes and 360 students in the control classes.

Procedure

Professional development. During the two days of professional development for the teachers in the experimental classes the teachers were explicitly taught Socratic questioning to help shift the complexity of these discussions from surface to deep thinking. They were provided with examples of Socratic questioning which
probe students to provide reasons and evidence; for example, the question “What do you mean by”; questions which probe reasons and evidence such as “Could you explain your reasons?”; and questions which probe to provide implications and consequences, such as “What are you implying by that?” The teachers received training in the use of Moodle, the online coaching platform, to prepare the students for the seminars. This training was conducted in the computer laboratories and an expert in the area of Moodle was on hand to help the teachers learn how to log on and engage with the online environment. During the training they were given ideas on how to introduce their students to working in an academic online site, in contrast to the students’ familiarity with a social networking site. The teachers were encouraged to seek the advice from the expert once they returned to their schools if they had any difficulty with the online environment, as it was important all of the experimental teachers were able to provide an opportunity for their students to engage in online discussions as part of the coached project in preparation for the Paideia seminar. By using an asynchronous online environment, the students would be able to manage their own time to a large extent and reflect upon what they were learning (Garrison, Anderson, & Archer, 2003).

**Time 2.** Following the didactic stage of the Paideia method (Time 1) which involved the students engaging with domain knowledge of their unit of study in the form of guest speakers, journals, research articles, PowerPoint presentations, DVDs, Web 2.0, interviews and internet, the teachers set up the Moodle online “classroom” The Moodle classroom became the coached project stage for the Paideia classes, where the students had opportunities to discuss online the various provocations from the teachers. The purpose of the Moodle classroom was to allow students to practise the use of Socratic questioning and to practise the art of expressing views with justification and evidence. The researchers had access to all of these online discussions throughout the study. The students were explicitly taught the skills of Socratic questioning by their teachers following the professional development days and examples of this questioning were posted on the Moodle (online) classroom. The students were expected to discuss the provocation agreed to by the class. The online discussion would be the same provocative statement that they would be expected to discuss later during the Paideia seminar (face to face). Students were able to
participate in these online discussions outside of school hours if they wished. Once the students had had sufficient time to practise discussing their thoughts online, each teacher set up a Paideia seminar in their classroom. This involved the students sitting in a circle facing each other and discussing the various provocations for 30 minutes. The provocations had been provided either by the teachers or, in many cases, the students and the teacher had agreed on a statement which would provide ample contention and ambiguity.

**Data gathering**
As explained in Chapter 3, the data for the study were collected at three points in time for both control and experimental classes. The time frame varied slightly across the schools but was predominately over a 12-week period. Time 1 involved gathering normative practice data of a class discussion for both the control class and the experimental classrooms. The data collected at Time 1, Time 2 and Time 3 were classified according to the nature of the interactions and the complexity of these interactions. Data collected for nature of the interactions determined if the interactions were student to student (SS), or teacher to student (TS), or student to teacher (ST). Table 4 shows examples of the interactions between student to teacher, teacher to student and student to student during an online discussion for an experimental class.
Table 4

Examples of the Nature of the Interactions Student to Teacher, Teacher to Student and Student to Student During an Online Discussion for an Experimental Class.

<table>
<thead>
<tr>
<th>Nature of Interaction</th>
<th>Example (Discussion Online Regarding Plato’s Cave)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student (SS) to Student (SS)</td>
<td>Cuba (pseudonym): I disagree with a few of Imogen’s points such as the brief glimpses of the outside world. I think the bridge and fire is there to be showing them what their [sic] missing out on when we’re following everyone else. As I said before in this world it’s actually quite hard to be different and step out of the box [identity wise]. Imogen (pseudonym): That’s [sic] an interesting point. When I meant [sic] it was brief [sic] glimpses of the outside world i never thought it was meant [sic] to be there to show them what they were missing out on. Maybe there [sic] brief glimpses of the world their[sic] missing out on?</td>
</tr>
<tr>
<td>Teacher to Student (ST)</td>
<td>Teacher to Sione (pseudonym): How easy is it to become a professional, successful sports person?</td>
</tr>
<tr>
<td>Student (ST) to Teacher</td>
<td>Sione to Teacher: (pseudonym) It will be hard coming up against tuff [sic] compettors [sic] but if give your 100% effort you'll get your awards [sic] so it's a yes and a no.</td>
</tr>
</tbody>
</table>

Time 2 data collection involved gathering transcripts from the Moodle discussions online for the experimental classes. This was at the mid-point or just thereafter of the unit study for the experimental classes (week 6 or 7). The students were given a provocative or ambiguous statement to discuss online. This same provocative or ambiguous statement was given to the control classes. Data were gathered from the experimental classrooms online for 20 minutes of discussion, which was made possible because it is possible to see the time on Moodle as a discussion unfolds. The control classes were filmed and audiotaped for 20 minutes during their normal classroom discussions. The data were coded in the same way as for Time 1 and Time 3, as explained in Chapter 3; that is—the nature of the interactions and the complexity of these interactions were coded. Following these online discussions the students were given a questionnaire to express how they felt about the discussions. A copy of these questions can be found in Appendix B.
The hypothesis was that the experimental group in the mid-level and high socioeconomic schools would increase in both interaction focus and complexity at Time 3, which is the face-to-face seminar, when compared to Time 1 (baseline data) and that this increase would be above the increases found in the control group. It was not known whether the students in the experimental group in low socioeconomic schools would show a significant increase. There was a lower level of computer exposure particularly in the homes of those in lower socioeconomic areas, as a number of the students indicated to their teachers.

**Results**

The results are presented in five phases. First, the differences in the interaction focus (from student to student); second, in the cognitive complexity (surface to deep); third, the qualitative comments; fourth, the comments from the focus groups; and fifth, results from the student questionnaire.

**Interaction focus**

Using a series of chi-square tests, the experimental group was compared to the control group at each of the time points on interaction focus. As expected, the two groups did not differ at Time 1, but did significantly differ at Time 2, \( \chi^2(1, 1354) = 408.70, p < .001 \), as well as Time 3, \( \chi^2(1, 1890) = 257.20, p < .001 \) with the experimental group being higher than the control group at both times. Taken together, these results suggest that the experimental group increased in student-to-student focus above a normative increase with the greatest level being in the face-to-face condition (Time 3).

Next, analyses were conducted to see if the increases in interaction focus to more student-to-student varied by socioeconomic level. There were no statistically significant differences in the levels of interaction focus between the mid-/high socioeconomic and low socioeconomic students, for the control or experimental groups at Time 1. While there were no differences for the control group, there were differences for the experimental group in Time 2 and Time 3. The degree of interaction was significantly greater for the mid-/high socioeconomic students as
compared to the low socioeconomic students, \( \chi^2(2, 1028) = 154.94, p < .001 \), and this was particularly so for the Paideia seminar.

Taken together, it appears that gains made in student-to-student interaction focus by the experimental group were more pronounced for mid-/high socioeconomic students compared to low socioeconomic students, particularly for the face-to-face condition, but there were no differences for the control group (Fig. 6).

![Figure 6. Change in interaction focus as a function of group and socioeconomic level over time (student–student interaction).](image)

**Complexity of discussions**

A similar series of analyses was then conducted on the complexity of discussions. There were no statistically significant differences between the two groups at Time 1, but there were differences between the two groups at Time 2, \( \chi^2(1, 1203) = 51, p < .001 \), as well as Time 3, \( \chi^2(1, 1649) = 42.12, p < .001 \), with the experimental group being higher in terms of the complexity of discussions at both Time 2 and Time 3.

An ANOVA test was conducted comparing mean levels of discussion complexity for the control group at each time point (Time 1 versus Time 2 versus Time 3 for the control group only). There were no statistically significant differences between the mean levels of discussion complexity for the control group at each time point.
An ANOVA test was also conducted comparing the mean levels of discussion complexity for the experimental group at each time point (Time 1 versus Time 2 versus Time 3 for the experimental group only). Interestingly, Time 3 was significantly greater than Time 1 and Time 2 was significantly greater than Time 3, p < .001, which is similar to the results found when mean levels of interaction focus for the experimental group at each time point were investigated. There are a number of factors that could explain this finding—students who were interviewed commented that they felt they had more “thinking” time online and were able to read previous postings and respond accordingly with explanations and justifications. Some students felt more confident at expressing online rather than in front of their peer group.

Next, a series of t-tests compared the experimental group to the control group at each time point on the complexity of discussions. Results of the test showed that the two groups did not differ at Time 1, p>.05, but did significantly differ at Time 2 and Time 3, with the experimental group being higher at both time points, p<.001. Taken together, these results suggest that the experimental group’s complexity of discussions had an above-normative increase with the greatest level being in the Moodle condition (Time 2).

A one-way analysis of covariance (ANCOVA) was conducted for this study. The dependent variable was Time 3, and Time 1 acted as the covariate. A preliminary analysis evaluating the homogeneity-of-regression (slopes) assumption indicated that the relationship between the covariate and the dependent variable did not differ significantly as a function of the independent variable, F(4, 806) = 2.036, p = .457. In addition, the assumption of the homogeneity of variance was met, F(4, 811) = 1.078, p = .366. The ANCOVA was not significant, F(4, 810) = .776, p = .541, suggesting that the Time 1 has interfered with the difference in scores between the control and experimental groups in Time 3 in a significant way.

The ANCOVA was repeated with Time 2 as the dependent variable and Time 1 as the covariate. The results showed that both the homogeneity-of-regression (slopes) [F(4, 411) = 2.374, p = .052] and homogeneity of variance assumptions [F(4,416) = 1.562, p = .183] were met. The ANCOVA was not significant, F(4, 426) = .508, p = .730,
suggesting that Time 1 has interfered with the difference in scores between the control and experimental groups in Time 2 in a significant way.

Further analyses were conducted to see if the increases in the levels of discussion complexity varied by low, mid-level and high socioeconomic areas. A 2X3 ANOVA was run for the control group to establish the normative pattern. Results suggested that there were no statistically significant differences between the two groups’ mean levels of discussion complexity. That is, low and mid-/high SES students’ mean levels of discussion complexity were similar. A 2X3 ANOVA test was also run for the experimental group to examine differences over time in the experimental group as a function of socioeconomic status (SES). Again, differences were not statistically significant between the mid-level/high SES and the low SES students.

Finally, three 2X2 ANOVAs (grouped by SES at each time point) were run to see if significant differences between the groups as a function of SES. The differences between the mean levels of discussion complexity were significant at Time 1 and Time 3, p<.001, but not at Time 2. At Time 1, the experimental low SES group had a significantly lower mean than the mid-/high SES mean, p<.001. At both Time 1 and Time 3, the mid-level/high SES experimental group was significantly greater than the other three groups, p<.001. Taken together, it appears that gains made in the mean levels of discussion complexity by the experimental group appear to be more pronounced for mid-level/high SES students as compared to low SES students, particularly for the face-to-face condition.

The most effective way to present these differences is by the proportion of deep to surface interactions for the control and Paideia groups over time. The proportions did not change for the control groups over the three times, and the control and Paideia proportions were similar at Time 1. But then the deeper interactions increased in the Moodle and seminar times, particularly for the students in the higher socioeconomic schools.
Figure 7 shows the shifts in the levels of complexity of ideas across the three time frames for the control and experimental groups.

While the number of surface comments (one idea, many ideas) were far greater than the number of deep comments (relational, extended abstract), the greatest differences were that the number and proportion of deep-to-surface comments increased in the experimental groups (Paideia groups) at the Moodle and at face-to-face times. Figure 8 shows the percentage of surface comments compared to deep comments across the three time frames for the control and the experimental groups.
Qualitative comments

The following examples were taken directly from Time 2, from the transcripts of an online discussion between the students in the high socioeconomic class who had viewed a YouTube clip of Plato’s “Cave” as motivation for provoking ideas about identity. The students have been given pseudonyms to protect their identities. The first two examples demonstrate students-to-students agreeing and then expanding on their ideas:

James: In my opinion tainted or changed is meant like it has been out of shaped and morphed throughout history by people thinking up their own definition trying to show their creativity or minds to their friends or ruler. Also I think citizens ages ago wanted to be the same as their ruler to show loyalty to him/her. Hoping to be more appreciated by their ruler to get further in life.

Katarin: I agree with Aarav, with all the points that he has mentioned. But by “identity was originally shaped by what people did to prove they are loyal and trustworthy to their leader,” I think Aarav also meant that in those tribes, you had to show respect to your leader.
and prove that you are loyal and trustworthy, and by doing that, your identity eventually formed into something that wouldn’t be YOU.

Giving students more autonomy and encouraging them to manage the discussion forum, which is not dominated by teacher talk and teacher question, generated conversations of greater depth of thinking. This example is indicative of the kind of conversations when students disagreed and then challenged with why they disagreed:

Wang Fang: I disagree with a few of Lydia’s points such as the brief glimpses of the outside world. I think the bridge and fire is there to be showing them what they’re missing out on when we’re following everyone else. As I said before in this world it’s actually quite hard to be different and step out of the box [identity wise].

In addition, it was found that central to these discussions was feedback from their teacher who posted a comment saying “Great to see you expanding and explaining the reason you disagreed”. This feedback appeared to encourage students to continue to supply reasons for otherwise unsupported opinions and to assist each other in drawing out the ideas. The students can then begin to understand each other’s assumptions about the topic and build on the ideas. The statement below is an illustration of a student supplying further explanation:

Ailish: That’s an interesting point. When I meant it was brief glimpses of the outside world I never thought it was meant to be there to show them what they [sic] were missing out on. Maybe there [sic] brief glimpses of the world their [sic] missing out on?

Being able to enrich thinking through a dialectical approach to dialogue with peers requires a flow of exchanges and collaborative interactivity between the individual and the question. It is about providing the space to allow ideas to be grappled with and tested. The following statement is an example where the student who had been challenged responds to the challenge with further explanation:
Michael: When the prisoner is being dragged up the hill I think it is representing the hill of knowledge. When he goes back to his fellow prisoners, they cannot understand him, because they can’t even grasp the simple concept of the most basic things. They in result reject his reality, and substitute their own. So they continue to try to figure things out for themselves, ignoring the released man for the rest of their imprisoned lives. And also when you first see the light, you think that the others will be excited to hear about it, but they usually think you are a religious nut because you act so different. It is sad how many people think that they are the enlightened ones when in fact they are the ones in chains and darkness. Just because you are good at reading the shadows, that doesn't mean you are enlightened, when he sees the girl that might be representing the objects in their real form. I hope to get replies.

In contrast to many classroom discussions in which teachers may inadvertently shut down discussion through requiring students to respond to questions which demand brief factual information responses, the online discussion forum gave students the opportunity to keep the conversations active. The statement below gives an example (SSQ, student-to-student with a question) of students trying to clarify meanings through ongoing discussion:

Abdul: When you say “they can’t even grasp the simple concept of the most basic things” do you think that’s making a point about the arrogance we have to accepting other things? Also, what do you mean by “The hill of knowledge?”

Focus group
A focus group discussion was held for six of the experimental group teachers at the end of the project. They were asked which students they felt benefited from the online discussions and what differences an online discussion could make to students’ participation and learning as opposed to a face-to-face discussion.
Several of the teachers commented on benefits for the quieter students: “It showed that, although they were quiet they were in fact thinking and acquiring knowledge”. Many of the teachers noted that some students contributed online who did not contribute normally in a classroom discussion. They also noted that online learning gave the students time to consider and reflect, and, importantly for this age group, they did not have to worry about what they looked like in front of their peers.

**Student response to questionnaire**

When the questionnaires from the experimental classes were gathered and analysed, it appeared that some students did not understand the questionnaire fully and struggled with the language. Some students wrote things like “what does this mean?” A limitation of the questionnaire sheet was that it was unable to be trialled before the study because the questionnaire pertained specifically to the use of Moodle. The researchers were unaware of any other middle school which at that point was using Moodle for online discussions and debate. For this reason only the use of the “Your comments” section was analysed for themes. Incorrect spelling on their written comments has been corrected so that spelling is not distracting to the reader.

Analysis of the comments indicated several themes including that many of students claimed they were more willing to participate on line than face to face.

I really like Moodle and it’s a good way to get shy people to say what they think. Moodle is fun.

(Female, high socioeconomic)

I was too shy to say my comment or at least uncomfortable. I’d rather go on Moodle than say it out loud. Because if I did, I thought people were gonna disagree with me.

(Female, high socioeconomic)

Students expressed their appreciation of having more “control” and “voice” over the learning environment:
Moodle’s the best. You can talk to each other by messages like Facebook. Plus it’s really fun. You can butt in to people’s post.

(Male, mid-level socioeconomic)

I liked Moodle because it is more confidential and you have more time to think about what you are going to say to back up your last comment where as here (face-to-face seminar) it is harder as not much time to think.

(Female, middle socioeconomic)

Some students were able to identify the impact it had on the complexity of their thinking:

I like Moodle because I get information about space I like taking like this because a feel grown up.

(Male, low socioeconomic)

Moodle helped us with our thinking and I had long chains of thought.

(Male, mid-level socioeconomic)

Some students seemed to enjoy this way of thinking and learning:

I really enjoy Moodle because our class is actually connecting more in class as well. Our class now talk more to each other.

(Female, mid-level socioeconomic)

I enjoy Moodle because it gives me the opportunity to express my ideas and [is] really cool and funny.

(Male, mid-level socioeconomic)
I love Moodle, it is fun and I can talk about the statement without getting embarrassed it is awesome.

(Female, mid-level socioeconomic)

Other students appreciated the opportunity to argue:

I think that the discussions made on Moodle were really awesome because we got to argue with others and we got to agree and disagree with others.

(Female, mid-level socioeconomic)

**Discussion and Conclusion**

The intervention of the online discussions as a means to scaffold students during the coached project of the Paideia method appeared to have an effect on the nature of involvement and the complexity of the students’ thinking during the Paideia seminar. Similarly, student-to-student-initiated dialogue in both online discussions and the Paideia seminars increased significantly as did complexity for both online discussions and the Paideia seminars.

This high level of complexity within the Paideia seminar can be mostly attributed to having the online discussions embedded in a strong pedagogical framework, namely, the Paideia method. More specifically, the students were taught explicitly the skill of Socratic questioning in a safe environment to increase the student-to-student interactions and to increase the complexity of these interactions.

The use of the online discussions was supported by the students and seemed to be a major catalyst in moving them from surface to deeper interactions. Although there has been an acceptance that technology will play an increasingly important role in education (Boulton, 2008; Chen & Wang, 2009; Jahnke, 2009; Kleine Starman, 2003; Quek Choon, 2010; Yu, 2009), many teachers resist using digital technology because they do not have the technical skills, become frustrated if the technology is not working and are not convinced that the use of technology can improve learning (Teo, 2011). Similarly, if both teachers and students are not competent in the use of
TALK IN MIDDLE AND SECONDARY SCHOOLS

technology, this could affect their ability to interact. This study showed how students could interact with minimal teacher involvement that then lead to enhanced discussion in the subsequent Paideia seminars run by the teachers.

There does appear to be a difference between students in lower socioeconomic schools when compared to those in medium and higher socioeconomic schools. This may be due to less facility and experience with the technology. Mostly the teachers in the low-SES schools identified limitations in the use of online discussions. These particular teachers struggled initially with using the online forums, because of a lack of access to computers in school and some students did not have access to the online discussion outside of school hours. The classes in the low SES schools took far longer than the classes in the mid-level and high SES schools to start participating in the online discussions. This is not related to being in a low SES area but simply because the teachers lacked confidence in using the online discussions. This resulted in the students having less time to practise “talking” to each other using Socratic questioning in preparation for the Paideia seminars. The students in the high SES schools were likely to have reasonable discussion skills entering the study due to their higher home social capital and may be have waiting for the chance to use them.

The role of e-learning as a tool to scaffold the students in moving towards their face-to-face Paideia seminar is worth pursuing, as it seems to allow students more opportunity to express their opinion and more autonomy over their learning. It is possible that adding the use of blogs (Deitering & Huston, 2004; Oravec, 2003) and wikis (Cubric, 2007) as well as Moodle could assist students in their preparation for the face-to-face seminars. Andrews (2011) argued that, because the computer interface is heavily framed as a social and political construct where the individual user has more control of the format and pace at which he or she encounters and processes the material on offer, then the learning itself is more fully embedded in social and political contexts. “He or she also has more scope in searching out material. Learning, for an e-learner, is thus less embedded in contexts, more ‘parcelled’ and re-workable in different shapes and formats, and more open to re-configuration.” (p. 118). The movement to a greater proportion and number of deep-to-surface
interactions is particularly noteworthy, and the combining of the Paideia methods with online methods seems worth continuing.

Though the interactions in Study 1 in both the online and face-to-face discussions shifted from recitation, characterised by IRE patterns and teacher test (one answer) questions, to that of discussion which is characterised by conversation, I felt the exchanges could have been deepened further by investigating different types of questions than Socratic questions as it appeared that the students struggled to ask Socratic questions of each other. This became Study 2 of this thesis, which is the focus of the next three chapters.
Chapter 5

Using Quality Talk to Increase Critical Analytical Stance in Secondary Schools

This chapter introduces Study 2. It describes the impact of a different intervention, the Quality Talk framework, on secondary school students’ abilities to talk and write in a more complex way, namely with a critical analytical stance, and explains why the Quality Talk approach was chosen as an intervention. The chapter has been accepted, in a slightly different format, by *British Educational Research Journal*, and is in press.

The construct of Quality Talk was developed as the result of collaboration between researchers at Ohio State University and Penn State University in 2012. Their meta-analysis of 42 quantitative studies examined the effects of discussion-based approaches on teacher–student talk and on individual student comprehension and learning outcomes in primary school settings. A key finding from this meta-analysis was that some programmes fostered a critical analytical (CA) stance by students where the teacher had control over the text and topic, but the students had the majority of control over interpretive authority and turn-taking so there was shared control. Examples of such programmes included the Paideia seminar (Billings & Fitzgerald, 2002), collaborative reasoning (Chinn, Anderson, & Waggoner, 2001), and Philosophy for Children (Sharp, 1995).

Programmes that engendered a critical analytical stance promoted higher levels of thinking and reasoning above the expressive and efferent stance programmes. An expressive stance (Jakobson, 1987) gives prominence to the student’s own affective, spontaneous and emotive connection to all aspects of the textual experience, while an efferent stance (Rosenblatt, 1978) gives prominence to acquiring information from the text. In contrast, a critical analytical stance (Chinn & Anderson, 1998; Wade, Thompson, & Watkins, 1994) gives prominence to querying or interrogating the text in search of the underlying arguments, assumptions, world views, or beliefs that can be inferred from the text. Each approach serves a distinct purpose depending on goals.
teachers set for their students, such as acquiring information, interrogating the text and/or its author, and responding affectively to the content of the literature. Each approach contains some type of instructional frame that describes the moves of the teacher, routines for discussion, the role of the text, who controls the discussion, and the presence of pre- or post-discussion activities. All approaches, while not identical, purport to help students develop high-level thinking and comprehension about text.

Examples of expressive stance programmes in which students have much control are literature circles (Short & Pierce, 1990), “grand conversations” (Eeds & Wells, 1989), and book club (Raphael & McMahon, 1994). On the other hand, programmes that give prominence to an efferent stance, in which teachers have the greatest control over the discussions, include questioning the author (Beck, McKeown, Hamilton, & Kucan, 1997), instructional conversations (Goldenberg, 1993), and the junior great books shared inquiry (Great Books Foundation, 1987). The Quality Talk construct, therefore, sought to include those characteristics that foster a critical analytical stance.

**A Critical Analytical Stance and Quality Talk**

A critical analytical stance, according to Wade, Thompson, and Watkins (1994), occurs when a student has the ability to interrogate or query issues and ideas in search of the underlying arguments, assumptions, world views, or beliefs. The critical analytic stance is therefore considered more desirable than either the efferent or expressive stance because this type of stance provokes more thoughtful responses. Although the efferent and expressive stances are useful pedagogical techniques, the critical analytical stance engages students more deeply because of the shared responsibility of the thinking and learning, and the emphasis on the use of questions (Wilkinson, Soter, & Murphy, 2010). The Quality Talk approach was developed to give teachers a framework for discussions around text and comprehension of text that elicited a critical analytical stance.

The key features of the Quality Talk approach are authentic questions; uptake questions and high-level questions, which include generalisation, speculative and analytical questions (Applebee, Langer, Nystrand, & Gamoran, 2003); reasoning words; and elaborated explanations (Chinn et al., 2001). If teachers and students
increase their use of authentic, uptake, and high-level questions, it is likely that students will shift the complexity of their dialogue toward a *dialogic spell*. An episode of talk is considered a dialogic spell rather than a discussion if the discussion begins with a student question (dialogic bid) and is followed by at least two more questions. The discussion may include teacher questions so long as they do not significantly alter the course of the conversation (Nystrand et al., 2003). Research has shown that critical analytical thinking is more likely to occur during a dialogic spell than during traditional dialogue (Nystrand et al., 2003); additionally, if students use more reasoning words and elaborated explanations, they are more likely to improve their dialogue and engage in more challenges, known as *exploratory talk* (Mercer, & Hodgkinson, 2008). Quality Talk seeks to promote these behaviours.

Quality Talk can involve the teacher choosing a text or discussions with small heterogeneous groups of students that begin with an open-ended question by the teacher. Once the discussion is under way, students increasingly take control. The teacher according to Quality Talk uses epistemological tools to give students greater control over the flow of information: asking *authentic questions* to invite a range of responses; employing *uptake questions* to build on student contributions; asking *high-level questions* to elicit high-level thinking (analysis, generalisation and speculation) (Nystrand et al., 1997, 2003), and *analysis questions* to encourage students to use reasoning language. These discursive elements also include questions that elicit extra-textual connections (affective, intertextual, and shared knowledge) (Applebee et al., 2003; Bloome & Egan-Robertson, 1993; Edwards & Mercer, 1987; Taylor, Pearson, Peterson, & Rodriguez, 2003). Other indicators of individual and collective reasoning include students giving elaborated explanations (Chinn, O’Donnell, & Jinks, 2000), engaging in exploratory talk (Mercer, 1995, 2000), and using key words that signal reasoning (Wegerif & Mercer, 1997; Wegerif et al., 1999). Over time, this distinction becomes blurred as students internalise ways of talking about text and use these ways to support their own thinking and that of their peers.

Previous research showed that teachers needed to provide temporary support in the early stages of discussions to introduce students to the kind of talk that promoted critical-reflective thinking (Wilkinson, Soter, & Murphy, 2010). Potential moves by
teachers useful to these conversations were summarising, modelling, prompting, marking, and challenging. Combined with these recommendations for what the teacher is expected to do, there are pedagogical principles that are considered essential to fostering a culture of dialogic inquiry in the classroom: using rich, interesting texts that permit a variety of interpretations, opinions, or positions and about which students have some background knowledge; collaboratively establishing norms or ground rules for discussions; and initiating discussion by asking a ‘big question’—a question of central importance to understanding the text that has no known answer, and about which students’ opinions may differ. The principles also included larger ideas about language and pedagogy: conceptualising language as a tool for thinking (Mercer, 1995, 2000); maintaining a clear structure and focus in a discussion while also being responsive to students’ contributions to enable generative learning (cf. Cohen, 1994; King, 1999); and gradually releasing responsibility for control of the discussion from teacher to students (cf. Pearson & Gallagher, 1983). The ultimate goal was for students to take responsibility for co-constructing their own interpretation.

Rata (2012) has argued that limiting the curriculum to experiential knowledge limits access to a powerful class resource—that of conceptual knowledge required for critical reasoning and political agency. Knowledge that comes from experience limits the knower to that experience. As asking questions is more likely to encourage a student to go beyond their own affective response or the immediate retrieval of information (Rata, 2012), an approach such as Quality Talk that encourages the use of questioning could increase conceptual thinking.

**Research on Quality Talk**

Though previous studies on the use of Quality Talk have shown an increase in a critical analytical stance during speaking, no study has shown an impact of Quality Talk on students’ ability to write with more of a critical analytical stance. For example, a study by Reznitskaya et al. (2009) of 12 fifth-grade classrooms was designed to evaluate the transference of discussions from Philosophy for Children (P4C), a programme that fostered a critical analytical stance, to a persuasive essay, an
interview, and a recall of argumentative text. Though the P4C students did engage in more dialogic interactions, they performed similarly in terms of a critical analytical stance to the regular instruction students on the post-intervention measures, including writing. The current study seeks to further examine the impact of Quality Talk on students’ writing using a critical analytical stance. Furthermore, research on Quality Talk has been largely limited by site and subject, using face-to-face discussions. Most previous research has been situated in the primary school setting, though there have been some studies within junior secondary schools involving written text. Research in dialogical education has taken place mostly in primary/elementary schools (R. J. Alexander, 2001; Mercer et al., 2004; Mercer & Littleton, 2007). There have been some studies in secondary schools but these have been located almost entirely in junior secondary or middle school and in the curriculum area of science (Coultas, 2006; Mercer & Littleton, 2007; Osborne & Chin, 2010; Scott, 2008; Scott et al. 2006, 2010).

The Current Study

The current study set out to expand the research base for Quality Talk. First, it examined Quality Talk in senior secondary school students, an age group that has not been examined. Second, the study examined Quality Talk in English classes studying films and in geography classes. As no research using Quality Talk has examined the difference between online discussions and face-to-face discussions, the study also compared performance in these two different types of discussions. The open source online discussion platform called Edmodo was chosen as this was used by a number of schools both in New Zealand and abroad and was viewed as being relatively easy for teachers and students to use without major tutoring. Following the face-to-face discussions, all students had the opportunity to engage in online discussions about the question posed by their teacher face-to-face.

Using a quasi-experimental design, the study gathered empirical evidence on students’ behaviour during group discussions at baseline and post-intervention which followed Time 3; that is, after using Quality Talk. In sum, the study aimed to establish whether:
1. The conditions that existed at baseline level in both experimental and control classrooms met those that theorists posit as necessary for dialogical discussions.

2. The training of the teachers in Quality Talk by the researcher, followed in turn by the training of the students by their teachers (in the experimental classes) in the use of dialogical discussions, would change the behaviour of the students.

3. The discussions had an impact on the students’ ability to include critical analytical thinking in their writing post-transference.

The research questions were: (a) What happens to the nature of the interactions of students during group discussions once they have been taught the construct Quality Talk and (b) What is the effect of Quality Talk on students’ ability to write critical analytical statements? The shifts in teachers’ behaviour will be discussed in Chapter 6.

Method

Participants

The students and teachers were from three co-educational secondary schools in Auckland, New Zealand. One school was classified as low socioeconomic status, one mid-level to low socioeconomic status, and one mid-level to high socioeconomic status. Based on self-report, the students were from a variety of ethnic backgrounds, including New Zealand Pakeha/European (55%), Pacific Island heritage (25%), Maori (11%), Asian (7%), Fiji Indian and Indian (3%), and other, consisting primarily of Middle Eastern and Eastern European (7%). These proportions are broadly representative of the ethnic make-up of the local population (Statistics New Zealand, 2015).

Eight teachers agreed to participate in the study, ranging in experience from a first year teacher to a teacher who had taught for almost 40 years. Five of these teachers were female and three were male, teaching either English or geography. Principals were reluctant to provide non-intervention classes since they did not want students in their school “missing out” on an intervention that could have a beneficial result, even
though non-intervention teachers were offered training in Quality Talk upon completion of the study. However, one of the more experienced teachers, whose students were comparatively high performing, offered to participate as a non-intervention teacher and upon completion of the study, this teacher was given the same training as the intervention teachers.

As a result of the reluctance to participate in the non-intervention group, there were seven intervention teachers and one non-intervention teacher. Following a true experimental design, ensuring the number of intervention and non-intervention classes was equal and sufficiently matched at baseline, would have strengthened our ability to determine the effectiveness of Quality Talk. However, since this was not possible, it was considered advantageous that this classroom’s performance was better than average at baseline, since this went against our hypothesis that Quality Talk would improve student performance. Ethics approval for the study was obtained from the University of Auckland.

**Procedure**

The different phases of the study are presented below.

**Time 1.** All students in the study completed a 200-word essay in the same format as the external essay they would need to write for a national exam later in the year. This task was an authentic assessment task as it paralleled the students’ normal preparation activities for the exam. Next, teachers in the intervention classes and the non-intervention class were asked to conduct a lesson in which they allowed time for a 15-minute group discussion to gather baseline data (Time 1). Teachers were asked to make the conditions of the discussion as similar as possible to the way in which they would normally hold discussions. This lesson was video-recorded and the 15-minute group discussions were video- and audiotaped for transcribing and coding purposes. All students were given a questionnaire to fill out to establish demographics and to find out the attitudes of students in both the intervention classes and the non-intervention class about the effect talking to peers had on their learning in both online and face-to-face situations. A copy of this survey and questions can be found in Appendix C.
Professional development. Following Time 1, teachers in the intervention classes participated in a one-day workshop in which the researcher went over key principles of learning, research on dialogic talk, the construct of Quality Talk, and how to use the online discussion forum Edmodo. Research to date on Quality Talk and the rationale behind using the construct of Quality Talk was presented and discussed in detail. An experienced instructor taught the teachers to use the open source online discussion forum Edmodo.

Intervention teachers’ lessons to students. Following the professional development day, the researcher met individually with each teacher to answer any questions and to check that each teacher felt informed and comfortable teaching within the Quality Talk framework. The teachers taught the students in their own class the different components of Quality Talk, examples were provided of each component, and a video clip of students of a similar age who were engaged in a group discussion was reflected on in light of the framework of Quality Talk. Each teacher discussed classroom environmental aspects such as respecting one another. Next, a group of students was invited by the teacher and had the opportunity of sitting in the middle of the classroom in a fishbowl activity, where the students in the middle practised a discussion and the students sitting outside the fishbowl gave constructive feedback to the degree of implementation of Quality Talk. Then all groups practised a group discussion using Quality Talk, followed by the class as a whole discussing the process and students being invited to ask any questions about the process. Once the lesson was completed the researcher and each teacher engaged in feedback and discussion, the researcher was able to answer any questions that the teacher felt unsure about.

Time 2. Several days following the practice lesson, the students in the intervention classes were given the opportunity to engage in a dialogical discussion using the construct of Quality Talk. The teacher asked authentic questions or prompts which were purposefully provocative, but closely aligned to the type of question they would be asked in the external exam. These prompts are considered authentic questions as they should prompt debate and discussion because the question does not have one answer. In the one geography class, the prompt was, “Coffee production will
always produce poverty somewhere in the world—someone has to pay the price.” In three of the English classes studying *The Truman Show* students were asked, “Weir is exploring more than just the manipulation of Truman by the media. To what extent do you agree or disagree?” In another English class with *The Shawshank Redemption* as the subject of discussion, students were given the following prompt:

The film tends to portray characters as either “good” or “evil”, with no in-between. For example, the warden is portrayed as an evil, morally questionable character, while Andy is portrayed as saintly, stoic, and full of integrity. This is largely an inaccurate portrayal of people in the real world.

In three classes which were studying the film *Juno*, the question prompt was: “In what ways is the abortion clinic a turning point for Juno’s character” One of these classes was the non-intervention class, whose students and teacher also engaged in 15 minute group discussions but without using the framework of Quality Talk. The students and teacher in the non-intervention class also engaged in 15-minute group discussions based on the same *Juno* prompt, but without using the framework of Quality Talk.

All of the students, intervention and non-intervention, were asked to complete a number of questions in a written questionnaire to establish attitudes to the group discussions and the levels of their metacognitive awareness of what was expected of them for the future high-stakes assessment tasks that this study was part of preparing them for. The questions were: “What makes a good discussion?” “Describe in your own words what the marker of your essay will be looking for if they were to grade you an excellence for your essay in the external film study exam”; and “Do you think that talking in your group today helped you to think more deeply—if YES then say how it helped you to think more deeply and if NO then say why it did not help you to think more deeply”. A copy of these questions can be found in Appendix D.

**Time 3.** Two days following Time 2, the researcher returned to both the intervention classroom and the non-intervention classrooms and showed the students transcripts of their group discussions. The students in the intervention classes were asked to critique the complexity of their discussions in light of Quality Talk (e.g.,
whether they had used uptake questions). The students in the non-intervention class were asked to critique the complexity of their discussions and to discuss with each other how they could be improved.

Immediately after the reflection opportunity, all students were given another provocative authentic question by the teacher on the same film or geography topic they were studying in Time 2 and asked to engage in a 15-minute group discussion. The non-intervention class students used their normal format for a group discussion and the intervention classes used the construct of Quality Talk to help frame the discussion. Questionnaires were given to all students and teachers in both the intervention class and the non-intervention classes to determine if they felt these group discussions had an impact on the students’ abilities to think, talk and write more deeply. A separate questionnaire was given to the intervention classes to establish if the students were aware of the differences between dialogical discussion and normal group discussion: “What is similar about a dialogical discussion to your normal group discussions?” “What is different about a dialogical discussion to your normal group discussion?” “What motivated you to participate in your group’s dialogical discussion?” “Is there anything that stopped you from participating?” and “If you do not participate but enjoyed listening please make a comment”. A copy of these questions can be found in Appendix E.

**Post-intervention essay.** Following Time 3, all students in the study were asked to write another 200-word essay on the same topic as the pre-intervention essay. The questions were similar but not the same as the question prompts for the students’ discussion. These essays were graded according to the criteria explained in the measures and coding section. The students were also asked to write down what they would say next in a discussion if someone in the group said the following (which one student had in one of the Time 2 discussions): A copy of this questionnaire can be found in Appendix F.

This is what someone in Year 11 in the study said in one of the group discussions “… he not only manipulates the characters in the movie, but he also involves the people viewing the movie, the audience,
because he triggers a sense of emotional attachment towards the characters. Truman and Sylvia for example. See they have feelings for each other, but…”

They were then asked the following questions to justify their answer:

Write down what you would say next so that the discussion becomes a dialogical discussion and everyone in the group would be thinking deeply.

Why do you think what you wrote would help to make the discussion a dialogical discussion and that everyone in your group would be thinking deeply?

**Measures and coding**

A discourse coding manual was developed by Soter and team and has been trialled and used for analysing the dialogical discussions using the construct of Quality Talk (Soter, Wilkinson, Murphy, Rudge, & Reninger, 2006). The authors of this manual gave permission for it to be used for coding in the current study (see Table 5). Teacher and student responses from both the face-to-face group discussions and online discussions and intervention and non-intervention classes were coded.

**Coding of essays.** Pre- and post-intervention essays for all students were coded for critical analytical (CA) thinking (Wade, Thompson & Watkins, 1994). The students needed to write with an interrogation or querying of the text in search of the underlying arguments, assumptions, world views or beliefs. For example, in the English essays, any comments about the director's purpose/intention would count as critical analytical thinking. Sentences beginning with the following were likely to contain critical analytical thinking: “Weir wants us to think about …”, “Weir is teaching us that …”, “Weir is questioning …”, “Weir wants his audience to feel …”. The number of critical analytical statements was assessed by two experienced English and geography teachers. For reliability, an experienced English teacher who graded exams at a national level and a geography lecturer at the University of Auckland checked 30% of these essays. Agreement rate for the grading of these essays was 95%. For the 5% in which there were discrepancies, the difference in the number of
critical analytical statements recorded was no greater than one. The researcher and
the lecturers discussed these discrepancies and agreed on a final grade for these 5%
and these results were recorded.

**Questionnaire coding.** Teachers and students in the intervention classes and
the non-intervention class were given questionnaires at Time 1, Time 2, and Time 3 to
determine their beliefs about the effect of the group discussions in both face-to-face
and online settings and their impact on the students thinking, about the question
prompts. To check for understanding of the task of writing the 200-word essay, all
students were asked to describe what the examiner would be looking for when
grading their essays to determine if they scored a high grade. At Time 3, students in
the intervention classes were given extra questions to track if they were aware of any
psychological mechanisms they were using that may be different or the same using
Quality Talk versus their normal group discussions and were also given a part of a
transcript and asked to complete the transcript so that it included features of Quality
Talk.

The students’ questionnaires were initially coded using highlighting to signify
participant passages worthy of attention (Boyatzis, 1998); they were then viewed for
pre- and post-intervention similarities and differences (Hatch, 2002). Finally, themes
and concepts were systematically interrelated to lead the researcher towards the
development of ideas (Corbin & Strauss, 2008) that may have contributed to changes
in behaviour and beliefs about group discussions.
Table 5

Summary of Quality Talk Codes (based on Soter et al., 2006)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authentic</td>
<td>One for which the person does not know the answer or is genuinely interested in knowing how others will answer.</td>
</tr>
<tr>
<td>Test question</td>
<td>An inauthentic question which presupposes one correct answer.</td>
</tr>
<tr>
<td>Other question</td>
<td>Includes aborted, rhetorical, procedural, or discourse management.</td>
</tr>
<tr>
<td>Uptake question</td>
<td>Where the person asking the question asks about something that someone else said previously.</td>
</tr>
<tr>
<td>High-level thinking questions</td>
<td>A question that leads to generalisation, analysis, or speculation.</td>
</tr>
<tr>
<td></td>
<td>A question can be judged to be high-level thinking question if it elicits new information, rather than old information, or if it cannot be answered through routine application of prior knowledge.</td>
</tr>
<tr>
<td>Inter-textual reference question</td>
<td>A question that elicits reference to other literary or non-literary works, other works of art, or media, television, newspapers or magazines.</td>
</tr>
<tr>
<td>Affective response question</td>
<td>A question that elicits information about students’ feelings or about their lives in relation to film/text.</td>
</tr>
<tr>
<td>Reasoning words</td>
<td>Because, if, so, I think, agree, disagree, would, wouldn’t, would’ve, could, couldn’t, could’ve, may be, might, as if, like, but, how, why</td>
</tr>
<tr>
<td>Elaborated explanation</td>
<td>A statement of claim that is based on at least 2 reasons, either independent or conjunctive or causally connected, or at least a reason and evidence for the reason, where the student makes explicit the link between the claim and their reasons or evidence.</td>
</tr>
<tr>
<td>Dialogic spell</td>
<td>An episode of talk is considered a dialogic spell rather than a discussion if the discussion begins with a student question (dialogic bid) and is followed by at least two more questions so long as they do not significantly alter the course of the conversation (Nystrand et al., 2003).</td>
</tr>
<tr>
<td>Exploratory talk</td>
<td>For an episode to be considered Exploratory talk, an episode emphasises the balance between critical and cooperative orientation (Mercer &amp; Littleton, 2007).</td>
</tr>
</tbody>
</table>
Results

Differences in types of questions pre- and post-intervention

The results of this study indicated that the construct of Quality Talk had an effect on the nature of student interactions. This is demonstrated visually in Figure 9, which shows the mean number of different question types comparing students in the non-intervention class with those in the intervention classes over time.

![Figure 9](image-url)

*Figure 9. Mean number of selected Quality Talk questions per student over time by intervention and non-intervention classes*

Figure 9 suggests that the number of authentic, uptake and high-level questions increased from baseline to Time 2, then dropped back somewhat from Time 2 to Time 3 for the intervention classrooms, but remained higher than at baseline. In contrast, the number of these questions generally declined in the non-intervention class. Repeated measures ANOVAs of the student-level data revealed that the interaction
effect between time and classroom (non-intervention or intervention) was significant for these three question types ($F(2,314) > 3, p < .05$). Analysis of the simple main effects revealed that the decline in the number of authentic, uptake and high-level questions per student was significant within the non-intervention class. In contrast, the increased usage of these three questions types was significant in the intervention classes ($F(2,272) > 3, p < .05$). These changes are reflected in the transcripts of the students.

The two extracts that follow show an example of the shift in behaviour in the way students in an intervention class interacted with each other from baseline to post-intervention.

In the first extract from the baseline (T1) transcript, three students are discussing an authentic question—what motivates a director to make films?

Elja: What things do you think motivate film directors to have an overall message in mind? *(Assigned question)* A script.

Lucy: Yeah, money and helping the teenagers of today by sending them moral messages through film.

Elja: It’s not really the directors is it? It’s the script writers who do that. The directors are just like… *(Authentic, uptake, low level question)*

Lucy: No but the director uses like lighting and film to convey the script writing. The director overall sees it. Examples? What are examples? *(Assigned question)*

Thomas: He gets the most credit for doing shit all.

Lucy: The director gets to sound angry and shout at people, I suppose.

Elja: It’s the ADs who do most of it.
Teacher: (joins the group) Shall we go on to number three, guys? What motivates… (Managing the discourse)

Logan: Real life scenarios.

Lucy: Getting a pay cheque afterwards.

Teacher: Getting paid.

Lucy: Money and entertaining the audience so they get extra dollars.

Elja: Fame.

Bethany: I think they are trying to like show their own opinion and like their … try that as well.

Elja: Selfish.

This baseline extract shows that the students respond mostly in a monologic fashion (Wegerif, 2013); that is, they respond with a statement but do not interact in dialogue through the use of uptake questions to elicit more thoughtful responses from each other. The students mostly stay on task and are listening to each other but appear to not have the skills necessary to draw out a richer dialogue. The teacher enters the conversation and immediately asks a procedural question without first listening to what is being said.

The next extract shows the same students in discussion following the Quality Talk intervention. The students are discussing the film, The Shawshank Redemption, and whether or not it shows that people change, or rather just have momentary steps outside their true character.

Lucy: What change do we see in Andy throughout the film? (Authentic question, high-level question)

Logan: Andy changes in emotions.

Lucy: How? (uptake question)
Brandon: He’s silent for the first few months and the first person he goes to is Red.

Logan: Andy becomes a lot more confident in both himself and his personality.

Lucy: But is that… he didn’t really change, that was his true character, he was just hiding it away because of his environment? \((\text{Authentic question, uptake question, high-level question})\)

Logan: Over time he became more confident in prison until he was the top dog in the prison show.

Lucy: But he was confident when he was outside the prison as well. He was still a confident… like his character is of a confident nature, he just didn’t show that while he was in prison because he was scared. \((\text{Uptake statement})\)

Logan: Was he scared? \((\text{Authentic question, uptake question, high-level question})\)

Lucy: Well you could imagine he would be pretty scared if he was shoved in prison for something he didn’t do.

Brandon: And the expression on his face was fear, like something terrified. Especially when he got beaten and all that. \((\text{Uptake statement})\)

Lucy: Yeah it would have been pretty traumatic actually. \((\text{Uptake statement})\)

Logan: Did prison change Andy?…\((\text{Authentic question, high-level question})\)

Brandon: Um, he went in…
Thomas: He does revert back to some of his old ways, like he chooses to do the banking for the guards, so you can see he still does have his former self in him. (*Elaborated explanation*)

Logan: That’s not his former self, that’s just his… (*Uptake statement*)

Thomas: It’s what he loves though. (*Uptake statement*)

Logan: His former self is his character though. (*Uptake statement*)

Brandon: Well he did the same thing. He was an accountant outside of… or banker slash accountant… outside the prison, and then when he went into prison, he did the same sort of thing. (*Uptake statement*).

The conversation after the Quality Talk intervention has now become dialogic (Wegerif, 2013) because the discussion includes at least two student questions and the students are interacting with each other rather than each responding with a statement. The students’ use of authentic, uptake, and high-level questions has increased and consequently this results in a dialogic spell (Nystrand et al., 2003) In turn, the dialogue appears to be more thoughtful and the students engage in more complex responses.

**Dialogic spells and exploratory talk pre- and post-intervention**

As dialogic and exploratory spells reflect the wider conversation, rather than a single statement, the results could not be analysed at the student level. Rather, the data are presented as the mean percentage of dialogic spells and exploratory talk for the non-intervention and intervention classes at Time 1, Time 2, and Time 3. The most common shift was in the proportion of dialogic spells. The non-intervention class was initially somewhat higher than the intervention class on dialogic spells at baseline, but a $z$-test of the difference in proportions indicated that this difference was non-significant ($z = .62, p = 0.54$). The proportion of dialogic spells increased markedly in the intervention classes, and was significantly higher than in the non-intervention class at Time 2 ($z = 0.62, p = 0.03$) and Time 3 ($z =2.29, p = 0.02$). The
increase in dialogic spells is indicative of the increase in authentic questioning, uptake questioning and high-level questioning, as a dialogic spell is dependent on students asking questions of each other. Figure 10 shows the mean percentage of exploratory talk and dialogic spells for intervention and the non-intervention class at baseline (T1), Time 2 and Time 3.

![Figure 10](image.png)

**Figure 10.** Mean percentage of exploratory talk and dialogic spells for non-intervention and intervention classes at Time 1 (baseline), Time 2 and Time 3.

However, the level of exploratory talk remained quite low for both groups. To be coded as exploratory talk, an episode needed to include not only a challenge or a dispute, but the challenge had to result in a shift in the shared understanding because
simply disputing or challenging is considered disputational and not conducive to a dialogical discussion (Mercer & Dawes, 2010; Wegerif, 2010). However, it is worth noting that the class that had the greatest increase in critical analytical statements did engage in exploratory talk episodes at times, and these episodes demonstrate rich dialogue and explicit reasoning. In the extract below, these students wrote their essays with a high numbers of critical analytical statements in their post-intervention essays and are exploring the director’s intent in the film, *The Truman Show*, and whether happiness, growth, and fulfilment are possible if one is being controlled. The extract is taken from the beginning of their discussion.

**Tom:** So I would like to pose the question. Having control of one’s life as opposed to being controlled by outside forces is crucial to human happiness, growth and fulfilment. Is it? In terms of TTS [The Truman Show]. *(Assigned question)*

**Rex:** It’s crucial to happiness.

**Samantha:** I think it is because if someone else is controlling you, it wouldn’t really be, what is happening wouldn’t really be part of your personality, like it was for Truman, because he was being controlled. Yeah, he wanted to go, so that wasn’t good for his happiness.

**Tom:** I’d like to dispute your point. *(Challenge)* I think if he never knew and never had any inkling that anything was happening, he would have been happy or could have been happy. Just the fact that before Sylvia came along, he was quite happy. He wasn’t completely perfect and content but he was happy. *(Reasons for challenge)*

**Rex:** I would just like to ask, based on what is he happy? Because how does he know what is happy? And is he happy based on what Christof has set up for him? *(Challenge as a question.)*
TALK IN MIDDLE AND SECONDARY SCHOOLS

Tom: I think his happiness is based on what Christof has set up, but it’s still genuine. He’s still genuinely happy as a kid and as he’s growing up. *(Reasons and evidence to support his point)*

Samantha: Because he wants to go, and at every turn he is stopped by people from Christof. *(Challenge)*

Morag: It says “growth” as well. *(Challenge that redirects the discussion to the assigned question)*

Samantha: Yeah so it’s not really helpful to his growth, if being controlled.

Tom: I guess if you do take it in that light, with growth and fulfilment, you need to be able to grow yourself, if that makes sense. *(Concession and agreement—being controlled stifles growth)*

Samantha: It does make sense, yeah.

This transcript differed from many of the transcripts coded because it is an example of exploratory talk. Here the students challenge with disputes and students subsequently respond to being challenged and justify their thoughts with evidence.

The smallest number of shifts in the use of dialogic spells was from the class whose students appeared not to understand the question that the teacher had given the students: How is the concept of “liminal spaces” explored within the context of Murray Keane’s *Falling Sparrows* and how does it connect to other texts you’ve studied this year? Though the students had been highly engaged watching the short film, the students did not fully understand the concept of “liminal spaces” and were unaware of how it connected to other texts studied.

**Differences in written text**

The mean number of critical analytical responses in the students’ pre- and post-intervention essays increased within the intervention classes, and decreased in the non-intervention class, as shown in Figure 11. Repeated measures ANOVA indicated that there was an interaction between time and classroom (non-intervention or
intervention), with respect to the mean number of critical analytical statements per student \((F(1,157) = 11.33, p = .001)\). Analysis of the simple main effects revealed that the decline in the number of critical analytical questions per student was non-significant within the non-intervention class \((F(1,21) = 2.69, p = 0.12)\). In contrast, the increased usage of critical analytical responses was significant in the intervention classes \((F(1,136)= 41.22, p < .001)\). This equates to an effect size (Cohen’s \(d\)) of -0.4 within the non-intervention class, and 0.92 within the intervention classes.

![Figure 11](image.png)

**Figure 11.** Mean number of critical analytical statements per student before and after the Quality Talk intervention.

**Coded questionnaire results**

**Views of students at baseline.** At baseline, students in the intervention classes and the non-intervention class saw group discussions in a very favourable light. Their beliefs about what makes a good discussion and the benefits for learning mostly centred on the importance of students having knowledge about a topic that they did
not know, hearing different points of view, having something interesting to talk about, and the cooperative nature of the group discussions. Many students rated as important taking turns and listening to and being respectful of each other. Only one student rated challenge as being important and one student said that understanding why a belief was held was important to learning.

**Views of students with high critical analytical results post-intervention.** Students who reported the highest numbers of critical analytical comments in their post-intervention essay scores showed a trend in their answers in the questionnaires that differed from students who made fewer shifts. These students were able to describe what an examiner would be looking for when grading their essays to receive the highest grade. They felt that the notion of challenge was important to their thinking and they were aware of the psychological mechanisms of the discussions, such as being asked questions, and that the actual mechanism of talking helped them to think more deeply. Knowing the difference between how discussions using Quality Talk differed from their normal group discussions was another theme that emerged for students with high critical analytical statements.

The following are examples of statements from Samantha and Tom, who are identified in the exploratory talk transcript above and who scored high numbers of critical analytical statements in their post-intervention essays. Here they are able to describe in detail what the examiner would be looking for when grading their essays:

- Beyond what is presented in the film, and going deeper, into the outside world and how it relates to the topic of the film. Perceptive. Relate to society/the wider community. (Samantha)

- They will be looking for evidence to prove what we have said. Also they will be looking for in-depth answers e.g., explaining why and how certain things happen or explaining effect/impacts. (Tom)

The next statements illustrate students identifying how the notion of challenge was important to their thinking:
It helped me think deeply for they will criticise or debate to me about my ideas and I will try to think deeply to know if my idea is wrong or correct.

And:

In a dialogical discussion we challenge each other and build the discussions (sic). In normal discussions we don’t challenge each other.

Other students identified that students asking them questions helped to them to think more deeply:

Because when we talking about a topic that I really want to clarify and unpack, it makes me think deeper, especially when they ask me questions (sic).

And:

It helped me think deeply because of the questions my group asked.

A number of students identified that the actual mechanisms of talking helped them to think more deeply: “To hear my gaps and apiniens (sic) helped me”, “I was able to hear my thoughts out loud and see its strengths & weaknesses”, “Because when I talk about it out loud it helps me understand and recieve (sic) information” and “Because you can see what everyone feels and thinks about their topic—not just the teachers. You learn more because everyone has a different way of thinking.”

Another theme that emerged from the students who scored high critical analytical results was that they were able to identify the difference between using Quality Talk and their normal discussions: “The difference is that using Quality Talk you are questioning and challenging other arguments to a high level so that new and improved with more valid opinions (sic)” ; “It helped me to think about what I have got wrong, if I had insufficient evidence to support my point, and they made me think in a different perspective”; “You get to use a high level sort of English that you use in dialogical discussions compared to our
normal discussions”; and “We go into more depth about the topic as opposed to a normal discussion, there is more intense concentrated sense to the topic, and we draw out specific parts of, the ideas that are brought up.”

These various statements and themes are important to identify perspectives from students as to what contributed to their ability to think more deeply and critically following the intervention.

**Testing for understanding of Quality Talk.** To test students’ understanding of the difference between a group discussion and one using the intervention Quality Talk, students in both the intervention classes and the non-intervention class were given an actual excerpt from one of the discussions in the study and were asked what they would say next and to justify why they would say it. For example, some of the students in the intervention classes and the students in the non-intervention class who were studying the film *Juno* were given this excerpt from a transcript from Time 2.

Yeah and that’s kind of like another part of Juno’s growing up kind of. She’s stopped judging people. Well she hasn’t stopped, everyone judges, but she’s kind of realised that you can’t really judge a book by its cover.

A number of the students from the intervention classes who scored high critical analytical scores on their post-intervention essays responded to this question with either an uptake question or a high-level question and were able to justify why their question would help:

I would say “What shows you that she is ‘against’ judging a book by its cover?”

(Josh, seven CA statements in post-intervention essay)

Josh’s justification for his question was as follows:

Instead of bringing in a new idea, and ending the discussion of the current topic, what I have said would help for conversation to deeper in to this topic.
Another student, Helen, offered this question:

Yeah, and do you think this lesson learnt by Juno applies to the world or the society we live in today? Does it also teach us something?

(Helen, five CA statements in post-intervention essay)

Helen’s justification was as follows:

Because I gave them a lead as to how the text could relate to the world we are in today which makes them think deeper as they could now focus on thinking over the link which leads them up to an excellence analysis.

Other findings relate to exploratory talk episodes, reasons for non-participation, and results from the online discussions.

Though there were few exploratory talk episodes, male students in the low and low to mid-level socioeconomic schools in particular wrote that the opportunity for arguing presented by dialogical discussions was what motivated them to participate: “The argumentative part”, “Cause I was keen on proving some wrong and right”, “Someone disagreeing with your comment makes you want to challenge the person” and “Well the fact the we hold different viewpoints, encourages me to get my point across”.

The question “What stopped you from participating?” had surprisingly few responses. Some students said “Cameras which were present”, and other isolated comments were that “I couldn’t hear properly due to the rest of the class talking”.

Some of the students who scored high critical analytical results had continued the discussions online and this may have consolidated their thinking process in order for them to be able to write using a critical analytical stance. Students who engaged in conversations online in their same face-to-face groups interacted in a similar way; that is, using uptake and high-level questions. However, some classes were not set up online in these same groups but were set up online as a whole-class group. The nature of the interactions when students were set up as a class was different to those classes
set up in their face-to-face groups. When the classes were set up as a whole class the postings were individual elaborated explanations and very few questions were asked. The nature of the interactions therefore remained monologic rather than dialogic (Wegerif, 2013) as the lack of questions resulted in minor numbers of interactions. The online results are examined in depth in Chapter 7.

**Discussion**

This study trialled the use of Quality Talk in small group heterogeneous discussions within the context of a film unit and a geography unit at three secondary schools. The research questions were (a) What happens to the nature of the interactions of students during group discussions once they have been taught the construct Quality Talk? and (b) What is the effect of using Quality Talk on students’ ability to write critical analytical statements?

The study found that students in the intervention classes increased their use of authentic questions, uptake questions and so on, and that this was, in turn, reflected in a greater use of critical analytical thinking in written work following the intervention. The students in the non-intervention class did not show an increase in their use of questions to each other as was expected as they had not been encouraged to do so. The students in the non-intervention classes posed statements such as “I agree” and “disagree” but because of their lack of questions to each other were not interacting in a way that promoted greater depth to the conversation.

This is consistent with the findings of Wilkinson, Soter, and Murphy (2010) who asserted that productive discussions occur when students hold the floor for extended periods of time, when students are prompted to use authentic questions and when discussion incorporates a high degree of uptake.

This study found that students engaged in more dialogic spells than exploratory talk episodes because though students challenged each other, they were far less successful at using this challenge to unravel a shared “higher” understanding (Barnes, 2008; Mercer, 2008a; Wegerif, 2010) and therefore the challenge could not be coded as exploratory talk. Instead of challenges, the students in this study seemed to prefer to
ask each other uptake and high-level questions and, in turn, these appeared to contribute to students encouraging each other to delve deeper. As exploratory talk was designed for problem solving, and the film unit and geography unit were not designed specifically for problem solving, this could also explain why there were fewer challenges. However, the students in one class who did engage in both dialogic spells and exploratory talk scored the greatest number of high levels of critical analytical statements in their post-intervention essays. Therefore, rather than dismissing the use of challenge because the students did not appear to have the skills to use a challenge to gain a higher understanding, the use of challenge may be worth exploring further. An implication of this finding is that because the classroom environment feature of respect is so important to adolescent students, a teacher could encourage the use of disagreements and disputes with a conversation on how to do so respectfully. Perhaps teachers could indicate that to be challenged does not imply disrespect and explore why we may view being challenged in a positive light.

Accepting challenges as normal may not be an easy shift in thinking to encourage with adolescent learners however. Burbules (1993) cautioned that when students are quick to judge, it can threaten the fabric of a dialogical relation, turning it from a cooperative to a competitive and from a trusting and respectful to a predominately suspicious interaction. Many students in the study commented that trust and respect were important to their willingness to participate, and so encouraging challenge could result in less confidence from the students to interact with each other.

Some students in this study seemed better equipped than others to transfer the complex talking to their writing. Another learning outcome of the study was that a close analysis of the student questionnaires revealed that students who had high numbers of critical and analytical statements in their essays were more aware of what the examiner would be looking for in terms of how to write with a critical analytical stance when grading their essay. These students could articulate and describe the criteria with which the assessor would be grading their essays. Other factors which appeared to contribute to students scoring high critical analytical results were awareness of psychological mechanisms such as the use of questions and the actual function of expressing your thoughts out loud. These same students could also
explain the differences between the discussions using Quality Talk and a normal group discussion.

Students enjoyed seeing the transcripts from their previous group discussions, as evidenced by the laughter that could be heard as they read through the scripts. They were able to critique and evaluate the dialogue according to the construct of Quality Talk and address this in their next discussion. Busy secondary teachers do not have time to type transcripts from discussions but simply putting an iPad at each group’s table and video recording the discussions could be a viable alternative. The groups could view their discussions and assess the degree to which they implemented the components of Quality Talk. There is always a risk in a study such as this that students will mimic the type of dialogue expected in the training. One of the boys in the study did this humorously, as the transcripts combined with the video footage revealed, by sarcastically asking uptake questions to his group. Unexpectedly, the other students in his group took no notice of his tone and actually answered his uptake questions. Therefore, the risk of students mimicking or parroting what was required appeared to not be a problem.

**Conclusion**

The study was an important contribution in the field of dialogical education because it found that the use of Quality Talk was successful outside of text comprehension and at senior secondary level to increase critical analytical thinking. The call for more research in the use of dialogic teaching in secondary schools has gained momentum in the past few years as understanding develops about the role of talk in learning. The majority of these arguments cite improvements to student critical thinking and retention (Higham, Brindley, & Van De Pol, 2014). That dialogic spells increased the level of interactive dialogue between the students in the intervention classes is an important finding because interaction is important to critical thinking. Habermas (1971) claimed, an important component of critical learning is the reflective process and recommended groups of people sharing informed judgements to generate critical ideas or theories about the validity of the issues under consideration. Critical learning is a reflective activity with critical intent that enables students to engage socially in
learning tasks and collaborative problem solving. Therefore, opportunities for students to have rich and complex discussions, not only offer students the chance to engage on a deeper cognitive level, but also offer opportunity for students to learn more about themselves and others. A psychological task of adolescence is to form identity and fundamental to this formation of self are the cultural communities in which we are nurtured (Taylor, 2009). These communities provide the moral and social frameworks we use to describe who we are, how we see others, what the situations we encounter in life mean to us, what our options are, how we evaluate them and what actions we undertake. Without the language of the community we would not be able to make sense of our lives (Taylor, 2009). Quality Talk is a pragmatic tool to help develop this sense of self within community and ultimately a sense of identity for adolescent learners.
Chapter 6
Effect of Dialogic Teaching
on the Seven Secondary Teachers

Chapter 5 explained the results of the introduction of the intervention Quality Talk on the nature of the interactions between the students and the effect on their ability write with a critical analytical stance. This chapter will focus on the effect that this intervention had on the teachers in the study. During the professional development of the teachers, the principles of dialogic teaching were included as dialogic teaching is a professional outlook rather than a method of teaching. The study set out to examine the impact the intervention of Quality Talk and the principles of dialogic teaching had on the teachers’ behaviour during the study and their beliefs about dialogue as this combination of constructs had not been researched before. This chapter on the effect of dialogic teaching on the teachers in the study has, in a slightly truncated form, been submitted to the journal Learning and Instruction.

Dialogic Teaching

The call for more research in the use of dialogic teaching in secondary schools has gained momentum in the past few years as understanding is developing about the role of talk in learning. The majority of this research cited improvements to student critical thinking and retention (Higham, Brindley, & Van De Pol, 2014). The broad term dialogic teaching has been developed in the last decade to include specific aspects of dialogism. Dialogic teaching comes predominately from the work of Alexander (R. J. Alexander, 2001) who compared student and teacher talk in primary classrooms in five countries, (England, France, India, Russia, and the United States) and found similarities across all countries except Russia. In the other countries, Alexander saw classroom talk as mostly incorporating rote, recitation, exposition, and some discussion. He discovered that in Russian classrooms, the teacher engaged students in thinking and supported them in long sequences of authentic questions and answers. Alexander called this talk “dialogue”, influenced by the work of the Russian theorist, Bakhtin, who had distinguished dialogue as involving the incorporation of
TALK IN MIDDLE AND SECONDARY SCHOOLS

questions, because the goal of dialogue is shared enquiry and shared thinking, rather than just sharing information or feelings (Bakhtin, 1986). In dialogue, rather than there being just a simple question and answer, the answer gives rise to another question. The outlook of a teacher is important in dialogue because using discussion and dialogue requires students to not merely listen and answer, but to think, engage and take part in discussions about their learning. By using discussion and dialogue students are more likely to be empowered both cognitively and socially, instead of being continually told things or tested on what they already know. The key dialogic principles are that the interactions in dialogue should be collective, reciprocal, supportive, cumulative and purposeful (R. J. Alexander, 2008). Another major contribution to the study of dialogic teaching was the British researcher Scott and his Brazilian colleague Mortimer, who recorded and analysed lessons in secondary science classrooms (Mortimer & Scott, 2003). A dialogic teaching approach, according to their findings, involves the teacher asking students for their points of view and explicitly taking account of what is said; for example, by asking for further elaboration or by asking students to compare ideas. They acknowledged that for students to learn effectively it is appropriate at times for students to listen to an authoritative explanation. Their own definition of dialogic teaching related to the inter-animation of voices. However, students are more likely to develop a deeper understanding of the topic if they have opportunities to express their own ideas, hypothesise, hear other points of view, argue, reason and gain feedback from their teacher because this allows for a “thinking aloud” line of reasoning (Dawes, 2004; Myhill, Jones, & Hopper, 2005).

Nuances under the umbrella term “dialogic teaching” are dialogic learning (van der Linden & Renshaw, 2004), dialogic pedagogy (Skidmore, 2007) and dialogic inquiry (Wells, 1999) but for the purposes of this paper, dialogic teaching in conjunction with the intervention Quality Talk will be the focus. The intentions of dialogic teaching are to harness the power of talk to stimulate and extend students’ thinking and advance their learning and understanding and so the conjecture is that the intentions of dialogic teaching could have benefits for secondary students who need to be thinking at deep levels in order to gain high grades in exams. Dialogic teaching has been trialled in whole class discussions rather than small group discussions but this
study focused on group discussions to gain maximum data on students as whole class discussions are likely to be dominated by fewer students.

There has been little research in senior secondary schools to date in the field of dialogical discussions (Higham et al., 2014) as most research has related to Years 7 and 8 and the focus has been on science (Coults, 2006; Scott et al., 2006).

Higham et al. (2014) found the following:

The scope of dialogue research within secondary education, then, has so far been somewhat limited in scope and breadth; furthermore, no studies have yet focused on the distinct challenged and affordances of promoting dialogue in a secondary context, nor in exploring the notion that the nature of dialogues may be linked to subject epistemology. (p. 88)

In the past two decades, various reasons have been offered to explain the slow adoption of dialogic talk by secondary teachers. Burbules (1993) believed that the reasons for the “failure of dialogue” (p. 43) ranged from the discouragement of open participation, to crowded classrooms, to test-driven instruction. Daniels (2001) argued that schools are far less reflective about what is said than what is written, and so do not place much importance on discussion skills and tools. The fixation of systems and schools on written assessments was explained in part by Wells (2007) who contended that as knowledge was a noun, the term “knowledge” is understood to be about what is already known and is therefore primarily an individual characteristic. The notion of “knowing together” (Bakhtin, 1986) through dialogue does not fit with this description of knowledge. Therefore, because schools and systems rely on written assessments and teachers struggle with time constraints as they prepare students for these written assessments, opportunities for students to engage in dialogical discussion are crowded out of the school day. Moreover, direct instructing can have an effect size of 0.59 (Hattie, 2009) on student learning and therefore initiate-response-evaluate (IRE) exchanges can be an efficient tool for teachers to directly communicate with students to ensure shared understanding.
Lefstein (2006) argued that assessment in secondary schools should not be an excuse for the lack of dialogic talk. He stated that his research in East London schools suggested that during exam preparation, dialogic indicators “plummeted” in favour of “spoon feeding” but that this did not necessarily lead to an improvement in achievement in those exams.

Dialogic talk is something that we can engage in every day, as our natural form of communication uses intersubjectivity and perspective-taking. However, due to a specific role appraisal within most schools whereby the teacher is the primary knower (Bernstein, 1975), the communication easily becomes lopsided since the teacher is assumed to be the one who knows so there is no need to take perspective. The belief of the teacher concerning how he or she views knowledge is important because the teacher may see knowledge as something that is transmitted or something that is co-constructed (Vygotsky, 1978). If students are not use to co-constructing knowledge then, in order to initiate and sustain an episode of linguistic interaction, the students have to work at establishing and subsequently maintaining agreement about the topic and purpose of their talk. That is to say, they continually have to aim for sufficient “intersubjectivity” to allow the conversation to proceed (Wells, 2007). Not only do the students have to identify what is being referred to, they also have to consider the position adopted by the speaker and how they themselves are positioned on it. They then have to decide on the position they will take up in response—whether they will agree or, if not, how far they feel the need to amplify, qualify, or object to what they believe to have been meant by what was said (Wells, 2007). Moreover, dialogic talk is not based on a simple prescriptive model but it involves many different people providing arguments based on validity and not power claims (R. J. Alexander, 2005).

Reznitskaya et al. (2009) believed that teachers do not know how to use talk in classrooms to enhance learning and that this is why dialogic talk has not become common.

There has been conflicting evidence and recommendations over the years about the role of the teacher in promoting dialogic talk. The use of questions, for example, has been contentious. Dillon (1985) contended that it is not questions from the teacher but statements which generate complex discussions. Dillon argued that teacher
questions can limit discussion because of their expectation for an answer from a
student. He argued that questions tended to generate a discussion between teacher
and student instead of discussion between students. Dillon’s research found that
unless a teacher asked a question with genuine perplexity, then the question could
actually inhibit discussion. His work showed that the greater use of teacher
statements and signals, the more extended the nature of student talk, and in turn the
higher the level of interaction between students (Dillon, 1985). However, subsequent
work has found that the use of teacher questioning, specifically, authentic questions,
uptake questions and high-level questions can increase the number and length of
episodes of dialogic spells (Nystrand et al., 2003). The data in their study consisted
of 33,904 question interactions in 872 observations of more than 200 eighth and ninth
grade English and social studies classes in a wide variety of schools in the midwest of
the United States of America.

An example of an authentic question is one for which the asker does not have a pre-
specified answer and depends on the context. In their study, the teacher question
“Who has more power in the plant” (p. 145) was considered an authentic question
because it could elicit more than one answer, which is defined as a test question. An
uptake question from a teacher involves the teacher asking a student about something
the student had said previously; for example, taken from a ninth-grade lesson on The
Odyssey, the teacher asks, “What do they have to do to Polyphemus?” A student
replies, “Blind him”. The teacher then follows up, asking, “How come the plan is for
blinding Cyclops?” (p. 145). The last question is an example of uptake because the
teacher follows up on the student’s response on “blinding him”. A high-level
question is considered one which is either a generalisation—“what happens?”,
analysis—“why did it happen?” or a speculation—“what might happen?” (p. 148). A
dialogic spell is a mode of discourse that is characterised by engaged student
questions and an absence of teacher test questions (p. 150).

Other researchers have argued that it is not a matter of simply increasing the number
of authentic questions to increase dialogic talk in a classroom. Kachur and
Prendergast (1997) analysed the discussion of two middle school classrooms. In one,
the teacher asked authentic questions 70% of the time, yet the class was characterised
by a lack of student engagement and participation in dialogue. However, in the other classroom, the teacher asked authentic questions only 32% of the time but the students were highly engaged in dialogue throughout the lessons observed. Kachur and Pendergast concluded that it was the classroom culture of taking students seriously that led to student engagement and participation in dialogue exchanges and overrode the type of teacher questioning that in some other classroom culture might have extinguished dialogue. The teacher who asked authentic questions 32% of the time demonstrated that she was genuinely more interested in their answers than the teacher who asked authentic questions 70% of the time.

Christoph and Nystrand (2001) demonstrated that in classrooms characterised by mutual respect, neither teachers nor students were primarily motivated to initiate new topics of their own choosing. Rather, they were interested in listening and responding to the utterances of others and extending topical episodes. A close examination of a seven-minute discussion of nine-year-olds after a year’s exposure to dialogical teaching confirmed that dialogic talk among students flourished when teachers’ questions were anchored in a culture of taking the students seriously, and those questions built on and extended what was presented in student contributions (Boyd & Rubin, 2006). Smith and Higgins’ (2006) large-scale research project examined classroom interactions during literacy and numeracy lessons, and the researchers’ critical reflections upon this process. Their study concluded that in order to “open up” classroom interactions, emphasis should be less on the questions teachers ask, and more on the manner with which teachers react to pupils’ responses to questions. Though the importance of using authentic questions throughout the discussion has been disputed, there is clear evidence that the initial provocation or question to stimulate, engage and motivate students to participate is important for the dialogical discussion to be effective (Davies & Sinclair, 2014).

Some consensus has therefore been reached as to the role of a teacher be in dialogical discussions. A teacher’s role should be one of intervention as opposed to mere facilitation of a discussion (R. J. Alexander, 2005). Boyd and Markarian (2011) use the term “dialogic stance” to describe the role of the dialogic teacher. A dialogic stance is not dependent and not isomorphic with any particular language form. “It is
not just how we say it, but also how we are predisposed to receive it” (p. 516). They argue that closed questions, normally associated with monologic questions, can yield elaborated and substantive student contributions. If the arguments calling for a balance between monologic and dialogic interaction are accepted, the question we should be asking is: How can we create the conditions that would make “true dialogue” more likely to emerge? (Wells, 2007). Shor and Freire (1987) called a teacher able to achieve this a “liberating teacher” and their class a “dialogical class”.

In acknowledging the difficulties for teachers in creating these conditions in the classroom, researchers in the United States have designed a pragmatic framework aimed to assist teachers in knowing how to engage students in dialogic talk (Wilkinson, Soter & Murphy, 2010). The Quality Talk framework endeavoured to encompass the best features of these studies and, in particular, the teaching approaches which gave prominence to a critical analytical stance and analytical questions (Applebee et al., 2003). Specifically, the questions recommended for teachers to use were authentic, uptake, high-level thinking, affective response, intertextual, and shared knowledge questions. Past research has shown that if teachers and students increase their use of authentic, uptake, and high-level questions, it is more likely that students will shift the complexity of their dialogue toward a dialogic spell (Nystrand et al., 2003) and research has also demonstrated that critical analytical thinking is more likely to occur during a dialogic spell than traditional dialogue (Nystrand et al., 2003). A dialogic spell is desirable because it is characterised by engaged student questions and an absence of teacher test questions. Test questions are those which elicit a single or known answer. Additionally, if students use more reasoning words and elaborated explanations, they become more likely to improve their dialogue and engage in more challenges, known as exploratory talk (Mercer, & Hodgkinson, 2008). Exploratory talk is particularly important for senior students because it strengthens students’ ability to reason, and research has shown that secondary school students underachieve in tests in which reasoning abilities are required; for example, in curriculum subjects such as history (Aries, Groot, Maassen van den Brink, 2015). Senior curriculum exams and tests usually require students to not only reproduce theoretical knowledge but to demonstrate their ability to write reasoned arguments. Quality Talk (Wilkinson, Soter & Murphy 2010)
was an intervention developed to give teachers a more prescriptive framework for increasing students’ critical analytical thinking and comprehension of text, and has largely been employed with primary school teachers and students. The framework for the students is explained in full detail in Chapter 5.

The Current Study

This chapter continues discussion of the study introduced in the previous chapter on the use of the Quality Talk framework at a secondary level. In particular, this chapter will focus on whether the provision of teacher professional development in Quality Talk pedagogical principles and skills and the pedagogical principles of dialogic teaching had an impact on the nature of their interactions with students and their beliefs about the use of dialogue for student learning.

This aspect of the study set out not to test the Quality Talk model (Wilkinson, Soter & Murphy, 2010) but rather to gather data and conclude whether the intervention Quality Talk could be successfully implemented by teachers in a senior secondary setting across diverse curriculum areas and if so, what factors promoted or hindered successful implementation. The study, in acknowledging past research and the role that a teacher’s professional outlook had on intervention success, included the principles and recommendations for teachers in dialogic teaching (R. J. Alexander, 2008. In addition to introducing teachers to the constructs of Quality Talk and dialogic teaching, the study set out to examine whether giving students the opportunity to reflect on the discussions through providing discussion transcripts would have an impact on subsequent discussions’ quality. This has not been researched before and it was believed that exploring this study could contribute to literature on the topic of dialogical discussions. The study examined whether Quality Talk and dialogic teaching would have a successful impact on student discussion and thinking in different fields of study—geography and a film study. The research questions were:

• Does the type of question and the nature of the feedback during group discussions from the teachers given to students from Time 1 differ following the professional development in Quality Talk and dialogic teaching?
• What did the teachers believe helped them in the professional development and what could be improved?
• What impact did the intervention of Quality Talk and dialogic teaching have on the teachers’ beliefs about learning and would they or would they not use the intervention once the study was completed?
• Which pedagogical principles of Quality Talk and dialogic teaching did the teachers appear to implement that differed from baseline data of group discussions?

Method

Participants
There were seven teachers in the experimental classes and one teacher in the control class. The teachers in the study taught in schools in different socioeconomic areas. The geography teacher was male and taught in the low socioeconomic area and was the teacher in charge of Year 12 (students aged 16–17) geography. This teacher had little experience in teaching and had an undergraduate degree in geography and a teaching diploma. Both qualifications were from New Zealand. Four of the teachers taught in the mid-level socioeconomic area. One male teacher had been teaching for two years, had trained in Canada for a communications degree but had trained in teaching in New Zealand. He taught English and media studies and was a member of the e-learning team. The other male at this school had also received an undergraduate degree in English in Canada but had trained as a teacher in New Zealand. He had been teaching for four years and was also a member of the e-learning team. The third experimental teacher at this same school was a female who had 37 years’ experience as a teacher; she had trained in New Zealand but had also taught in England. The fourth teacher was the control teacher who had trained in New Zealand but had also taught in England. Her undergraduate degree was in English. The other three teachers were in experimental classes and taught in a low to mid-level socioeconomic area and were all females. One had taught for three years and had trained in New Zealand with an undergraduate degree in English and media studies; another had trained in New Zealand and had taught for 19 years—she had taught extensively
across the city in which the study was conducted. The third teacher at this school had trained in New Zealand and had taught for 12 years in total in both New Zealand and England.

In sum, the sample consisted of seven teachers in the intervention condition and one teacher as control. Six teachers taught language arts, whereas one taught geography. Sixty-two percent of the sample were female and the mean age of the teachers was 33. Their teaching experience ranged from 3 to 37 years.

**Procedure**
The study took place during the school year of 2013 and followed a quasi-experimental design.

**Instruments.** Video and audio recordings were coded. Teacher questions were designed and checked by experienced researchers for reliability and lack of ambiguity. For reliability of the coding of the 200-word essays, an experienced English teacher who graded exams at a national level and a geography lecturer at the University of Auckland checked 30% of these essays. Agreement rate for the grading of these essays was 95%. For the other 5%, the essay results were discussed with the researcher and the lecturers and the researchers agreed on a final grade for these 5% and these results were recorded.

**Prior beliefs.** To establish prior beliefs about the use of dialogue and its impact on students’ abilities to learn, a questionnaire was given to each teacher in both the experimental classes and the control class before the start of any interventions. The questions were: “What are your beliefs about the use of group discussions and their impact on students ability to learn?” “How do you normally organise group discussions?” “What kinds of students are better/not so good at learning in a group discussion?” “Do you think that group discussions are motivating and engaging for students?” and “In what ways do you think group discussions can assist students to be self regulating as learners?” A limitation of these questions is that they may be abstract and the respondents may have known what the researcher was looking for.
As outlined in Chapter 5, the students were given their 200-word essays to establish their baseline levels of critical analytical thinking. The teachers in the experimental and control classrooms were filmed and audio-recorded taking a lesson in which they incorporated group discussions in the normal way. The teachers were asked to put the students into groups that would remain as close to the same for the duration of the study. These normative practice lessons were coded to establish recommended practice as outlined in both Quality Talk and dialogical teaching. For example, the degree to which the dialogue is scaffolded by the teacher (R. J. Alexander, 2008) using interactions which encourage students to think; questions which require more than recall; answers which are followed up and built on; feedback which informs and leads thinking forward as well as encouraging contributions which are extended rather than fragmented; exchanges which chain together into coherent and deepening lines of inquiry and the establishment of a classroom organisation, climate and relationships which make this possible (R. J. Alexander, 2008); whether there was shared control by the teacher and students (R. J. Alexander, 2008; and, for Quality Talk, whether the teachers asked authentic, uptake and high-level thinking questions (Nystrand, Gamoran, et al., 1997; Nystrand, Wu, et al., 2003). If the teachers asked questions that elicited extra-textual connections (affective, intertextual and shared knowledge) (Applebee et al., 2003; Bloome & Egan-Robertson, 1993; Edwards & Mercer, 1987; Taylor, Pearson, Peterson, & Rodriquez, 2003). In addition whether or not the teachers modelled and used scaffolded conversations moves such as summarising, modeling, prompting, marking and challenging and using rich interesting contexts, establishing norms or ground rules for discussions, and initiated discussion by asking a “big question” was noted to compare with their behaviour in Time 2 and Time 3.

**Professional development.** The professional development was explained in Chapter 5.

**Training of students lesson.** The teachers in the intervention group were filmed and audio-recorded teaching their students the intervention of Quality Talk with examples such as authentic, uptake and high quality questions. The reasons the students should talk in more complex ways to assist in critical thinking were
discussed. For example, the notion that a citizen who is more tolerant of others because of understandings about difference can be fostered through talking with others and having the opportunity to listen to multiple perspectives was presented. The principles of dialogic talking were discussed and established.

Times 2 and 3 were opportunities for the students to engage in the group discussions as explained in Chapter 5.

Coding of data. The Quality Talk discourse coding manual developed by Wilkinson and team was used to analyse the dialogic talk (Soter et al., 2006), as explained in Chapter 5. As with the students’ questionnaires, the teachers’ questionnaires were initially coded using highlighting to signify participant passages worthy of attention (Boyatzis, 1998); they were then viewed for pre- and post-intervention similarities and differences (Hatch, 2002). Finally, themes and concepts were systematically interrelated to lead towards the development of ideas (Corbin & Strauss, 2008) that may have contributed to changes in behaviour and beliefs about group discussions.

Results

Use of questions recommended by the Quality Talk framework
The teachers’ use of questions as recommended by the Quality Talk framework are presented in Tables 6 and 7 and Figure 12.
Table 6

*Individual Teachers’ Question Use by Type (% Total Questions Asked)*

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Table 7
*Total Use of Questions By Type (% Total Questions Asked)*

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<th>Text Question</th>
<th>Uptake Question</th>
<th>High-level Analysis Question</th>
<th>Managing Discourse Question</th>
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*Figure 12*. Intervention teachers use of selected Quality Talk components over Time 1, Time 2 and Time 3.
Overall there was no significant change in the types of questions asked by the intervention teachers despite the professional development specifically instructing them to use more of these types of questions. The use of affective response, intertextual and shared knowledge questions were so minimal at all data gathering times in the study that they were not analysed further.

At Time 1, each class was given a group discussion task to complete in groups as they normally would. The only specification by the researcher was that question to be discussed as authentic thus requiring more than one answer so there would be reasonable amounts of dialogue to transcribe and code. Table 6 shows that the teachers overall were using authentic, uptake and high level analysis questions at Time 1 (baseline) before the intervention took place but, as explained in Chapter 5, the students were not engaged in complex dialogue. An example at Time 1 of an authentic question was asked by George, the geography teacher: “Who in the coffee making process is directly and indirectly responsible for the cup of coffee they are drinking?”—this is an example of a high-level question and an authentic one as the question demands analysis and is open-ended. In Time 3, George proffered this statement for comment: “Growing coffee will always produce poverty somewhere in the world. And someone has to pay the price.” These examples show that in general the teachers’ use of questions did not change considerably except for the use of uptake questions by a couple of the teachers in the intervention classes. What did change over the course of the study in terms of teacher questioning was that the intervention teachers taught the students to ask each other authentic, uptake and high-level questions, thus transferring the control of the learning to the students. This was not an unexpected finding because the teachers had been asked to do this but what was important about this finding was that through the teachers teaching the students to use these types of questions, the complexity levels of the discussions between the students in the experimental classes increased compared with that of the students in the control class, as did their capacity to write with a critical analytical stance.

An interesting finding was that for 85% of the exchanges, if a procedural/managing discourse question was asked by the teacher, this curbed the flow of the discussions if such a question was asked immediately upon the teacher joining the group. In the
episode below, Time 2, the students are discussing the main ideas in the film *The Truman Show*. The teacher joins the group, sits down and immediately asks a procedural/managing discussion question. By not listening first to the dialogue before contributing, the teacher disrupts the dialogic spell. The exchange continues between the teacher and a student until the teacher leaves and then the students pick up on their dialogic spell again.

Taine: One of the most memorable ideas I think is um the power.

Justin: What power? (*Initiates dialogic spell*)

Taine: The power that Christof had over Truman.

Justin: How did you choose those assumptions? How did you choose it? How did you choose it? Just thought of that assumption? (*Continues dialogic spell*)

Taine: Yeah I just remember that’s what the most memorable part of the power, was the power that Christof had, eh.

Justin: Can you give an example? (*Continues dialogic spell*)

Taine: Cause… Christof thought it was, Christof um wanted to like keep…

Teacher: (joins group) So have you chosen which area you want to start off with? (*Procedural question/Managing discussion*)

Taine: Power.

Teacher: Power. Fantastic. So why doesn’t one of you discuss what power is in terms of *The Truman Show* and then each of you can have a turn adding on to that to build a challenging thought. Remember you have to listen to each other. So Sia, why don’t you start with what the idea of power is?

Taine: I already started.
Teacher: Okay, sorry Taine. Excuse me. Why don’t you start then? You tell me what you think power is in The Truman Show. (Managing the discourse question)

Taine: Power is that what Christof had over Truman ’cause he kept him inside that little island so he couldn’t escape even though he wanted to.

However, procedural or managing discussion questions did not disrupt dialogic spells if the teacher sat and listened to the group first before contributing. The other 15% of procedural or managing discussion questions that did not disrupt a dialogic spell is attributed to one teacher, Nick, who was able to join group discussions without disrupting the conversation that in progress. He did not announce his arrival in the group with a procedural comment or question but simply slipped in and listened to what was going on. In one case, he joined a group and said nothing at all. In the end it was the students who actually asked him a question: “So what do you think about this, Nick?” In another case, he encouraged the students in the dialogic process: “Remember to invite others to participate too ...” In another, he simply joined in the conversation. They’d been talking about the warden in The Shawshank Redemption and he added, “He’s good as well?” In all these cases, Nick’s involvement in the discussions did not stymie the conversation under way despite asking a procedural/management question, which is not normally recommended in the Quality Talk and dialogic teaching models. Furthermore, the students returned to a dialogic spell following the procedural/management question. The implication of this for teaching practice is that it appears in secondary classrooms that it is not necessarily the nature of the teacher’s question that stimulates a dialogic spell or exploratory talk but rather it is vital to hold off contributing when entering a group discussion so the discussion is not disrupted.

Implementation of pedagogical principles of Quality Talk and dialogic teaching

At Time 1 (baseline) the teachers in both the experimental classes and the control class were using some of the recommended features of Quality Talk and dialogic teaching before any professional development. Transcripts and video recordings
showed that the teachers were already practising the recommended pedagogical practices during their exchanges with students. In the main, when the teachers were interacting with their students they often summarised what the students had said, they gave feedback that encouraged students to think further, they were encouraging to the students, and they prompted the students with questions. Also, a few of the teachers were using authentic and uptake questions as shown in this example from Olivia, who was teaching one of the experimental classes.

Okay. This is all good stuff now. So now we are all getting answers here. So what, now let’s back to one of the questions on the list, and you talked about they don’t want the film to stop because of their getting what? Can you give me an example, a specific example of the film that can back up what you’re saying there?

One of the student responds with “Um when he leaves the audience is just going to change the channel” and the conversation continues with the teacher trying to draw out from the students an answer to her questions. However the students continue to answer with each answer having a single idea, the students respond back to the teacher and there is no elaboration or further questions between the students. So, despite using recommended pedagogical features of Quality Talk and dialogic teaching, the exchanges at baseline reveal a lack of complex dialogue and critical thinking.

By comparison, at Time 3 Olivia is giving feedback that remains encouraging, informing and leading the students to forward thinking. However, she also adds another dimension of feedback which specifically sets out to encourage dialogue between the students through a meta-analysis of the nature of the interactions that had unfolded prior to her feedback.

See you’ve just had a dialogical discussion here guys. So you can start again with Justin’s point there, and each one of you have to, after that person has spoken, has to choose one of these questions and say, “What do you mean… give me an example… can you explain that”. Alright? So you just keep moving it on, or you are building on what they said,
“Oh I agree because of this…” So choose one of these questions after Justin says his points and so it like that. Just like we practised, alright? So Justin, what’s your next one? I want you to speak.

(Olivia)

Another difference in the type of feedback provided by the intervention teachers at Time 2 and Time 3 that differed from the baseline Time 1 and from the type of feedback offered by the non-intervention teacher, was that the purpose of the experimental teachers’ feedback was to encourage deep thinking by the students about the task. This was discussed in the professional development as being important to students’ ability to think and write with a critical analytical stance. In the following instance, Nick, who was in the experimental group, is participating in a group discussion at Time 2 and referring to what “perceptive” means in the film study. This type of feedback was not evident at Time 1 from any of the teachers.

That’s the point of these discussions… writing in that perceptive way, that global way, is really hard, and it’s quite useful… people have read other books, seen other movies, have experiences outside of you, that can make you think, “Oh shoot, I didn’t think of that!” And then you can use that idea in your essay. The markers need to know that you are thinking outside of The Shawshank Redemption, remember. What global message was the director wanting us to think? It’s called “piggy-backing”. It’s not cheating. If Conor says something that’s pretty profound, that is cool ’cause it can help you to think deeper.

(Nick)

A classroom climate based on respect and the establishment of norms and group rules for discussion are central pedagogical principles from Quality Talk and dialogic teaching. Baseline transcripts and video recordings revealed that for all teachers the establishment of norms and group rules centred on the following themes of reminding students that one student should speak at a time, all devices needed to be turned off and put away, they must get on and complete the task cooperatively, and that they
would be expected to report back. Following the intervention, the norms and group rules were for students to ask each other questions to help with building of answers, and that these questions be authentic, uptake, high-level, and intertextual questions. Four of the teachers photocopied examples of these types of questions and gave them to each group before the discussion, and the groups were reminded of the importance of respecting each other’s points of views and were encouraged to challenge each other if they disagreed. The establishment of norms and rules at Time 1 centred on individual students’ contributions and not on the importance of the collective contributions as compared to Time 2 and Time 3.

There was little evidence that any of the teachers in the study shared control with their students at Time 1, 2, or 3; this could in part be because, at senior secondary level, the teachers are more likely to prompt the students with a question and then leave the students to discuss on their own than would be the case with younger students in primary schools. In Time 1, if the teacher participated, they dominated the conversation by posing questions but did not encourage the students to respond to each other and the conversation represented an IRE exchange—that is, the teacher posed a question to a student and the student responded to the teacher. If the teacher was not present during the group discussions at Time 1, the students were engaged in discussions but these discussions were not considered dialogic as, although the students engaged in open-ended conversational exchanges, the conversations were largely absent of questions. At Times 2 and 3, if the teacher joined a group and posed a procedural or management question, the transcript for that part of the discussion showed no change from Time 1, as the exchange reverted to an IRE exchange.

There was a difference, however, in this study in terms of the experimental teachers’ attitudes to the sharing of control, in their acknowledgement that, post-intervention, greater control from the students was important to group discussions.

Both group discussions and class discussions became more focused and involved a much larger number of students with the introduction of dialogic talk. Their respect for their peer group increased, as did their focus. It appeared to me that the students felt it had more importance
and relevance—their own respect for each other elevated the importance of the discussion. They had more control and enjoyed taking it to a new level... they could take ownership of the task.

(Claudia)

Further to the acknowledgement that students gained greater control of the group discussions, Claudia (who had taught for 37 years) also saw these types of group discussions as important to students gaining control outside of the study and central to gaining knowledge and qualities outside of the school environment.

I would provide these types of opportunities as they empower students to care more about what they are learning and how they relate concepts to self and the wider world. The short-term result may be better grades, but the long term goal is to foster more introspective and empathetic students.

(Claudia)

Another pedagogical principle recommended by the Quality Talk framework that was evident in the study was that of a rich interesting context foreshadowed by a “big question”. The nature of the question seemed to have a significant impact on the students’ levels of engagement in the discussions. A question from one of the intervention group teachers, Mohamad, that did not elicit either dialogic spells or exploratory talk was “How is the concept of liminal spaces explored within the context of Taika Waititi’s Two Cars One Night and how does it connect to the other texts you’ve studied this year?” Transcripts revealed that this question was too difficult for some students and for those who understood liminal spaces, the question confined their discussion only to one feature (liminal spaces) of the texts they explored in class. The students did not appear to see the scope for them to move to a wider discussion of liminal spaces outside their texts.
Impact of the intervention Quality Talk and dialogic teaching on teachers’ beliefs

Baseline questionnaire responses from all of the teachers focused on the importance of behaviour such as listening to each other and gleaning different perspectives as important but there was little importance attached to the actual meta-cognitive level of how to converse. Post-questionnaire responses from some of the teachers included the need to teach the students interpersonal skills. Here George, the geography teacher in the low socioeconomic secondary school, acknowledges changes to his practice following the intervention and includes a comment about the importance of explicit teaching of discussion skills.

I would like to change several things, most notably the natural incorporation of dialogical discussion into the year. I believe this would have a three-fold effect of (a) encouraging and facilitating depth of conversation and therefore depth of written assessment answers, (b) teaching the students valuable interpersonal communication skills that are widely transferable, and (c) showing respect to the students by showing value to what they have to say.

Another experimental group teacher, Nick, shared similar sentiments about the importance of the students being taught discussion skills following the intervention and interestingly commented in Time 1 how easily the students can come off task:

Group discussions are an important way for students to share and consolidate ideas; however, in practice they can easily break down and become unproductive

However, post-intervention he expressed these beliefs about group discussions with a realisation that if students are taught the skills of dialogic discussions, their dialogue is not only rich but the students relish them.

Many of the students seemed to relish in the opportunity to engage in meaningful discussion, despite some initial apprehension and posturing/attempts to appear disinterested. This study revealed a lot to me about the real craving that students have for rich, meaningful
learning opportunities. The off-topic banter they sometimes engage in, in a less structured group environment, is not a product of their lack of desire to learn, but more of a product of an uncertainty of the expectations and goals of such an activity. The dialogical discussion framework and philosophy, when set up clearly and effectively, allows them to really “take off” and elevate their thinking to new heights.

(Nick)

Six of the seven experimental group teachers believed the intervention had an impact on the students’ learning; their views are summarised by this teacher:

Yes, I believe it does, largely through a “widening of the lens” through which a student views their own learning; by being constantly challenged and required to go deeper it is not only encouraging and accelerating learning (when contrasted to “delivering content”) but is innately incorporating metacognition. This is evident in the substantially higher grades of the third section of the standard (where dialogical discussion was used) that which the earlier two (considering stages 1 and 2 were awarded more class time in the learning stage). Crucially, this improvement was across the entire class and did not favour those students who normally perform best.

(Claudia)

**Professional development**
The seven experimental group teachers reported favourably on the professional development. They found the professional reading on past research and theory important and useful, as was the video clip of a teacher modelling dialogical discussions with a group of students. The regular contact with the researcher made them feel supported and allowed them have their questions answered. They also found it valuable to be able to share dialogue with teachers in their own school and across the schools in the project, to have discussions of the philosophical and broader understandings of where dialogical discussions can fit in to curriculum outside of
their curricula and the students’ lives outside of school, and to have discussions on the conceptual frameworks for their own curriculum area that were different from other curriculum areas. Several teachers suggested an improvement in the form of a ready-to-use resource with more specific information on how to train the students to ask questions of each other.

Discussion

The major limitation of this study was that there was only one control class. The principals in the three schools were reluctant to have students in senior secondary missing out on an intervention that could potentially have an effect on their achievement, despite the same professional development being offered to the non-intervention teacher once the study was completed. Though Time 1 transcripts and video recordings revealed that the control teacher displayed practice that was close to that of the intervention teachers, a second class would have halved the possibility that control teacher was simply a poorer quality teacher or that there were other confounding factors. However, as the literature revealed, the results indicate that others’ studies have shown that the quality of thinking in the intervention group studies would quite clearly rarely be found in any ordinary school without such intervention.

The study confirms that the framework of Quality Talk and the pedagogical principles of dialogic talking can be taught at secondary level to teachers in curriculum areas that extend beyond comprehension of written text and science and that students and teachers will respond positively. Though other studies have shown a strong relationship between the teacher’s use of authentic and uptake questions and the levels of dialogic spells (Applebee et al., 2003; Nystrand et al., 2003), findings from this study suggest that despite some teachers making little use of authentic and uptake questions, students’ levels of dialogic spells and elaborated explanations will increase if the students are instructed in the use of authentic, uptake and high-level questions and used them in their interactions. This finding in the difference between elementary and secondary is perhaps not surprising as adolescents, if given the opportunity, will become less reliant on their teacher and have increased autonomy over the complexity
of dialogue (Steinberg, 2008). Opportunities for this type of autonomy are important because changes in the cognitive capabilities of adolescents’ changes do not always match pedagogy for adolescents (Eccles, 2004; Eccles et al., 1993; Eccles & Roeser, 2009). This study concurs with that of Dillon, who argued that teacher questions can limit discussion because of their expectation for an answer from a student. He argued that questions tend to generate a discussion between teacher and student instead of discussion between students. Dillon’s research found that unless a teacher asked a question with genuine perplexity, then the question could inhibit discussion. His work showed that the greater the use of teacher statements and signals, the more extended the nature of student talk, and in turn the higher the level of interaction between students (Dillon, 1985).

Furthermore, the current study demonstrated that not only was it not necessary for the teachers to be asking the students authentic, uptake or high-level questions to increase dialogic spells and elaborated episodes, but also that if a teacher joined a group and listened before contributing with a procedural or management question, then the question did not necessarily break the dialogic spells and exploratory talk episodes. The key was not in the type of question asked by the teacher but rather that if the teacher listened intently before participating, the conversation remained as a dialogic spell.

However, what is more likely to have a significant impact is for teachers to thoroughly teach the students how to interact with each other using these dialogic tools and to show respect for and belief in the potential of these kinds of discussions. The students were able to use questions to challenge and build on what was said, as the questions posed a catalyst for a large rise in reasoning words that then extended in elaborated explanations. The dialogue shifted from a monologic musing by each individual student to a dialogic interchange between students. This finding is important because it is through dialogue that critical thinking is more likely to occur as students become exposed to multiple perspectives on ideas. Instead of the questions posed by the teacher being fundamental to a dialogic spell it appeared that the teacher’s beliefs about dialogue were of utmost importance. This suggests that a genuine commitment to agency of student or student voice is crucial (Fielding, 2004).
It is likely that the authority and power perceived to be held by a teacher, whether intentionally fostered or not, will cause a student to respond back to a teacher rather than to the group. Entering a group discussion and listening first seemed to assist in the diffusion of this sense of authority and power of the teacher. Barnes and Todd (1978) suggested that secondary pupils were more likely to engage in open, extended discussion and argument when they were talking with their peers outside the visible control of their teacher and that this kind of talk enabled them to take a more active and independent ownership of knowledge. It seems that this idea can now be extended to the consideration that it is not necessary to be outside the visible control but that rather teachers need to share control and allow student voices to dominate discussions.

This study also suggests that if secondary teachers are to adopt dialogic talk as an integral part of their own curriculum and wider school practices then professional development needs to include video footage of dialogical discussions and resources that explicitly teach the teachers how to encourage students to use the Quality Talk framework. This includes an introduction to recommended questions, past research and theories on dialogical discussions, discussions that extend beyond the pragmatics of group discussions, ongoing support from the researcher or instructor, and discussions within the conceptual framework and epistemology of their own curricula. As it has been well documented that students who understand the epistemology of the subject area do better (P. Alexander et al., 2011), feedback should include comments in a critical analytical way within the conceptual domain of that curricula. The findings on professional development also suggest that any professional development for secondary teachers in dialogic talk should include more than instruction about a framework such as Quality Talk. Debate as to the purpose of dialogical discussion, and that sits outside the curriculum and examinations, is important. The principles of dialogic teaching should also be included with any pragmatic framework. It appeared that the key to the success of the intervention was the combination of the principles of dialogic teaching and the pragmatic construct of Quality Talk. Professional learning for teachers should incorporate information on the wider outcomes of dialogue and its importance in equipping students to be active citizens. A recurring theme in the
literature on dialogic education is argument of whether dialogic education is a means
to an end (Freire, 1970) or an end in itself (Oakeshott, 1962; Wegerif, 2013).

As the value the students placed on the question was so important to students’ levels
of engagement, teachers could consider asking colleagues to review the provocation
or question to help to ensure high levels of motivation and engagement from the
students and understanding of what the question means. Or the teacher could invite
students to participate in the forming of a provocation that they would find engaging
and worthy of debate; Adler’s “great ideas” (1982) such as truth, beauty, liberty,
equality and justice could be contextualised for provocations and questions on almost
an topic.

Follow-up studies could include identifying if the shifts in attitude for the teachers
continued; that is, how enduring were the effects of this study? A further question to
explore would be whether the students’ changed behaviour transferred to changes in
student skills and achievement in other areas of curricula requiring a critical analytical
stance.

The positive outcomes of this study suggest that professional learning and teaching of
the Quality Talk framework combined with the principles of dialogic teaching have
real capacity to shift the nature of student discussions in secondary school settings,
potentially strengthening students’ skills and learning. Further research will
determine whether these results can be achieved across a range of secondary school
settings and subject areas.

**Conclusion**

In summary, following the intervention, teachers’ behaviour did not change
consistently although qualitative survey data indicates that teachers in the
experimental group developed a more positive attitude towards dialogical discussions
following the intervention. Teachers interrupting a dialogic spell with a procedural
question stopped the dialogic spell and the conversation became a monologic
discussion between a student and the teacher. When the teacher did not interrupt but
listened first, the teacher could ask a procedural, test or any other type of question and
this did not appear to curb dialogic spells between the students. More important was the nature of the interaction between the students. Student behaviour showed major shifts, with large increases in uptake and high-level questions resulting in higher episodes of dialogic spells. Reasoning words increased and this in turn resulted in a higher number of instances of elaborated reasoning. Therefore this greater level of complexity of dialogue resulted in more critical analytical thinking.
Chapter 7
Impact of Dialogic Teaching on Student Discussions Online

Chapter 5 focused on the impact of Study 2 on the students and Chapter 6 focused on the impact of this study on the teachers. Chapter 7 looks at these same teachers and students, but with the focus on the impact of Quality Talk and dialogic teaching on the students’ discussions online. The chapter will draw some comparisons with how the students engaged face to face in the light of theory and research on critical learning and thinking, which espouses the opportunity to engage in dialogue as a key factor. This chapter, in a slightly different format, has been submitted to the *Curriculum Journal*.

**Critical Learning and Thinking**

Critical learning is a branch of critical theory that incorporates educational practices, and theorists and researchers alike agree that critical learning requires dialogue. Habermas (1974) claimed that an important component of critical learning is the reflective process. That is, he argued that groups of people share informed judgements to generate critical ideas or theories about the validity of the issues under consideration. Critical learning is a reflective activity with critical intent that enables students to engage *socially* in learning tasks and collaborative problem solving. They do this through sharing and challenging personal perspectives, experiences and knowledge, in order to *co-construct* knowledge and generate solutions and outcomes by using peer-critical evaluation and reflective practices (Riley, 2006). Critical learning requires collaborative learning approaches (Askew & Carnell, 1998) which students need to generate the social situations necessary for reflective activities and critical knowledge construction.

The quality of a student’s thinking is not often seen as related to their ability to engage in dialogue but is determined by their ability to write (Wells, 2006). Yet the famous educational theorists Vygotsky and Piaget saw dialogue as crucial to thinking and learning. Vygotsky (1978) concluded that individual reasoning occurs first in social interaction with others. Wertsch (1985) quoted Vygotsky’s beliefs: “All higher
mental functions appear first on the interpsychological plane and then on the intrapsychological plane” (p. 158). Though Piaget’s premise was the opposite, as he believed we first internalise our thoughts and then reveal them externally, he saw the benefit of bringing different perspectives to a problem, as this creates cognitive conflict (Adey & Shayer, 2013). To resolve these conflicts, he suggested that children/students compare their ideas with the ideas of others and come to view their own thoughts from a more objective and critical perspective. Piaget (1926) argued that children shift from an egocentric stage to a cooperative stage and that this can contribute to learning. As children become adolescents their arguing power is increased dramatically (Steinberg, 2005).

Online Discussion Research in Secondary Schools

The educational potential of online discussion forums remains largely untapped in the 5- to 18-year-old sector (Riley, 2006). In the 1990s, analyses of dialogue in an online learning context determined the benefits of online discussions as being: (1) its asynchronous nature, where discussion can be done outside classroom at anytime and anywhere; (2) its ability to store all the discussion dialogue/threads for analysis later; (3) its web-based nature that tears down the barrier of shyness in face-to-face contexts; and (4) its increased time allowance for participants, allowing for expression in words that are clear and more thoughtful (Kaplan & Kies, 1994). American researcher Wenger (1999) put forward the notion of a community of practice (Lave & Wenger, 1991) as being desirable for online discussions, as contributions from students were encouraged to be in the form of an agreement or disagreement with evidence for their position. This was the nature of a “community of practice” and it was these types of postings that were analysed for research (Joiner, Jones, & Doherty, 2008; Uzuner, 2007). Analysis was done according to the number of postings that were in disagreement and the quality of those postings, and evaluated according to the thinking skills framework of Swartz & Parks (1994). Wegerif (2013) has criticised the notion of a community of practice because he believes it is ethically dangerous to encourage learners to only consider positions inside of a particular community and not consider the “space” outside of this community. Online discussions to date have been analysed as postings rather than episodes of dialogue.
The few studies that have focused on analysis of the dialogue rather than the quality of individual postings are in the areas of mathematics and an information technology class of above-average students. Pratt and Back’s (2009) research considered not how well secondary students acquired mathematical concepts from online discussions but rather how their interactions took place and how the students learned to become central participants in these interactions. The study focused on one student, Orlando, as his behaviour changed the most. Their study proposed that the bulk of secondary mathematics teaching is focused too heavily on preparation for testing and that Orlando’s growth, as he positioned himself as a mathematician within a community of learners (his classmates), revealed the potential of online forums. Pratt and Back (2009) suggested that simply offering an online environment is not necessarily enough to change pupils’ mathematical practices and that educators need to think carefully about the structures, tools and social rules that operate within them.

Cheong and Cheong’s (2008) study of 35 above-average secondary students involved in online asynchronous discussions in the area of information technology showed that students demonstrated 57% more higher level information processing and 43% surface level information processing thinking levels than baseline face-to-face discussions. The interactions that reflected higher level information processing were comments which identified the advantages and disadvantages of conclusions arrived at by others and which were backed up with relevant facts and personal experience. However, the students did not fully engage with each other and Cheong & Cheong (2008) concluded that to elevate the level of discussion the students needed to ask each other Socratic questions. Socratic questions include questions which seek clarification; probe assumptions, viewpoints and perspectives; call for reasons and evidence; and examine implications and consequences. It was thought that these types of questions would encourage the students to interact with each other rather than to post linear comments. Davies and Sinclair (2013) examined the use of Socratic questioning with similar aged students (720 students in total) in an online discussion study. Their study revealed that the experimental group increased in student-to-student-initiated discussions and in their complexity of discourse after Socratic questioning had been taught in preparation for a Paideia seminar. However, their findings concluded that despite being taught Socratic questioning, the students still
tended to rely on postings that involved agreeing or disagreeing with another student and expanding on why they agreed or disagreed, rather than engaging in a deeper discussion through questioning. Student and teacher questionnaires revealed that the students had struggled to know when to use the “right” Socratic question. Only students of above average ability managed to decipher which Socratic question was appropriate to use during the discussion to prompt deeper dialogue.

The Current Study

This current study set out to further explore questioning as a means to elicit richer discussion and so focused on authentic questions, uptake questions (Nystrand, 2006), and three high-level questions—analysis, speculative and generalisation (Applebee et al., 2003) within an online discussion environment. It was conjectured that being instructed to include a narrower range of questions would be more manageable for the students than the plentiful Socratic questions. Lee’s study (2005) of 51 students in two 10th-grade English classes with one English teacher in Pennsylvania analysed the online transcripts of students discussing a novel. It concluded that students’ use of high-level speculative questions and reasoning words (counted as hypothetical/conditional sentences “if”, “whether”, “might”, “could”, “perhaps”, “maybe” and “probably”) generated quality dialogue. The students used questions and hypothetical/conditional sentences to make inferences and judgements to pose and explore other possibilities and to redirect and build the ongoing argument. Twenty-seven percent of postings contained questions, 18% contained hypothetical sentences, and 2.9% of postings contained both question and hypothetical/conditional sentences. Disagreement statements, rather than agreement, tended to provoke more arguments and generate longer messages (Lee, 2005). Many of the findings in this study were similar to those in Davies & Sinclair’s (2013) middle school study. In both studies, the students commented that freedom from time constraints was one of the great benefits of using the discussion board. The students remained on task with cognitive domain activities and made few off-task comments, and in both studies the quality of the provocation was the most important factor in determining number of posts (Davies & Sinclair, 2013; Lee, 2005).
Method

Participants
The participants were the same as described in Chapters 6 and 7. The intervention and the non-intervention classes participated in online discussions with the non-intervention class not being trained in Quality Talk and dialogic teaching.

Procedure

Time 1. None of the classes at baseline time were engaged in online discussions. Online platforms were used exclusively for notices for parents and students and other information about homework, and so on.

Professional development. During the professional development day for the secondary teachers in Study 2, a secondary science teacher who used the open source software Edmodo taught the seven teachers how to use this software as a medium to conduct group discussions in the computer laboratory at the University of Auckland. Edmodo is an educational technology company that offers communication, collaboration, and coaching tools to K–12 schools and teachers. The Edmodo network enables teachers to share content, distribute quizzes and assignments, and manage communication with students, colleagues, and parents. For the purposes of the current study, the communication part of Edmodo was explained and taught in detail. Edmodo was chosen because it was free and was viewed by secondary teachers as user friendly as it was considered to be intuitive and logical to use. Advanced previous experience in using online discussion forums did not appear to be a prerequisite. It was felt the teachers in the study would be more likely to use the software if promoted by a secondary colleague who was teaching under similar conditions.

Intervention class lesson. The framework of Quality Talk was taught to the intervention students with examples of existing online discussions from Secondary students who were a year ahead of their year group. The online discussions were examined in light of Quality Talk and dialogic teaching. For example a number of aspects were particularly emphasised and their importance in encouraging critical
thinking was explained. For example, the students were taught how authentic questions, uptake questions and high-level questioning (analysis, generalisation and speculative (Applebee et al., 2003) could have enhanced the online discussions and examples of each type of question were shown. Each teacher also discussed the role of challenge and counter challenge and why arguing was encouraged. The students were presented with the notion that overly cumulative or overly disputational talk (Mercer & Littleton, 2007) was unlikely to increase levels of critical thinking and opportunity was given to the students to discuss why they may or may not have used challenge in the past during online discussions. Finally, the use of reasoning words was presented to the students to demonstrate useful vocabulary that could increase elaboration and justification in their answers (Anderson et al., 2001). The Non-intervention teacher was given the same examples to share with her students and was asked to discuss and critique these online discussions with her own knowledge of complex and critical discussions.

**Time 2.** Following the face-to-face group discussions, the students were instructed to go on to Edmodo and discuss the same questions that they had discussed in class for homework. These are some examples of the questions teachers gave their students for their discussions:

- Geography: Coffee production will always produce poverty somewhere in the world - someone has to pay the price.
- English (The Truman Show): Weir is exploring more than just the manipulation of Truman by the media. To what extent do you agree or disagree?
- English (The Shawshank Redemption): The film tends to portray characters as either “good” or “evil”, with no in-between. For example, the warden is portrayed as an evil, morally questionable character, while Andy is portrayed as saintly, stoic, and full of integrity. This is largely an inaccurate portrayal of people in the real world.

These online discussions preferably would have been held during school hours but some of the teachers were unable to book the computer labs to coincide with the study and so for consistency of results, all students were asked to complete the
discussion for homework. Students who did not have access to the internet were given permission to go to the library and have access to a school computer before school or after school so they could participate. Two students in the study did this, both of whom came from low socioeconomic backgrounds.

**Reflection time for group discussions.** A week later, the researcher returned with the transcripts of both the online and face-to-face discussions for the intervention classes and the Non-intervention class. This was done so that all students could read and critique what they had written but in addition the intervention classes critiqued the dialogue in light of the principles of dialogic talk and the tools of Quality Talk.

**Time 3.** The homework task was repeated, where all of the students were asked to go online and discuss the same question as they had debated face-to-face that day.

**Questionnaires.** Before, during and after the intervention, questionnaires were given to all of the teachers and interviews held on their beliefs about the purposes of online discussions in secondary schools.

**Coding of the transcripts.** The coding of the transcripts was the same as for the group face-to-face discussions.

**Results**

**Interaction type differences for intervention and non-intervention classes**

The results of this study showed that the construct of Quality Talk and the principles of dialogic talk did have an effect on the nature of the interactions for the intervention classes, namely an increase in uptake and high-level questions and elaborated explanations (see Fig. 13).
**Differences by class type and grouping structure.** Though all of the intervention teachers were asked to set up their classes in the same groups for the online discussions as their face-to-face groups, some of the teachers did not do this and set the class online as a whole-class group discussion instead. There were differences in the effects of the intervention on those classes who were set up online in groups and those who were set up as a class. The increase in the use of uptake and high-level questions for students who were set up online as a whole class was less than the students who were set up online as groups. As a consequence, the use of fewer questions resulted in the students in the whole-class discussions interacting with each other less. Figure 14 shows the differences between each group in the study.
Figure 14. Mean percentage of selected quality talk components for the non-intervention class online, intervention classes online as a whole class, and intervention classes online for group discussions.

Differences in dialogic spells and exploratory talk. Results for numbers of dialogic spells and exploratory talk also differed between the classes (Fig. 15). All intervention classes which were set up with group discussions produced discussions that were dialogic in nature, and two of the three classes achieved episodes of exploratory talk and dialogic spells. However, when the students were set up for a whole-class discussion, only one class produced discussions that were dialogic in nature. This is likely because of less use of questioning between students. The intervention of the construct Quality Talk did have a large impact on the number of elaborated explanations for the classes set up online as a whole class, suggesting that though the discussions were not dialogic, their monologic utterances (Wegerif, 2013) were longer. The students used more reasoning words and therefore longer elaborated explanations than the control class.

As elaborated explanations required two reasons to justify a claim, this suggests greater levels of complex thought from the students and therefore may have contributed to higher incidences of opportunity to think critically.
**Figure 15.** Mean percentage of intervention and non-intervention results for exploratory talk and dialogic spells.

**Close analysis of one group in study.** The results of one group will be tracked closely to illustrate the shift in the behaviour of a group of students who were set up in group face-to-face discussions and in these same groups for their online discussions for Time 1, Time 2, and Time 3. The students in the following baseline face-to-face group discussion extract are discussing a World War I poem and considering the language the poet has used. The students interact with each other by building on each other’s ideas through the use of uptake statements and the students do not ask each other questions. Though the students remain on task and could be described as amicable, the lack of questions and challenges means the students do not reach a critical analytical stance.

Rosie: I noticed there was rhyme.

Tayla: Yeah. And that there was rhythm in the sentences.

Hamish: Yeah.

Jamall: Yep.
TAYLA: Also the choice of adjectives. They were guzzling and gulping. They were kind of… I guess it signifies like champagne and stuff and royalty.

HAMIISH: Indulgence. Sort of like indulgence. (*Uptake statement*)

TAYLA: Like only the best for the best. (*Uptake statement*)

ROSIE: Just wait until it comes, indulgence.

TAYLA: I’m going to write that down.

ROSIE: The whole thing is like a stereotype.

SHAianne: And like “short of breath” is like… must be someone who is like big.

HAMIISH: Yeah sort of mocking the majors. (*Uptake statement*)

TAYLA: Yeah, they’re all like better than other people but don’t do anything. (*Uptake statement*)

ROSIE: The adjectives are like really like… negative. (*Uptake statement*)

UNKNOWN: Yeah and over the top almost, like “toddle safely home”, this kind of… (*Uptake statement*)

TAYLA: We’ve had this one before, haven’t we? (*Procedural question*)

HAMIISH: Yeah.

UNKNOWN: Yeah.

ROSIE: I don’t remember this.

HAMIISH: I remember it. We did it, did we? (*Procedural question*)

TEACHER: Yeah, I gave it to you very briefly when we were starting to do “Unfamiliar Texts”. But at that time I did the unpacking of it, so
now I’m giving it to you to say “what your unpacking that you can do of it?” So you should be able to do this really easily.

The following transcript is from Time 2 (post-intervention) and these same students discussed the film *The Truman Show* in their group face to face and then the next day online. In the conversation below, they are discussing face to face whether the director is exploring more than just the manipulation of Truman by the media. The nature of the interactions now includes students asking each other uptake and high-level questions.

The students are part way into their discussion about the role of religion in the film and a dialogic spell is under way.

Hamish: So do we think that religion has a manipulative effect in the movie? (*Authentic, uptake, high-level question*)

Abbey: Slightly. I think it was really interesting because Truman looks up in the sky when there is a moment of crisis, like when the thing falls down he looks up at the sky, and not just because the light came from the sky, but he was… (*Elaborated explanation*)

Hamish: Is it manipulative? (*Authentic, uptake, high-level question—not answered*)

Tayla: But also how does he know that it came from the sky? What if it came from this way and smashed? (*Authentic, uptake, high-level question*)

Abbey: Yeah, but whenever he is confused he looks at the sky. He turns to above for help and guidance.

Jamall: But I think it’s manipulation of Truman by the media.

Abbey: I think it’s fear as well because… have you guys read *Exodus*? (*Intertextual reference*)
TAYLA: No.

Abbey: No one’s read Exodus. Okay, well there’s a bit where they are trying to convince this group of people who are Jewish to go to Israel, but on a plane. And they have never seen a plane before because they are quite nomadic and don’t have technology. And they won’t get on the plane until he goes and finds a passage in the Bible that says they will get to Israel on the wings of eagles. And then they get in the plane, because the plane has wings like an eagle. So you can use biblical passages and things. *(Intertextual reference)*

Jamall: Yeah, definitely. I think also another point is that if you look at the question it says just the manipulation of Truman by the media, but is it also the manipulation of us the viewer? *(Authentic, high-level question)* Because you know that thing we were watching yesterday, and it was all about... it started off telling us about media and how it serves like a metaphor, so how we are controlled by the media, if you know what I mean.

Abbey: Oh the irony.

Jamall: But I think it’s more than just the manipulation of Truman, I think it’s also the manipulation of us.

Hamish: Like the movie is actually manipulating us in our views. So it’s sort of like it was trying to convey manipulation by manipulating our thoughts. *(Uptake statement)*

Tayla’s uptake question to Abbey results in Abbey justifying her answer. Uptake questions result in increased student interaction.

Tayla: But also how does he know that it came from the sky? What if it came from this way and smashed? *(Authentic, uptake, high-level question)*
Abbey: Yeah, but whenever he is confused he looks at the sky. He turns to above for help and guidance.

The same students were then asked to complete a discussion for homework online (Edmodo) that night. The following is an excerpt from their discussion.

Abbey: It could be like with the Batman series, where the second Robin (Jason Todd) had his life or death decided by a phone vote, and he was killed off by a margin of 65 votes.

Hamish: By saying Weir is exploring more than that, is to suggest Truman is being manipulated by everyone in Seahaven which I think is true because of the way his life is so controlled from creating fear of water to directing him into position where he unknowingly advertises stuff. There is a lot of manipulation. (*Elaborated explanation*)

Rosie: Yes there is Hamish but is there more than that? (*Authentic question, uptake question, high-level question—initiates a dialogic spell*)

Hamish: Abbey, the amount of say the audience has in the show is very limited as Christof likes to have power over everything but I guess there would be a bit of influence from others. (*Uptake statement*)

Abbey: What do you think of the poll idea? Lots of reality TV shows have outcome polls, what if things like Truman job were decided by this? (*Authentic question, uptake question, high-level question—continues the dialogic spell*)

Rosie: Meaning more than manipulation.

Hamish: Rosie, I think you are right in saying that because if you are brought up in a religious home you are more likely to follow that religion your whole life. Obviously some people to convert or
leave their religion but on the whole they do usually stick to their religion they had as a child. (*Uptake statement links back to a comment prior to this extract*)

Abbey: Imagine the scale of viewers, and how this could be a promotional tool.

Tayla: Guys, we are self looping and leaving out a member’s questions and opinions. (*Attempt to manage the discourse largely ignored*)

Hamish: The choices you make about religion and your views are strongly influenced by media. I find as a Christian that the media always focuses on the bad things churches do and all the radical religious people and putting it in a bad light which can affect people’s understanding of religion which comes back to the point that the influence of media and religion is linked. It might be a bit far fetched but you can have your say. I would like to know what you think… (*Implied question. Authentic question, high-level question—continues dialogic spell*). Abbey, about the poll I don't think Christof would relinquish his power as he is very power hungry and likes to control things. (*Uptake statement*)

Abbey: What if Christof created a religion? (*Authentic question, high-level question—not answered*)

Tayla: So, Hamish, why do you say that? How do you fully know that Christof isn’t controlling other media? Don’t forget that at the beginning of the movie that other media companies are interviewing the cast. (*Authentic question, uptake question, high-level question—continues the dialogic spell*)

Hamish: Christof was the creator of the show so he is in control of what happens inside the dome which is where Truman lives so that is where he will be influenced by media.
Jamall: The name “sirius” was printed on the light bulb when Truman picked it up. This is relevant to Christianity as the “stars of guidance”. It was used as guidance to the holy place. Therefore the object had great significance as it provided a pathway through to unknown to Truman.

The use of the uptake questions from Tayla and Abbey (“So, Hamish, why do you say that? How do you fully know that Christof isn’t controlling other media?) forces Hamish to think deeper and justify further his argument (“Christof was the creator of the show so he is in control of what happens inside the dome which is where Truman lives so that is where he will be influenced by media). In both the post-intervention and online discussions, the students ask high-level and uptake questions. Before the intervention, these students were mostly using uptake statements to advance their discussion. However, their post-intervention and online transcripts show a discussion that is dialogic. They appear to be listening to and challenging each other, through speculating on possibilities and showing some analysis of the points other students make. There is less acceptance of one another’s arguments and through the use of uptake questions and high-level questions they elicit greater levels of evidence and elaboration which they were not doing prior to the intervention. It is this kind of dialogue which demonstrates the critical analytic thinking that students need to be engaging in to achieve the highest grades in their national qualifications.

**Questionnaire results for online discussions.** A close analysis of these same students’ questionnaire results revealed a shift in their beliefs about the purpose of online discussions. At Time 1, these students saw being online with their peer group as positive because they viewed the forums as an opportunity to get help for homework and to seek clarification. For example, common questionnaire comments were that online forums were useful for “Reminding me what homework we’ve got. In Japanese—phrases I need for homework that I don’t know”; “I usually ask questions about the homework and ask if they understand something I don’t”, and “because if you are unsure on something they can help you out, so you can do you work, of doing nothing (sic)”. Post-intervention, these same students’ perspectives had shifted to viewing online discussion as contributing not only to their learning but
to the depth of their learning. Their comments respectively were, “It was helpful to get other people ideas—I learnt stuff I think about myself”, “because I thought about new things that I have never thought about or even considered before”, and “because I was able to think more deeply before I answered, answering online gave more time to think.”

The students also believed that the opportunities contributed positively to their ability to write with a critical analytical stance:

Reading the comments and statements on Edmodo helped me think more about what Truman’s identity was and how the key ideas fit perfectly into in particular (sic) scenes. It also enabled me to have a deeper understanding. (Hamish, Questionnaire)

Edmodo helped me to prepare for the exam because I could see other peoples (sic) points of views and it helped me develop my ideas and theories. (Rosie, Questionnaire)

Examples within these students essays of critical analytical statements include:

The very last shot of the film is a mid-shot of two security guards watching the show end. When Truman exits the stage and the screen goes black, one of the security guards says to the other “What else is on?” This shows how people in the modern world are continuously looking for something to follow, such as religion, and how media uses those desires to manipulate people into following different aspects in the world. (Rosie, post essay, 2014, p. 2)

The reason this happens is because Christof, who is a metaphor for the media in modern society, makes money from the companies who pay for their product to be shown on The Truman Show. (Hamish, post essay, 2014, p. 3)
Truman ascends to the door up a flight of stairs against the wall, both painted to look like the sky. The symbolism behind this is undoubtedly the stairway to enlightenment. (Abbey, post essay, 2014, p. 1)

The Truman Show was also a way people could reflect their individual lives on… which relates perfectly to today. People search/seek something to believe in and live by and depend their lives on, not knowing that they could be positioned in a situation of being manipulated. (Shianne, post essay, 2014, p. 2)

**Teacher response to effectiveness of the discussions post-intervention.** Isabella the teacher of the above student, responded with her belief about the impact of the intervention and the effects on the students’ ability to think more deeply:

Yes, absolutely. The essays pre and post, the discussions pre and post and the comparison of these students to others in the year group not using this tool all illustrate how the students were better aware of, could theorise and engage in their learning and understanding of the texts studied. Further, as a result during our revision of the year's programme for the external exams, students were using the dialogical discussion ‘speak’ to discuss with each other, the class and me about topics studied which consequently challenged thinking and learning.

**Students set up as a group discussion online.** In contrast, a group of students in another class with similar ability as the students described above were set up by the teacher for a whole-class discussions online. Though these students use of uptake questions and high-level questions increased during their face-to-face group discussions post-intervention, interestingly the students’ use of questions did not increase in their whole-class group discussion online. In the following transcript the students are discussing The Truman Show and whether or not they agree with Christof’s comment “If Truman was absolutely determined to discover the truth, there is no way we could prevent him from leaving”.

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William: I agree (claim) because Truman was determined to discover the truth by sailing out to sea and facing his fears (reason 1). Christof did not prevent him from leaving, he gave him free choice (reason 2). (Elaborated explanation)

Bilenda: I agree (claim), because Truman went through the wildest storm (reason 1) and he had the choice to turn back however, he was determined enough to sail all the way to Fiji (reason 2). So Christof couldn't hold him back (Elaborated explanation)

Daniel: I agree (claim), because he had a strong desire to look for the truth ever since Silvia was taken away (reason) so he faced his fear of aquaphobia and sailed to sea to find the truth and given the choice to stay or leave (causal reason) it was obvious that Truman would leave because it was his plan and determination. (Elaborated explanation)

TeenMariya:

Truman overcomes his life-long anxiety about water—aqua phobia—and sets sail in search of truth (reason 1). Thus I agree with Christof (claim), as Truman had a strong desire to find the truth and was given choice (reason 2). (Elaborated explanation)

Mahdi: I agree (claim) because Truman made a photo of Lauren (reason 1) and his goal was to get to her. He faced his fears to accomplish his goal (reason 2) and so he did. (Elaborated explanation)

The students’ use of reasoning words and elaborated explanations increase compared with their pre-intervention results and compared with the non-intervention class. For a statement to be coded as an elaborated explanation requires a student to state a claim with two reasons of justification and so despite the lack of interaction between the students this is a promising result and demonstrates the positive impact of Quality Talk. Their dialogue was similar to that of the students in Study 1.
**Level of critical analytical responses in post essays.** Figure 16 shows the mean number of critical analytical responses in the students’ pre and post essays for the non-intervention and the intervention classes. The greatest gain for critical analytical responses was for the classes who were intervention classes and who were set up in the same groups for their online and their face to face discussions. However, as Figure 16 shows, there is a substantial increase in critical analytical responses for all of the intervention classes overall whereas the number of these statements for the non-intervention class goes down. Although it was not appropriate to use the single non-intervention class in statistical analyses, a dependent t-test was used to compare the baseline \( M = 11.28, \ SD = 7.13 \) and post-intervention \( M = 37.43, \ SD = 32.01 \) means for the intervention classes. The analysis indicated a significantly higher number of critical analytical responses after the intervention, \( t(6) = -2.15, \ p = .074, \ d = 1.06 \).

*Figure 16. Non-intervention and intervention mean critical analytical responses.*

**Discussion**

The rationale for this study was to trial an intervention, Quality Talk, in senior secondary classes that had only previously been trialed in primary classrooms and in the area of text comprehension, and to assess its impact on the nature of interactions in both face-to-face and online group discussions. The purpose of the study was to
investigate whether the greater use of questions and interactive dialogue would generate more complex talk between the students and hence increase the students’ ability to think, speak and write with a greater critical analytical stance. There were two research questions: (1) What happens to the nature of the interactions of students during group discussions both face to face and online once they have been taught the construct Quality Talk and the principles of dialogic talk? and (2) What is the effect of these two variables on students’ ability to write critical analytical statements post-intervention?

The results of this study showed that the nature of the interactions between students in the intervention classes did change. Notably, these students increased their use of uptake, authentic and high-level questioning during their face-to-face group discussions. As previous research has proven there is a need for dialogue to generate critical thinking, this study suggests that the opportunity for critical thinking increased when the conversation became more dialogic through the use of questions. Evidence of this was in the significant increase in the intervention classes’ use of critical analytical stance compared with the control class. Although it is important to note that there were only three data points and many interventing variables (the task, content of the stories etc).

The students in the intervention classes who were set up online in their same face-to-face groups displayed similar behaviour, in that these students also increased their use of uptake, high-level and authentic questions. However, the students who were set up in one large class group for discussion did not increase significantly their use of uptake, high-level and authentic questions. Instead, the nature of these students’ interactions became postings of agreement with elaborations rather than an exchange of dialogue to gain a greater understanding between participants. Though these students’ interactions had greater depth than those of the non-intervention students, researchers of Exploratory talk (Barnes, 2008; Mercer, 2008a; Mercer & Dawes, 2010) would argue that this over-cumulative type of interaction is not conducive to critical thinking. Wegerif (2013) would describe these elaborated explanations as monologic utterances as though the elaborations are longer than a simple “yes”, the nature of the interactions is not interactive or dialogic. These results suggest that
opportunity for both online and face-to-face discussions are a valuable tool for students when combined with an intervention such as Quality Talk, the principles of dialogic talk, and when the students are set up in the same groups as for their face-to-face discussions.

Analysis of students’ questionnaires concluded that opportunity for both online and face-to-face dialogical discussions were considered favourable by the students. Interestingly, students recognised that being privy to multiple perspectives helped them to think more deeply in both face-to-face and online contexts. The implication for teacher practice is the importance of having explicit conversations with secondary students of the links between interactive dialogue, listening to multiple perspectives and then having opportunities for talking with others. The use of dialogue to increase one’s ability to think critically would be new to many students, as often students are told to stop talking and to do their own work. The inference is perhaps that it is only possible to do “real” thinking on your own and therefore talking is often actively discouraged by many teachers.

Generally, a student’s teacher is the only audience for a student’s voice and therefore opportunity to gain multiple perspectives on topics or to have their ideas challenged from these multiple perspectives is limited. This study showed that when students are put in groups, the principles of dialogic talk and the framework of Quality Talk were more likely to be used by students in an online context to increase the levels of dialogue as is necessary for critical thinking to occur than when those students are put in class groups. Reznitskaya et al.(2009) maintained that teachers do not know how to use talk in classrooms to enhance learning and that is why dialogic talk has not become common. Perhaps just as pertinent is that students do not know how to use talk to enhance learning and so make little use of talking to learn.

A limitation for this part of the study was that perhaps the intervention provided a novel experience and therefore motivation and engagement levels were raised for students, when often this decreases for adolescent learners (Eccles et al., 1993; Eccles & Roeser, 2009) as indicated by the non-intervention class decline in critical analytical thoughts in their post-intervention essays.
A further larger research study could examine the use of synchronous online group discussions by students, such as the use of Skype, as all studies in secondary schools have examined only asynchronous discussions. If students engage in synchronous discussions, do they bring in other online resources to support their discussion, such as YouTube clips? A comparison study of face-to-face group discussions and online synchronous discussions could be coded and examined in the same way as the study described in this chapter. Further examination could involve the differences of online behaviour within genders and cultural groups.
Chapter 8
Discussion and Conclusion

These studies aimed to contribute to the knowledge about the effectiveness of dialogic education in middle school and secondary school settings. The research in dialogical education has taken place almost exclusively in primary/elementary schools (R. J. Alexander, 2001; Mercer et al., 2004; Mercer & Littleton, 2007) while the few studies in secondary schools have been located almost entirely in junior secondary or middle school and focused in the curriculum areas of science (Coultas, 2006; Mercer & Littleton, 2007; Osborne & Chin, 2010; Scott, 2008; Scott et al., 2010; Scott, et al., 2006) and mathematics (Pratt & Back, 2009; Walshaw & Anthony 2008). Furthermore, much of the research to date on classroom discussions has used correlational and single-group pre-test/post-test designs. Despite calls for more diverse quasi-experimental and experimental studies of discussion practices, involving rigorous designs, to assess the effect on the quality of classroom discourse as well as on individual student comprehension and learning outcomes (Murphy et al., 2011), there remain gaps in the research. These current studies fill that gap by employing empirical research, and a pre-test/post-test design, conducted in the secondary context and in curricula outside of science and reading comprehension.

There have been developments over the past few decades in the research literature on the successful education of adolescents, with some research suggesting that education is most successful when adolescents are challenged to think for themselves, to engage in dialogue with their teachers and peers, and to undertake interesting and appropriately challenging course work (Haines & Mueller, 2013). Therefore, the call for more research in the use of dialogue has become increasingly relevant in secondary schools as understanding has gained momentum about developing the role of talk in learning, and in particular in relation to the involvement of students in talking to each other. The majority of the arguments cite improvements to student critical thinking and retention (Higham et al., 2014).

In addition, an opportunity for metacognitive thinking in past research on dialogical discussions has centred on reflective opportunities for teachers through the use of
video (Roskos & Boehlen, 2001; Walshaw & Anthony, 2008), but to date there has been no investigation into reflective opportunity for students. An example of a reflective tool for teachers has been developed by Wilkinson, Reninger and Soter (2010), who have trialled the Talk Assessment Tool for Teachers (TATT) to support teachers’ professional development in learning to conduct discussions. This tool involved the teacher and a discourse coach viewing a video of recently completed discussion and together completing a close analysis of the exchanges within the dialogue. Past research on dialogic education has focused on the teachers’ analysis of their role in the discourse through the use of video reflections, but no research has recommended that the students also engage in this reflective process. Study 2 therefore included opportunity for students to view the transcripts and video recordings of each of their group discussions as a reflective opportunity. It appeared the opportunity for a reflective opportunity may contribute to the meta-awareness of how to talk in more complex ways as the students were highly engaged and discussions over heard indicated that the students were on task, critiquing the use of Quality Talk.

The Paideia method (Adler, 1983) traditionally has three phases: didactic, coached project (preparation for Paideia seminar) and the Paideia seminar, and, within the Paideia seminar, Socratic questions are a key component. The investigation into the use of Socratic questions was chosen for Study 1 because these types of questions have been proven to develop critical thinking skills and enriching thinking through dialogue between peers (Billings & Fitzgerald, 2002; Haroutunian-Gordon, 1991, 1998; Orellana, 2008; Philgren, 2008; D. Robinson, 2006; V. Robinson & Lai, 2006). In Study 1, the use of Socratic questioning was investigated during online discussions as part of the coached project, as online preparation for the Paideia seminar had not been trialled before. The results of using Socratic questions during these online discussions were that the students increased their levels of complex thinking according to the SOLO taxonomy compared to the control classes and were higher than the levels of complexity during the face-to-face Paideia seminar for the intervention classes. A $2 \times 3$ chi-square test found a significantly different pattern for the types of interactions (TS, ST, and SS) between the experimental and control classes ($\chi^2 (2) = 58, p < 0.01$).
To contribute further to research on improvements to student critical thinking, Study 2 trialled the robust construct of Quality Talk (Wilkinson, Soter, & Murphy, 2010) which had been devised following a meta-analysis of 42 quantitative studies, with a focus on those studies that seemed to increase critical analytical thinking. Although the researchers in this meta-analysis examined the effects of discussion-based approaches on teacher–student talk and on individual student comprehension and learning outcomes in primary school settings, the incorporation of a construct such as Quality Talk that fostered critical analytical skills seemed logical. Cognisant that any study in classrooms of students should acknowledge the classroom environment, Study 2 included the principles of dialogic teaching (R. J. Alexander, 2008b); that is, that discussions should be collective, reciprocal, supportive, cumulative, and purposeful. The second study contributed to the overall field of dialogic education as the combination of Quality Talk and dialogic teaching had not been trialled before. Furthermore, Study 2 incorporated the use of online discussions using Quality Talk and the principles of dialogic teaching, as this combination had also not been trialled before.

**Themes Emerging from Studies**

A number of themes emerged from the studies that contribute to our knowledge in the field of dialogic education, including that students’ struggle with Socratic questions (Study 1) supports the use of uptake and high-level questions; complex talking from students requires deliberate teaching to students; and some students may benefit more from Quality Talk experiences than others (Study 2).

**Students struggled with Socratic questions**

Previous studies on the use of Socratic questioning with students in the middle school age group in the Paideia project demonstrated that listening to students’ questions could be powerful for teachers in understanding their students' levels of understanding (Hattie, Clinton, Kelkor, Reid, & Spence, 1998; Roberts & Billings, 1999). However, Study 1 showed that the majority of students in this age group (11–13) struggled to use Socratic questioning. Only the very capable students seemed to know when it was appropriate to use a Socratic question to probe a peer further. Hattie (2009)
trialled the use of Socratic questions with his tertiary students and discovered that their questions demonstrated some misunderstandings and misconceptions from his teaching. He thus found the use of Socratic questioning between students useful and revealing. The results from this study suggest that the use of Socratic questioning may be developmentally dependent, with older and brighter students able to master their use more readily than younger students. It may also be that teachers need to teach students how to integrate Socratic questions into their discussions and provide plenty of opportunities to practise so that their use increases as their level of understanding in the use of Socratic questions increases.

Support for uptake and high-level question
Instead of Socratic questioning, the use of a number of different question types was trialled within the construct of Quality Talk. The questions that gained the greatest increase in usage were authentic, uptake, and high-level questions. An authentic question, for example, would be “What is your response to the poem?” An example of an uptake question would be if a teacher asks “What do they have to do to Polyphemus,” a student replies, “Blind him”, and the teacher then follows up asking, “How come the plan is for blinding Cyclops?” (Nystrand et al., 2003, p. 15). High-level questions include speculation, for example, “what would happen….?”; analysis, for example, “why does…. happen?”; and generalisation, “what happens….?” (Applebee et al. 2003). These types of questions appeared to be more successful than the use of Socratic questions which help students engage in reasoning and discussion with each other rather than just agreeing and disagreeing, albeit with elaboration. The results of Study 2 showed that most students, once introduced to the Quality Talk framework, increased their use of authentic, uptake, and high-level questions. The increase in these types of questions as opposed to the uptake of Socratic questions in Study 1 may be explained by the nature of Socratic questions. Socratic questions are divided into different categories for different purposes; for example, questions that probe, or questions that seek clarification. Students are expected to not only think to ask a Socratic question but to know which type of question is appropriate. Questions such as “aren’t you assuming?” or “what can you say in defence of that view?” are likely to elicit high-level thinking in another student. However, perhaps some
students find these questions somewhat adversarial. Perhaps Socratic questions do not work as well as uptake questions or high-level questions because Socratic questions challenge the participants to justify their thinking; for example, questions such as “could you clarify that comment?”, “what reason do you have for saying that?” may be seen as more confrontational than listening to a participant. Uptake questions include restating what someone has said and then seeking further elaboration. It may be that an uptake question, or another type of question, therefore shows a genuine interest in what is being said rather than listening for the purpose of confronting further with a Socratic question. High-level questions also involve close listening to what is being said and the questions encourage the participants in the group to collectively draw out their thoughts, either through a closer analysis, generalisation, or speculation, and their purpose is for closer examination, rather than a justification. The students in both studies observed that respect from their peers was important to their willingness to participate, which is in keeping with the principles of dialogic talk (R. J. Alexander, 2008a). An explanation for students responding so well to the use of uptake and high-level questions may be that they are deemed to be more “respectful” by adolescent students than Socratic questions which seek mostly to question the validity of the evidence of the speaker.

**High-level talk between students requires deliberate teaching to students**

Baseline data of the classes in both studies revealed little use of interactive questioning between students and high levels of IRE (initiation-response-evaluation) but following the interventions the students’ interactions showed a significant improvement and so perhaps high-level talk between students requires a deliberate intervention from teachers. Although there is evidence that direct instruction has an effect size of 0.59 (Hattie, 2009) on student learning and therefore IRE exchanges can be an efficient tool for teachers to directly communicate with students to ensure shared understanding, past research on dialogue in classrooms has revealed the overuse of IRE exchanges. Although both studies showed a considerable reduction in the use of IRE, the interactions between students in Study 1 did not necessarily foster a more critical analytical stance.
The results in Study 1 showed a reduction in IRE exchanges between the students and the teacher as student-to-student interaction increased, but the greatest increase in the nature of these interactions was through an agreement or disagreement followed by an elaboration, and not through Socratic questioning of each other, which was a result similar to the “Thinking Together” study where children aged 8–11 were asked to solve Raven’s analogical reasoning test problems together after being taught the intervention of dialogic talk (Dawes, Mercer, & Wegerif, 2004). Utterances expanded from the students because they thought more about what they were saying and tried to give reasons and explain to others who obviously did not always see things the same way, and replies became longer as students managed to express a complex idea in a coherent way (Dawes et al., 2004). Although this result is positive because what the students say is more elaborate than before the intervention, Wegerif (2013) argued that such dialogue remained monologic. Thus, once the students have provided their elaborated explanation through an agreement or a disagreement, they internalised this thought and the dialogue remained monologic. Wegerif (2013), Nystrand et al. (2003), and R.J. Alexander (2008b) agree that it is essential that students ask each other questions to shift a discussion which is characterised by open-ended conversational exchanges but largely absent of questions into a dialogic exchange. The lack of questioning between students in Study 1 appeared to restrict levels of reasoning between students. This was an important finding because talk between students’ that includes questioning may contribute towards critical thinking. Reasoning underpins critical thinking because reasoning involves participants thinking beyond themselves and considering others. The implication of this finding for teachers is that students will not naturally question each other. At best, without an intervention such as Quality Talk, the students will engage in a discussion that consists of exchanges, but will not actively interact with what is being said. Therefore, if the talk is to contribute to deeper learning, teachers need to teach students how to talk with reasoning skills.
Some students may benefit more from quality talk experiences than others

Study 2 identified two themes of students’ knowledge and attitude among those who scored high critical analytical results in their writing, post-intervention: In contrast to their peers, these students demonstrated conditional knowledge about the difference between a normal group discussion and a dialogical discussion and, in terms of attitude, saw challenge as an important component to their learning.

Students who scored high post-intervention critical analytical results in their writing appeared to show higher metacognitive awareness than their peers, although this is not an unsurprising outcome because Veenman (2008) estimated that metacognitive skillfulness accounted for 40% of variance in learning outcomes. Being able to describe the difference between a normal discussion and a dialogical discussion is termed conditional knowledge (Schraw & Moshman, 1995) as it pertains to declarative knowledge about when a certain metacognitive strategy should be applied and to what purpose. In Study 2, the students who scored the highest critical analytical results in their writing post-intervention had confidence in knowing what types of talk were conducive to dialogical talk and when to use that type of talk. The other finding that was consistent with students who scored high critical analytical scores was that they had identified enjoying being challenged in the discussions from other students and saw the notion of challenge as being conducive to their learning. An implication of this finding is that perhaps teachers should teach argument skills alongside the use of Quality Talk and students should be taught to expect to be challenged and to learn how to counter challenge without taking umbrage.

Deliberate teaching of students important for successful implementation of talk fostering interactive deep thinking dialogue

Since students who had high self-efficacy in the use of dialogue in this study were able to articulate the differences between their use of language in a normal discussion and dialogical discussions, it is important that teachers consider the role of self-efficacy in developing students’ meta-awareness of their ability to use dialogue effectively to help them to learn and provide opportunities for self-reflection (Bandura, 1989). The provision of transcripts in Study 2 appeared to foster students’
levels of self-awareness in the use of Quality Talk, but since teachers would not have the time to listen to audio recordings and provide transcripts for students, reflective opportunities could be provided to the students through the use of free online apps such as Google hangouts to record group discussions. Students could have more opportunities to reflect on and evaluate their discussions in light of the type of language that elicits critical thought and complex thinking. One of the limitations of Study 2 was that the students only had three opportunities for reflecting on the level of their discussions. If there were more opportunities, it may be asked whether more students would be able to articulate the difference in the complexity levels of the discussions.

Motivation and engagement of students is important to learning as students will generally form high levels of self-efficacy, not only when they feel they have strong knowledge but also when they are highly motivated, and teachers can foster an environment conducive to students feeling motivated. Schunk and Mullen (2013) claimed that self-efficacy is built when individuals feel that they are progressing, and this drives motivation. Therefore teachers should provide students with the opportunity to reflect on the meta-levels of the discussions.

High self-efficacy could also be influenced by the students’ levels of social motivation. It was once thought that there was an inverse relationship between social motivation and academic achievement (Coleman, 1961), but more recent studies have shown that social motivation and achievement interactions are more complex than initially thought and can, in some cases, be positively associated with achievement (Pullen & Carroll, 2013; Schoenfelder & Urdan, 2013). Further to the complexities of fostering self-efficacy in dialogue, Veenman (2011) acknowledged that there is a grey area between controlled strategy use and the automated performance of skills. The role of teachers could be to consider pedagogy that will address making the automated process of being self aware of talking in more critical ways more habitual and routine and carried out with more understanding.

Concurring with past research in dialogical discussions, the students in Study 2 who had the greatest shift in dialogic spells were those students whose teachers had the
greatest shifts in beliefs about dialogic teaching (Boyd & Rubin, 2006; Christoph & Nystrand, 2001; Kachur & Pendergast, 1997; Smith & Higgins, 2006). The teachers in Study 2 were aware that opportunity for social engagement for their adolescent students was more than an opportunity to foster collegiality in the classroom; rather, it was an opportunity for learning. A teacher who believes in the process of allowing students autonomy to voice their thoughts and is interested in actively and genuinely listening to their students is called a teacher with a dialogic stance (Wells & Arauz, 2006). The study by Wells and Arauz found that such teachers appeared to foster greater increases in dialogic behaviour among their students than teachers who did not adopt this stance. R. J. Alexander (1992, p. 78) reported that “the fate of children’s contributions sometimes had less to do with their quality than with their ability to sustain the teacher’s pre-existing intentions for the session as a whole.” It is therefore arguable that teachers are more likely to be genuinely open to a range of responses when they intend their question to be authentically open (Smith & Higgins, 2006). Thus, in any professional training of teachers, there should not be an assumption that the teachers believe that dialogue can foster critical thought and that simply training teachers in a framework such as Quality Talk would have an effect on their practice. Introducing teachers in their professional learning to the body of compelling research evidence that dialogue is important for secondary students and their learning will be important in fostering the success of Quality Talk initiatives.

Research in dialogical discussions in primary schools has recommended the use of questions from the teacher to help foster a rich discussion (Nystrand et al. 2003). However, the results of Study 2 concurred with Smith and Higgins’ (2006) research that argued that the intent and nature of the feedback from the teacher is more effective than their questions during dialogical discussions. Their reasoning is that, as Mehan (1979, p. 286) argued, in forming a question, teachers have already “established the parameters in which a reply can properly fall”. Thus, even if the teacher asks an open question, realistically the teacher probably has an implicit pool of possibilities from which the teacher will predict and expect students to answer. Students are therefore likely to see any type of question as a directive. What is more important, it seems, is how the teacher reacts to students’ responses in terms of their feedback and the students’ knowledge of the teacher’s likely intent with this feedback.
Study 2 identified two types of feedback during the discussions that seemed to foster complex talking between the students. The first type of teacher feedback that seemed to have a positive effect on the students’ abilities to maintain dialogic spells was if a teacher affirmed when students were using dialogic talk, by explicitly stating that students were using dialogic talk features. The second type of teacher feedback that seemed to influence students’ abilities in keeping the dialogue within a dialogic spell was feedback which reminded the students that how they were talking was in keeping with the epistemic requirements of the assessment task to be completed later.

Study 2 revealed that teacher questions could be harmful to the students’ discussion if a teacher did not listen to the discussion before interrupting with a question. Therefore, teachers need to be reminded that joining a discussion with silence should be habitual. Teachers should wait until such time that students need assistance with either a question that reflects that the teacher has been listening closely to the conversation or to give appropriate feedback. Questioning students too soon when joining a discussion runs the risks that the exchange would quickly return to an IRE exchange and the students would most likely answer the teacher instead of continuing in a collective discussion with peers.

**Professional development for teachers**

One of the complications with professional development in the area of dialogue is that if a teacher does not have confidence or knowledge in the area of discussion, it is less likely that they will form an authentic belief and confidence in fostering high-level student-to-student dialogue. For example, Newton and Newton (2001) found that primary teachers without a background in science avoided asking open questions and discouraged the formulation of students’ own questions and speculations. Aleven and Koedinger (2002), in two classroom experiments, found that students who engaged in explanations of their steps of thinking were more successful with transfer problems. Therefore a shared understanding of the conceptual framework of deep learning within curricula should be developed by all of the teachers in any future studies and should form part of their professional development, particularly as students need high levels of literacy to understand and use the increasingly sophisticated and subject-
specialised language of the senior curriculum (Shanahan & Shanahan, 2008). Literacy that is likely to cause some students difficulty should also form part of the professional development discussions with teachers as many terms such as “perception” and “insightful” are abstract and confusing for students. Discussions about the literacy used in potential discussions between students are an important aspect of future professional development because one of the most powerful ways to raise students’ subject literacy is for them to engage in rich extended discussions (Soter et al., 2008). These types of discussions could therefore lead to higher achievement.

Following the training and intervention, further research should be followed up by the teachers engaging in their own teaching as inquiry practice, otherwise there is a high risk that, once the study is completed, the teachers would return to their practice as it was before the training.

Implications for students low in socio economic backgrounds
High stakes national assessments at the senior secondary level usually require high-level analysis and an assumption of knowledge and understanding of issues of international interest. As a consequence, secondary students from low SES backgrounds may be at a disadvantage compared to their peers in high SES areas in their ability to achieve high grades for assessments that require thinking and writing about issues that are beyond their immediate experience. “Powerful knowledge”, to use Young’s (2009) term, is knowledge with epistemic and specialised properties whose purpose is to assist students to think about the world in abstract or context-independent ways. This type of knowledge provides students with the ability to develop a critical awareness of the forces structuring their lives and to imagine alternatives beyond their everyday experiences (Young, 2009). For students from low SES backgrounds, imagining contexts that are beyond their own lives is likely to be harder than it is for students who attend mid-level or high SES schools for a number of reasons. Factors that can contribute to this lack of equity may in part be due to a number of complex differences, including less input from parents or guardians, more part-time work and consequently less time to study, less travel and ultimately fewer world-wide experiences that would assist in making connections with abstract ideas.
(Lareau, 2012). As poor achievement by low SES students has long-term effects on their opportunities beyond school, their earnings, health and social integration (Feinsten, Duckworth, & Sabates, 2008; Rumberger & Palardy, 2005), the results from Study 2 were important because it appeared that the use of Quality Talk and dialogic talk were able to support students from a low SES background to achieve high critical analytical results in their post-intervention essays. There are implications from this study for higher levels of performance in high-stakes assessments.

**Directions for Research**

A quasi-experimental study does not have completely randomised classrooms in the way that an experimental study would. Although the principals in both studies were asked to randomise the classrooms, in each case the principals invited staff who would like to participate. Therefore it may be that the teachers who participated in this study were more enthusiastic than the average teacher and this may have resulted in a greater increase in dialogic talk than would be reflected in a randomised study. The novelty effect of the students being given the opportunity to talk to each other in groups, with video cameras and audio recordings, may also have contributed to the high increase in dialogic talk. Since the students and teachers were video- and audio-recorded, it is impossible to entirely circumvent the problem of “reactivity” for teachers and students (Allwright & Bailey, 1991; Swann, 1994). In future studies, more time could be spent in allowing the students and teachers to get used to having video and audio equipment in the classroom. Alternatively, there could be greater use of less obtrusive recording devices such as iPads rather than large cameras with strong lights, which would result in less “reactivity” for teachers and students.

There is disagreement about whether future research in dialogue studies should collect just quantitative or quantitative and qualitative data. Howe and Abedin (2013) advocate that future studies in talk should be large-scale studies which use quantitative methods to determine whether patterns of talk which qualitative analysis has suggested have particular educational value do indeed lead to significantly more positive outcomes, to the extent that teachers can reasonably be expected to change their practices. Others argue, however, that there have been important
methodological developments in recent times such as the creation of specialised software for enabling both the qualitative and quantitative analysis of talk. For example, many educational researcher are now familiar with software such as *nVivo*, which is used for the systematic storing, coding, and analysis of data from observational research (and not just that concerned with classroom talk). Some talk researchers have also taken up the use of software designed by and for linguists and lexicographers (Mercer & Dawes, 2014). In the future, analysis could be both qualitative (targeting particularly interactions or extended episodes) and quantitative (comparing the relative incidence of “key words”, or types of interaction, as might a systematic observer (Mercer & Dawes, 2014).

Study 1 and Study 2 used quantitative and qualitative data and it would be worthwhile for future studies in talk to be conducted using a mixed methods approach. Close analysis of both sets of data revealed the complexities in how to shift students’ talk from surface level to deep level. The success of Socratic questioning in studies conducted in the United States with the Paideia Schools stands in contrast to the lack of use of Socratic questions by students in Study 1. There may be a number of reasons for this difference. First, it may not be that students were incapable but that an isolated intervention is not enough to shift the students’ abilities to question each other using Socratic questions. A whole-school approach would allow far greater time to embed the use of the Paideia method and allow students and staff to develop the skills of using Socratic questioning to the point that they become familiar with this approach. Furthermore, the lack of success of students incorporating Socratic questions may also reflect the reality that the more confrontational aspect of Socratic questions does not sit so easily with some students. More research is needed to investigate whether the reluctance in the use of Socratic questions is related to cultural differences (Singh, 2010) or students’ levels of comfort with questioning other students’ assumptions and evidence through Socratic questions. Research exploring the extent to which Socratic questioning methods can transfer successfully across a range of cultures may provide further insights here.

Four of the teachers in Study Two were interested in the effect of the discussions outside of the need for critical thought for the purposes of high-stakes assessment
tasks. These teachers wondered about the effect that increased discussion and
dialogic skills might have on the development of their students as citizens in the wider
community. The teachers’ comments reflected debate in the wider literature on
whether dialogic talk is an end in itself or an end to a means (Freire, 1970; Matusov,
2009; Oakeshott, 1962). Pedagogy that addresses these wider social issues is argued
by some as critical pedagogy (McLaren, Macrine, & Hill, 2010). These researchers
argue that, if schools are serious about allowing students to understand issues about
power in society, the micropolitical everyday lives of teachers and students should
address the wider and larger economic, cultural, social and institutional structures
through such avenues as discourse in classrooms. Research that explores the
motivation of teachers will be essential to informing this process.

Students’ levels of metacognitive and self-regulatory awareness appeared to be a
differentiating point between those students who were most successful at using
critical analytical points in their essays and other students. To ensure that the majority
of students participating in dialogical discussions are able to have this awareness,
future studies should incorporate and evaluate a recommended framework of self-
efficacy as outlined by Bong (2013). That is, teachers should allow students time for
goals and goal setting; skills training; modeling; attributional feedback; perceived task
difficulty and reward-performance contingency. If a tighter structure (like Bong’s
model) is used, future research may show that more students are able to be self-
regulatory with their participation in the discussions. Reflective opportunities using a
recording of the discussions could be used for students to view their discussions and
consider the discussions in terms of content and use of language and questions that
appeared to shift the conversation into a shared deeper understanding. Opportunities
to write with a critical analytical stance should immediately follow group discussions
so that students can understand the link between their more complex talking and their
writing.

Study 1 and Study 2 concluded that online discussions within a strong pedagogical
framework such as the Paideia method or Quality Talk were successful in engaging
students in rich discussions. According to Bereiter and Scardamalia (2003), computer-
supported collaborative learning can provide learners with an environment in which to
build knowledge collaboratively. These environments are well worth investigating with greater depth. As digital technology opportunities have advanced since the beginning of Study 1, a future study could include using apps such as Google Hangouts and the conversations could be recorded using Quicktime, which would enable synchronous conversations to be recorded online rather than the typical asynchronous conversations. Digital technology also offers an opportunity for students to bring in Ted Talks, YouTube clips, and so on, so that students are not restricted to their own content knowledge in their discussions but can bring in information from the internet. Using the affordances of the online environment can mean that students are exposed to thinking and information beyond their own experiences—necessary for critical thinking and potentially of particular advantage for students in low socioeconomic communities and who can be restricted by experiences for financial reasons. Consideration of students with hearing impairments would need to be taken into consideration. Although most students did not argue during the discussions in Study 2, preferring to use reasoning words, elaborations and questions that were predominately uptake and high level, the students who did challenge and argue did particularly well in the critical analytical results in the written essay. Perhaps drawing on three separate groups set up for a future study would be worthy, as other studies have shown the benefits of students being taught arguing skills (Kuhn & Crowell, 2011; Reznitskaya, Anderson, Yuan, I. Kim & S. Kim, 2008). That is, a further study could include one experimental group being taught Quality Talk with the principles of dialogic talk; one experimental group being taught argument skills with the principles of dialogic talk and a comparison control group that engaged in group discussions within the realms of their normal participation.

**Concluding Comment**

For some time now, researchers from varied disciplinary backgrounds have advocated that dialogue can have an effect on achievement (Bernstein, 1975; Heath, 1983; Wells, 1978). The research presented in this thesis has shown that, given the appropriate training and tools, teachers and secondary students are able to increase the quality and quantity of student talk and critical thinking. In turn, this change may
have the capacity to both increase student achievement and foster stronger levels of engagement among secondary students. Given the importance of both achievement and engagement for student life outcomes, both training in dialogical methods for teachers and further research into their efficacy are essential.
References


TALK IN MIDDLE AND SECONDARY SCHOOLS


Moore, M.G. (2002). What does research say about the learners using computer-mediated communication in distance learning? American Journal of Distance Education, 16(2), 65–81.


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Appendices

Appendix A: Focus Group Questions for Teachers After Study 1

• Following your involvement with the Paideia method, what do you think if anything needs to change about how you teach (in general)?
• What do you consider are the successes, gaps, and failures of using Socratic questioning within the Paideia method?
• How do you know if the sessions had any impact on the student learning – what evidence have you got to show this?
• Which kinds of students were better/not so good at learning this way?
• Were there any surprises?
• If other teachers were to adopt this system, what needs to be in the training to optimise it, to get to the outcomes faster and more effectively?
• What was helpful in terms of your training?
Appendix B: Student Questionnaire Following Online Discussion

<table>
<thead>
<tr>
<th>Statement</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have tried to make sense of what I have during this discussion on Moodle by linking to what I know already</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have related ideas during this discussion on Moodle to practical or real life</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ideas I have come across during this discussion on Moodle have set me off on long chains of thought</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It was important for me during this discussion on Moodle to follow arguments, or to see the reason behind arguments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I used information to support my statements or questions in the discussion on Moodle</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I built upon what was said in today’s discussion on Moodle</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I felt comfortable giving my opinion on Moodle</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I think the discussion on Moodle was fair and that everyone had an opportunity to contribute</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Any other comments:
Appendix C: Baseline (Time 1) Student Questionnaire

Name: ____________
Gender:  Female or Male (please circle)

1. Identify which ethnic group you most identified with from the following list:
   - New Zealand European
   - Maori
   - Samoan
   - Cook Island Maori
   - Tongan
   - Niuean
   - Chinese
   - Other:

2. Roughly, how many books do you think are in your home? (please circle)
   - Under 25 books
   - Between 26-100
   - Over 100 books

3. Tick which of the following you have at home:
   - Calculator
   - Computer (do not include PlayStation etc)
   - Study desk/table for your use
   - Dictionary
   - Internet connection
   - Your own room
   - Your own mobile phone
   - Musical instruments (e.g., piano, violin, guitar)
   - Dishwasher.

4. Please circle the number of schools you have attended  1  2  3  4

5. What do you think makes a good discussion?

6. Do you think talking to your other students in class helps you to learn?  Yes  No
TALK IN MIDDLE AND SECONDARY SCHOOLS

a) If you wrote yes, explain how talking to your other students helps you to learn?

__________________________________________________________

7. Do you think that talking to your fellow students does NOT help you to learn? Yes  No

a) If you wrote that they do not help, explain why you think talking to your peers doesn’t help you to learn

__________________________________________________________

__________________________________________________________

8. Do you ever talk online to your fellow students about your learning? Yes  No

9. Do you think that talking to your fellow students on line helps you to learn? Yes  No

a) If you said yes, explain does talking on line helps you to learn

__________________________________________________________

__________________________________________________________

10. Do you think that talking on line to your fellow students does NOT help you to learn? Yes  No

a) If you wrote no, explain how talking doesn’t help you to learn

__________________________________________________________

__________________________________________________________
Appendix D: Student Questionnaire on Group Discussions

What makes a good group discussion?

Describe in your own words what the marker of your essay will be looking for if they were to grade you an Excellence for your essay in the external film study NCEA standard (The Truman Show).

Do you think that talking in your group helped you to think more deeply?

If YES say why it helped you to think deeply.

If NO say why it did not help you to think more deeply.
Appendix E: Intervention Class Questionnaire

What is similar about a dialogical discussion to your normal group discussions?

What is different about a dialogical discussion to your normal groups discussions?

What motivated you to participate in your group’s dialogical discussion?

Is there anything that stopped you from participating?

If you do not participate, but enjoy listening, please make a comment.

Do you think that talking in your group helped you to think more deeply? Yes/No

If YES say why it helped you to think deeply.

If NO say why it did not helped you to think more deeply.
Appendix F: Post-intervention Student Questionnaire

This is what someone in Year 11 from your school said in one of the discussions in this study:

“....he not only manipulates the characters in the movie, but he also involves the people viewing the movie, the audience, because he triggers a sense of emotional attachment towards the characters. Truman and Sylvia for example. See they have feelings for each other, but....

Write down what you could say next so that the discussion becomes a dialogical discussion and everyone in the group would be thinking deeply?

Why do you think what you wrote would help to make the discussion a dialogical discussion and that everyone in your group would be thinking deeply?