Face On, Face Off, Face Up: Kids discussing in two worlds

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Abstract:
This study focused on the impact of using Socratic questioning, based on the Paideia method, on the nature of middle schools students’ patterns of interaction and on the cognitive complexity of their discussions and comments. The study was conducted in 12 experimental classrooms and 12 control classrooms across six schools (ages 11-13). Teachers in the experimental classrooms participated in workshops aimed at assisting them in the implementation of the Paideia Socratic questioning method in their classroom practice. The study found that the complexity of classroom discussion increased when students initiated the discussion, but the intervention did not increase the complexity of the discussion when initiated by the teacher to the students. The schools were a mix of high, middle and low socioeconomic areas in Auckland, New Zealand. In the initial baseline data, effects associated with socioeconomic level did not emerge as significant. However, in the final seminar, significant differences between the traditional and Paideia classes were evident at the high socioeconomic level, and at the mid socioeconomic level. Although the low socioeconomic students in the Paideia classes did not make a significantly greater percentage of deep responses in the final seminar than the traditional classes, these students did significantly increase their percentage of deep responses in the final seminar, relative to the percentage shown in their initial classroom discussion.
The research question was:

a) 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

A history of Paideia

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

The Paideia Proposal: an Educational Manifesto (Adler, 1982) offered a systematic critique of American public education and 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 Hutchin’s focus on traditional academic rigour. Robert Hutchins stressed the need for academic rigour based on the intellectual traditions of the human community. Hutchins 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 1980’s.

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Paideia Method:

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, from informed positions (Alexander & Judy, 1998; Moore & Young, 2001). Domain knowledge, which is defined as all types of knowledge including declarative, procedural and conditional knowledge acquired in a specific field of study, has an important role in developing expertise (Alexander, 1992). To be expert in a specific
area, learners not only need to know how to deal strategically with the information they encounter, but they also need to have a considerable amount of information about the area (Alexander, 1992).

Domain knowledge appears to be what distinguishes expert from novice learners, according to Alexander and Judy (1988). Moving students from surface to deep learning is predicated on Hattie’s claim (2009) 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’ (p. 29). Expert learners have enough information and background knowledge about the area of their expertise that allows them to consolidate the newly learned information with more sophistication.

The Coached Project stage of the Paideia Method requires students to gain the necessary skills to be able to participate in a Paideia Seminar. Biggs and Collis (1982) allude to a tension between students who believe the goal is to memorise facts and teachers who believe that the goal is to enhance deep learning. To successfully participate in a Paideia Seminar students are expected to go beyond the mere regurgitation of facts and extend themselves by hypothesising, analysing, explaining and evaluating. This requires that they organise their facts during the Coached Project stage of the Paideia Method and make links between various spheres of science, history, personality and context. You need surface to have deep; and you need to have surface and deep knowledge and understanding in a context or set of domain knowledge (Hattie, 2009). “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” (p 29) (Hattie, 2009). This is important because Hattie (2009) found that many students become disengaged from lessons when they are asked and encouraged to learn only at surface level.

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’ (p.29) involving the use of 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, a mathematics problem, or a piece 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 to refrain from making judgments or evaluating student comments. The ‘rich texts’ included in this study were in line with the Great Ideas of Adler (1982), such as; truth, beauty, liberty, equality and justice. The teachers in this study included the works of poets (The Rime of the Ancient Mariner), ideas around Identity using Plato’s Cave as motivation in their Paideia Seminars, The Lorax (Are humans parasites?) and Expression is a Risky Business.

**Methodology**

The study was exploratory in nature and employed a mixed method approach (Cresswell (2003). This approach involved first collecting qualitative data and then subjecting the responses to quantitative analysis. Because this method included both qualitative and quantitative data (Fraenkel & Wallen, 2006), it was considered that the findings would provide a more complete picture of the project.

**Participants**

The six schools were selected through purposive sampling based on a range of socio-economic demographic composition and willingness of teachers to participate. The schools were asked to choose two control classes, and two experimental classes of Year 8 students. The schools selected were 2 low socioeconomic, 2 middle socioeconomic and 2 high socioeconomic intermediate (ages 11–13) schools in Auckland. Ethics approval was gained through the University of Auckland and informed consent was obtained from the participants.
**Normal classroom discussion**

Normal classroom discussions involved the teacher standing at the front of the classroom and facilitating a classroom discussion with all students having the opportunity to participate.

**Coached Project**

The Coached Project stage for the Paideia classes included the students having opportunities to discuss on-line the various provocations from the teachers. The students were explicitly taught Socratic questioning to help shift the complexity of these discussions from surface to deep thinking. Examples of Socratic questioning were questions which probe, “what do you mean by”, questions which probe reasons and evidence, “could you explain your reasons?” and questions which probe implications and consequences, “what are you implying by that?” The purpose of the Coached Project stage was to scaffold the students with the necessary skills to be able to participate in the Paideia Seminar.

**Paideia seminar**

The Paideia Seminar involved the students sitting in a circle facing each other and discussing the provocation. Each student had prepared a personalised booklet with their stance on the provocative statement and their key supporting points. The provocation had either been provided by the teachers or in many cases, the students and the teacher had agreed on a statement, which would provide ample contention and ambiguity. The Paideia Seminars generally took thirty minutes and were integrated into normal classroom activities. The control classes were involved with a normal class discussion relating to the same units of study as the experimental classes.

**Data collection**

Videotaping, taping and questionnaire for the students and teachers for the study were collected at three points in time over a period of five months. The observations were carried out part way through term 2 and at the beginning and middle of term 3, 2010. The researchers spent time in each of the classes before the filming so the students became used to their presence. Initially, the students from all
24 classes were videotaped and voice recorded in one episode of normative practice (normal class discussion).

**Professional development**

The teachers were given historic and current literature about the Paideia Method to read before the two professional development days. The professional development days included background of the Paideia movement, discussion of past and recent research on the Paideia Method, and information on the three complementary teaching techniques of instruction: didactic teaching, the coached project and the Paideia Seminar (as explained previously). The teachers were given intensive training on how to conduct a Paideia Seminar, and an abundance of examples of Paideia Seminars topics suitable for middle school students. For the coached project the teachers were introduced to (on-line learning and practice in the use of the discussion forums utilising Socratic questioning of each other’s ideas. The teachers’ involvement in the professional development days and the ongoing support gave both the researchers and teachers a chance to come to a shared understanding of the goals and the processes involved in the principles of the Paideia method.

**Focus group**

A focus group discussion was held at the end of the project for the teachers. The teachers were given these questions prior to this focus group discussion: 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?
Categorising Data

The SOLO Taxonomy has been used to categorise the nature of discussion, which occurs within classrooms across secondary and tertiary sectors (Braband & Dahl, 2008; Eskilsson, 2008). The five stages of SOLO are: prestructural; unistructural; multistructural; relational; and extended abstract. 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 stage, 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.

Data analysis

The descriptions of classroom discourse and interaction derived from the transcripts of the video tapes were sub-divided into two main categories: complexity of discussion and nature of interaction. For the first category, it was decided to use the five-stage SOLO (the Structure of Observed Learning Outcomes) 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 tapes were transcribed by a professional typist and these resulting protocols were then
analysed by two research assistants who worked independently. The transcripts of these seminars were analysed according to SOLO taxonomy (Biggs & Collis, 1982). These assistants were asked to analyse every identifiable interaction that occurred using the SOLO taxonomy as a coding tool. Both individuals had had extensive experience in the use of the taxonomy, and were blind to treatment group allocation. They were asked to code the complexity of the interchange using the five levels of the taxonomy, from prestructural, to extended abstract. These codings were reviewed by the research team and disagreements between the raters were then reconciled, through discussion and consensus. Codings were also done by classifying each interaction in terms of whether it was (a) a teacher to student interaction, (b) a student responding to a teacher, or (c) a student responding to a student. Furthermore, interactions were coded as to whether they were questions, expansions of ideas, challenging other’s views, or answering questions. Codings to analyse the information from the focus groups with teachers were simply categories, which determined the successes, gaps and limitations of the use of Socratic questioning within a Paideia Seminar.

Results

In all, the raters reported a total of 3859 codings, of which 2035 stemmed from the traditional classes, and 1824 from the Paideia classes. Of the total, 2023 codings stemmed from the baseline data, and 1836 related to the final seminar periods. The raw tallies, broken down by treatment group and SOLO level are depicted as a pyramid panel graph in Table 1, with seminar time as the panel variable.
Table 1. Frequencies of SOLO level codings across two groups and two time periods.

For purposes of analysis 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. Solo Taxonomy was the tool to determine the shifts in complexity and so this is why this decision was made. Surface level responding was determined by aggregating levels 1, 2, and 3. Deep level responding was determined by summing levels 4 and 5. The frequencies generated by this procedure can be seen in Table 1, which also depicts the breakdown concerning the nature of the interactions (teacher to student; student to teacher; student to student) pattern as coded.
<table>
<thead>
<tr>
<th></th>
<th>Traditional Classes</th>
<th></th>
<th>Paideia Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Initial seminar</td>
<td>Final seminar</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>Deep</td>
<td>Total</td>
</tr>
<tr>
<td>Overall tallies</td>
<td>1207</td>
<td>66</td>
<td>828</td>
</tr>
<tr>
<td>Teacher-to-student</td>
<td>601</td>
<td>31</td>
<td>322</td>
</tr>
<tr>
<td>Student-to-teacher</td>
<td>526</td>
<td>32</td>
<td>288</td>
</tr>
<tr>
<td>Student-to-student</td>
<td>79</td>
<td>3</td>
<td>210</td>
</tr>
</tbody>
</table>

Table 2.

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 to the level of the first row except in the case of 24 missing values where raters failed to agree on the interaction focus dimension.

For purposes of data description, the available frequency data were then interpreted in term of the percentage of interactions coded at the deep processing level, since this constitutes a meaningful dimension. Table 3 depicts the percentage of responding coded at the deep level across the two time periods within each of the two treatment groups.

Table 3. Percentage of responses codes at a deep level across groups and seminar session
As can be seen in Table 3, in the final seminars for the Paideia classes, 175 of 1008 responses (17.4%) were at the deep level, in contrast to the traditional classes where 61 out of 816 responses (7.5%) coded at the deep level. This represents a significant difference between the two groups, $X^2 (1) = 39, p < .01$. It was apparent that at the baseline, the frequency level of deep responses evident within Paideia classes was not significantly higher than the traditional classes 7.5% vs. 5.5%, ($p = .07$). However, the relative increase across sessions within the Paideia classes, from 7.5% to 17.4% (Fisher exact test, $p < .001$), was significant while was not within the traditional classes, from 5.5% to 7.5% (Fisher exact test, $p = .07$).

Table 1 also shows the frequency breakdown according to the type of interaction pattern. These data are shown in Table 4 in terms of the three categories with baseline data in the top panel, and final seminar data in the lower panel.

Table 4. Percentage of responses coded at deep level as a function of interaction focus
As can be seen in Table 4, in the final Paideia seminar, for student to student discussions (SS), 686 responses were tallied, of which 149 (22%) were coded at the deep level. In contrast, with the traditional group, there were 24 deep responses within student-to-student discussion (SS) out of 210 responses (11.4%). Thus, the level of student to student (SS) interaction at the deep level was significantly higher in the case of the Paideia classes, $X^2 (1) = 10.9, p < .01$. 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%), $X^2 (1) = 6.6, p = .01$. However, the difference between groups was not significant when considering teacher-to-student frequencies ($p = .18$). Hence, the significant overall differences in deep level discussions between the two types of classes as appears to be due to student initiated (SS and ST) discussions, and not teacher initiated interactions (TS).

A 2 by 3 Chi-square test found a significantly different pattern to types of interactions (TS, ST, and SS), between the Paideia and traditional classes, $X^2 (2) = 58, p < .01$. This result suggests that the impact of Paideia clearly differed in accord with the type of interactions, with far stronger impacts being evident in the case of the student initiated response categories.

The final set of analyses compared nature and type of classroom interactions across the three school socioeconomic level classifications: low, mid and high. The percentage figures associated with these levels are shown in Table 5. In the initial baseline data, effects associated with socio economic level did not emerge as significant. However, in the final seminar, significant differences between the traditional and Paideia classes were evident at the high socioeconomic level ($X^2 (1) = 40, p < .01$), and at the mid socioeconomic level ($X^2 (1) = 8.3, p < .01$). Although the low socioeconomic students did not make a significantly greater percentage of deep responses in the final seminar Paideia classes than the traditional classes [$X^2 (1) = 1.6, p = .2$], 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, $X^2 (1) = 3.7, p = .05$. 
This graph shows the nature of interaction, which occurred during Episode three for both groups. Episode three for the traditional classrooms was a ‘normal’ classroom discussion based on the same unit study as the Paideia Group. Episode three for the Paideia Group was a Paideia Seminar. Students sat in a circle facing each other and discussed the provocative statement.

As previously identified, the Paideia Seminar resulted in higher student-to-student interactions. This graph identifies specifically which type of student-to-student exchanges seemed to generate deep thinking.
Table 6. Type of student-to-student exchanges which generated deep thinking.

<table>
<thead>
<tr>
<th>Nature of Interaction</th>
<th>Traditional classes</th>
<th>Paideia classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSQ</td>
<td>200</td>
<td>100</td>
</tr>
<tr>
<td>SSDC</td>
<td>180</td>
<td>120</td>
</tr>
<tr>
<td>SSAE</td>
<td>280</td>
<td>210</td>
</tr>
<tr>
<td>SSDE</td>
<td>140</td>
<td>100</td>
</tr>
<tr>
<td>SSA</td>
<td>60</td>
<td>40</td>
</tr>
<tr>
<td>SSN</td>
<td>120</td>
<td>80</td>
</tr>
<tr>
<td>SSD</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>SSAN</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>SSAG</td>
<td>20</td>
<td>10</td>
</tr>
</tbody>
</table>

(SS) = student to student  
SSQ = question  
SSDC = disagreement & expansion  
SSAE = answer & expansion of ideas  
SSDE = responds to disagreement & expands on own statement  
SSDE = responds to challenge & expands  
SSA = agree  
SSN = new idea  
SSD = responds with disagreement  
SSAN = responds with answer  
SSAG = responds with agreement

**Student Three:** 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 kill or punish or something (SSAE – Student responds to student with expansion of their idea, Relational, many ideas)

**Student Four:** 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, many ideas)
Student Five: 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, many ideas)

Student Six: It also depends on who 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, many ideas)

Student Four: 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)

“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.”

The SSDE statements were the reply statements back to the SSDC interactions. The student who had been challenged then responds back to the challenge with further explanation as in this example:

“I didn’t mean all parents when I said that. Like on, yeah like on ‘Cool Runnings’ as well, the dad didn’t want him to do the bob sleighing, he didn’t want him to just be running. He wants him to focus on work, he thinks work is more important – that’s what I meant”

More questions from student to student (SSQ), were at a higher complex level during the Paideia
Seminars than the normal classroom discussion. One student posed the following question to illustrate how the question generated more discussion: But do you agree that America was the start of stereotypes in movies and television?

The results of the focus group with teachers found the following repeated theme. Successes of the use of Socratic questioning within the Paideia Seminar were identified: A low socio economic teacher whose class was ESOL remarked that this method allowed and encouraged the children to dig deeper into the many layers of an idea. “The thinking and the speaking feed off and enrich each other with many children entering into the discussion offering lots of different thoughts which dug deeper and deeper into the original idea, exposing multiple layers of connected and related ideas which would never have been considered or even thought of during an ordinary classroom discussion”. A mid socioeconomic teacher concurred by adding that she believed the quality of what they 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 the thinking was at a deeper level. “Class discussions were richer, because they were listening to each other and not just me.” Another mid socio economic teacher identified that socratic questioning had shifted in to other curricula. “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.”

Cautions of using Socratic questioning were that one of the teachers in the lower socioeconomic school believed it only suited the students with good self-management as they liked having some control over what direction their learning was taking. A mid socioeconomic 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. “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 researchers wished to report on the findings the use of Socratic Questioning within a Paideia Seminar, would have on the nature of the interactions and the complexity of these discussions.

The main findings showed the nature of the interactions changed from predominately teacher initiated interaction in a traditional classroom discussion, to student initiated interaction during the Paideia Seminars. As demonstrated by the results in the study the complexity of the discussions were deeper during the Paideia Seminars than in a traditional classroom discussion, where students were working at a greater relational and extended abstract level (deep). Significantly, the type 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 thinking from surface to deep occurred in the high socio economic classrooms.

Due to the nature of the Paideia Seminars, where the teachers posed a Socratic question few students used Socratic questioning during the Paideia Seminar. Though the use of Socratic questioning during the Paideia Seminars was relatively low, more complex discussions were held throughout the Paideia Seminars than the traditional classroom discussions within the control classes. A ‘spin off’ of the teachers explicitly teaching the students Socratic questioning appeared to be that the students recognized 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 spoke with a statement and supported this statement with evidence and justification.
These exchanges resulted in a change in the nature of the interactions, i.e., 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 practice this type of questioning and reasoning are worth pursuing. Next steps in researching the use of Socratic questioning within a Paideia Seminar would include investigating closer the use of the on-line discussions as a medium for scaffolding the students during the coached project stage of the Paideia Method. Due to the interactive nature of on-line learning, which fosters discussion, (Gay, Sturgill, Martin, and Huttenlocher, 1999) this intervention may have benefited students who find it difficult to express ideas or talk at all in a face-to-face discussion.

A limitation of this study was the inequitable access to the internet for the students in the low socioeconomic schools. Many of these students did not have the benefit of being able to go online and discuss the provocative statement for the Paideia Seminar out of school hours and had limited exposure to the use of computers when they were at school. The teachers within the low socioeconomic schools lacked confidence and expertise in using the on-line discussions with their students and so the students had less exposure to the online discussions than the middle and high socioeconomic students. Ensuring a closer alignment with exposure to the use of the on-line discussions for all socioeconomic groups of students could possibly affect the outcomes of this study if replicated.
Future research needs to be conducted around the area of professional development for the teachers. Professional development which takes in to account the findings in the Best Evidence Synthesis on Professional Development (Timperley, Wilson, Barrar and Fung, 2007), is important. The researchers acknowledge the different stages suggested by the Best Evidence Synthesis (p8) : (a) *Cueing and retrieving prior knowledge*, where teachers explore new understandings in light of prior experience and existing theories of how people learn (b) *Becoming aware of new information/skills and integrating them into current values and belief systems* where teachers are required to engage in different ideas about teaching and learning. (c) *creating dissonance with current beliefs and practices*, in teachers are challenged about previously held beliefs about learning and are required to reassess their understandings and knowledge. The Paideia Method is highly complex, particularly the art of the use of Socratic questioning, so the researchers next step will be to research the impact in greater depth the role of the professional development for the teachers. This study concentrated on the impact on the complexity of thinking and the nature of the interactions for the students.

The results of this study show a significant shift in student initiated dialogue, from teacher initiated dialogue in normal classroom discussions to increased student initiated dialogue in the Paideia Seminar. Furthermore, these shifts generated a higher complexity of thinking. What emerges from this study is the potential of the Paideia method to increase depth of thinking and greater autonomy for early adolescent students.

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