

## The Effects of Participation in a P4C Program on Australian Elementary School Students

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**ABSTRACT:** *Both academic attainment and student well-being are high priorities for schooling in Australia. While many programs are implemented in schools to promote either academic success or mental well-being, one program, the Philosophy for Children (P4C) program claims to do both. This program is being widely implemented in Australian elementary schools. A quasi-experimental study therefore explored the effects of participation in a philosophical community of inquiry (COI), a feature of the broader P4C program on Year 6 students' reading comprehension, interest in math, self-esteem, pro-social behavior and emotional well-being. It was found that reading comprehension increased. Interest in math and self-esteem decreased and there was no change in pro-social behavior and emotional well-being for children who participated in the COI program compared to students who did not participate. Implications for practice are discussed.*

**Key Words:** *elementary school, philosophy, children, reading comprehension, mathematics, self-esteem, pro-social behaviour, emotional well-being*

### INTRODUCTION

With the introduction of the National Assessment for Plan (NAPLAN) in 2008 in Australian schools, and the public's interest in schools' results, increased emphasis has been placed on the academic attainments of children in elementary school. Additionally, increasing mental health problems (National Institute for Health and Clinical Excellence, 2013; Social and Character Development Research Consortium, 2010) have put the spotlight on elementary school children's emotional well-being as well as the continued problem of bullying in schools leading to more teaching about pro-social behaviour. Many separate programs to increase academic achievement and emotional well-being have been tried in schools such as You Can Do It, the Friends Program and Aussie Optimism (Bernard & Walton, 2011; Neil & Christensen, 2007; Roberts, 2010). One educational program which has some claims for increasing both student academic results and emotional well-being is Philosophy for Children (P4C) (Millett & Tapper, 2012). This educational program is organized to encourage students to contemplate philosophical questions (Lipman & Bynum, 1976; Lipman, 2001) and focus on the application of ethical, aesthetic, and logical inquiry, allowing students the opportunity to see issues from many different perspectives (Lipman, 2003). The philosophical community of inquiry (COI) is a feature of the broader Philosophy for Children (P4C) program (Cam et al., 2007). However, research suggests that P4C programs show contradictory results in terms of students' improved academic outcomes and also affective domains (Allen, 1988; Gregory, 2011; Imbrosciano, 1997; Lone, 2001; McDermott & Fox, 2001; Morehouse, 2010; Vansielegem & Kennedy, 2011; Weber & Gardner, 2009). The purpose of the current research was therefore to examine the effectiveness of a philosophical community of inquiry (COI) intervention and to

observe and quantify its effects on elementary school students' reading comprehension, interest in math, self-esteem, pro-social behaviours and emotional well-being.

### **Reading comprehension**

Various researchers have examined the effects of the P4C program on reading comprehension, following in the footsteps of investigations of the role of classroom discussions in improving reading comprehension (Jo, 2000; Murphy, Wilkinson, Soter, & Hennessey, 2009). Lipman and Bierman's (1970) study investigated the impact of a philosophical COI program on an experimental group of students who were exposed to a total of 18 40-minute sessions over nine weeks and found that students' reading comprehension scores were higher for the philosophical COI group than for peer groups not engaged in the program. The effects of the program were still evident two and a half years later. Furthermore, compared with traditional instruction Banks (1987) found that the P4C program significantly improved the reading comprehension scores of 319, 4th to 6th grade African American students in a suburban area with low SES over a period of 24 weeks. Using a sample of 100 students aged 11 years, Yeazell (1982) also found that the P4C approach improved students' general reading comprehension of all levels of ability compared to a sample of students traditionally taught.

However, other studies have not found the P4C program benefited students' reading comprehension. The Dyfed County Council (1994) study in Wales focused on students aged 5 years and employed a whole class approach using 'Teaching Philosophy with Picture Books' (Murriss, 1992) as the stimulus for discussion. Six schools in this study used two interventions (P4C and a reading activity), another six schools used the reading activity alone with a small group of children 'at risk' of reading difficulty, and a third group of six schools had no intervention. The schools were randomly selected, balanced for size and whether the language of instruction was Welsh or English. The standardised tests of reading miscue analysis and reading comprehension yielded no evidence of differences between the groups. A major limitation of this study was that no details were provided about statistical analyses.

### **Attitudes to mathematics**

The effects of P4C have also been investigated in relation to students' attitudes to mathematics (English, 1993; Daniel, 1994; Lafortune, Daniel, Pallascio, & Sykes, 1995; Smith 1995). Lafortune and colleagues (1995) conducted an experiment that explored the affective dimension of learning mathematics. Quantitative and qualitative results indicated from this study that the philosophical approach helped students aged 9 to 12 avoid developing more negative attitudes towards mathematics. A further experiment by Lafortune et al. (2002) was carried out over most of a school year, with five classes in grades four, five and six (ages 9 to 12) involved in a community of enquiry and five classes as control in French schools in Quebec. It was found that students in the control groups experienced far less pleasure when doing mathematics, and also felt less involved in the subject, than those in the experimental groups.

### **Self-esteem**

It has also been claimed that the self-esteem of elementary school students is enhanced by involvement with P4C (Sasseville, 1994). A Canadian study conducted by Sasseville (1994) explored the effects of participation in a P4C program on student self-esteem. The experimental group comprised 124 students and the control group 96 students. The teachers involved received

12 hours pre-project training and 4 days training during the 5-month period of the research. On the Piers-Harris self-esteem test (Bagley & Mallick, 1978), philosophy students showed an overall statistically significant gain in self-esteem compared to students in the control group. The largest gains in self-esteem were with students with the lowest pre-test self-esteem, while those with high self-esteem actually showed a relative loss compared with the controls. However, a study by Lafortune et al. (2002) found no differences in self-esteem between students who had been involved in a philosophical community of inquiry and those who had not been involved. Participating in a philosophical community of inquiry does not appear to enable all students in such a program to develop an improved self-image (Glaser, 1992; Portelli & Reed, 1995). According to Phillips (1996), exposure to P4C could even work against the development of self-esteem, if one does not take into account the fact that there may be certain contradictions between promoting the development of self-esteem and promoting intellectual skills such as rigor and intellectual honesty. To ensure positive development of student self-esteem, Daniel, Lafortune, Pallascio and Schleifer, (1999) suggest that students must consciously link success to surpassing oneself in a cooperative context, rather than surpassing others in a competitive verbal sparring match.

### **Pro-social behavior**

To study the effects of P4C on children's pro-social behaviour, Collins (2005) used a pre/post controlled intervention study of P4C with 133 ethnically diverse students in five South Australian elementary schools for two terms (6-months). The pre/post questionnaire tested students' justificatory thinking abilities and dispositions. It was found that a philosophical COI intervention led to growth in the participants' ability and disposition to consider issues empathetically and to weigh consequences for all concerned. P4C has also been described as a pedagogical vehicle by which students in the school community can address the attributes essential for a successful bullying intervention by promoting empathy, caring and respect and working toward rectifying the imbalance that exists between bullies and their victims in an effort to begin to readdress bullying behaviour (Glina, 2009). However, Tangen and Campbell (2010) looked at the effects of a philosophical COI program on bullying comparing students' self-reports on bullying between schools with and without a Philosophy for Children (P4C) approach. A sample of 35 students exposed to a philosophical COI and a matched sample of 35 students in other schools between the ages of 10 and 13 completed the Student Bullying Survey. A higher percentage of P4C school students claimed to have both been face-to-face bullied and bullied others face-to-face in the year of the study than matched students at other schools with both groups showing similar involvement in cyberbullying (Tangen & Campbell, 2010).

### **Emotional wellbeing**

Finally, P4C involvement has been shown to enhance elementary students' emotional wellbeing. Dawid (2005) investigated the effects of P4C on student emotional literacy; that is skills in self-awareness, emotional resilience, motivation, and handling of emotions and relationships. It was found that parents reported a significant increase in their children's emotional intelligence in the experimental group as compared to the control group. However, some studies have found that students who were generally negative about learning philosophy had little understanding of why they were doing philosophy, and girls progressively lost interest in the program (Leckey, 2001).

Not only are there inconsistent results of the P4C program on children's academic achievement and emotional well-being, the studies are dated and often do not present their statistical analysis. Furthermore, much of the positive research has been reported in Lipman's own journal, creating interpretive problems which suggest problems of vested interest (Reed, 1987; Sternberg & Bhana, 1996). There are very few studies that substantiate the claims made by P4C proponents, and few that include short and specifically, long-term follow-up (Millett & Tapper, 2012; Trickey & Topping, 2006). In addition, many of the studies lack methodological rigor. The utilization of the techniques of multilevel modelling as an analytic strategy is strongly recommended as it corrects for autocorrelation inherent in studies where clustering or nesting is present, as in previous studies on COI programs. This means that, where nesting was present, the research may have not been measuring the differences accurately, as without this strategy there is a higher probability of making a Type I error. The current study addressed these gaps by researching how participation in a COI affected Year 6 students' reading comprehension, interest in math, self-esteem, pro-social behaviour and emotional well-being compared to a control group using multi-level modelling.

## Method

### Participants

Two hundred and eighty children (149 intervention group, 131 comparison group) from eight elementary state schools in the Southeast region of Queensland participated in the study. The sample was made up of 48% (n=135) females and 52% (n=145) males all in Year 6 (with an age range of 10-12 years).

### Measures

Test of Reading Comprehension (TORCH Test Mossenson et al., 1988). This set of tests consists of fourteen untimed reading tests which are suitable for students in Year 3 through to year 10. The tests vary in length from approximately 200 to 900 words. A passage is administered to students and the students retell that passage in different words on a retelling form. The retelling form contains gaps relating to the original passage and the students are required to fill the gaps in one or more of their own words (Mossenson et al., 1988). The tests were used to measure reading comprehension. Validity is reported for TORCH tests in terms of content validity, obtained by a detailed examination of the content of the tests by different methods such as the selection of the items, and their appropriateness and representativeness, and also by comparing the items with accepted curricula (Mossenson et al., 1988).

The Self-Description Questionnaire II (Marsh, 1992). The Self-Description Questionnaire is an eight-scale instrument intended to measure seven aspects of self-concept of preadolescent children (ages 7-13) as well as their general sense of self-worth. The global score was used to measure self-esteem and the 'interest in math' sub-scale was used to measure students' interest in math. The Self-Description Questionnaire is acknowledged as one of the most reliable and valid measures of self-concept (Byrne, 1996). Internal consistency estimates ranged upward from a minimum .74 for the instrument. Target factor loadings for each facet within the instrument reflected an average of around .70, with no loadings below .44. Cross-loadings ranged from -.17 to .27, and factor correlations were typically small (March, 1999). For the current sample, Cronbach's alpha was .94 for self-esteem and .94 for interest in mathematics.

The Strengths and Difficulties Questionnaire II (Goodman, 1997). This short behavioral screening questionnaire is appropriate for children (5 to 16 year olds). It contains 25 items that are divided into 5 scales: 1) emotional symptoms (5 items); 2) conduct problems (5 items); 3) hyperactivity/inattention (5 items); 4) peer relationship problems (5 items); and 5) pro-social behaviour (5 items). It has been demonstrated as a reliable and valid instrument (Muris, Meesters, & van den Berg, 2003). The Pro-social subscale was used to measure students' pro-social behaviours and the emotional symptoms subscale the students' emotional well-being. Reliability is generally satisfactory, internal consistency (mean Cronbach .73) and retest stability after 4 to 6 months (mean 0.62) (Goodman, 2001). For this sample the Cronbach's alpha for the pro-social behaviour scale was .62, and for the emotional well-being scale the Cronbach's alpha was .65.

## **Procedure**

The first author approached the Principals of the participating schools requesting permission to conduct the research in their schools. Once permission from the school principal and ethical clearance from both the Queensland State Education Board and University Ethical Committee was granted, students were provided with written information regarding the research project and a consent form to take home prior to the commencement of the study. Students who returned signed consent forms were included in the research. The first author administered all questionnaires and tests at three time points at baseline (Time 1, June 2011), post six months later (Time 2, December, 2011) and follow-up (Time 3, June, 2102). All testing was done during class time to the students in both the experimental and control classes.

## **Study design and data analysis**

The study utilized a longitudinal time series quasi-experimental design with an experimental group and matched comparison group. For the current research this method was chosen because random allocation of the intervention was not possible. The study utilized a repeated-measures, following the participant's longitudinally over three time points with pre-test and post-test data collected at baseline, six month, and twelve-month intervals.

A 2-level multilevel model with age being represented by time (i) and students being represented by (j) was used in the multilevel model. The MLwiN (Rasbash, Steele, Browne & Goldstein, 2012) was used as the philosophical COI program is multidimensional, and classes are nested.

## **Results**

Table 1 presents the means and standard deviations for the variables. Reading comprehension scores increased over time for both groups. However, there was a sharper rate of increase in reading comprehension among participants in the COI compared to students in the control group. Students in the COI group had higher levels of interest in maths at pre-test than control students but this declined over time, while control students continued to increase their interest in maths over time. Self-esteem scores remained relatively stable over time for both groups with a sharper increase for the comparison group. The pro-social behaviour scores remained relatively stable over time for both groups. The emotional well-being scores also remained relatively stable over time for both groups.

Table 1 Means and Standard Deviations for RC, MATH, SE, PSB, and EWB, by Time and Group

	<b>TIME 1</b>	<b>TIME 2</b>	<b>TIME 3</b>
<i>Reading Comprehension (RC)</i>			
<b>Age</b>	<b><u>11</u></b> (n=240)	<b><u>11.5</u></b> (n=246)	<b><u>12</u></b> (n=222)
Comparison	47.68 (12.30) (n=110)	47.51 (12.18) (n=114)	49.60 (13.49) (n=105)
Philosophical COI	41.96 (11.67) (n=130)	44.68 (11.98) (n=132)	47.92 (12.38) (n=117)
<i>Interest in Math (Math)</i>			
<b>Age</b>	<b><u>11</u></b> (n=240)	<b><u>11.5</u></b> (n=248)	<b><u>12</u></b> (n=223)
Comparison	27.07 (8.35) (n=110)	27.84 (8.59) (n=114)	28.49 (8.44) (n=105)
Philosophical COI	28.16 (7.81) (n=130)	26.13 (7.71) (n=134)	26.57 (8.39) (n=118)
<i>Self Esteem (SE)</i>			
<b>Age</b>	<b><u>11</u></b> (n=240)	<b><u>11.5</u></b> (n=248)	<b><u>12</u></b> (n=223)
Comparison	28.98 (4.20) (n=110)	29.59 (4.57) (n=114)	30.00 (4.09) (n=105)

Philosophical COI	28.93 (4.24) (n=130)	28.91 (4.24) (n=134)	28.77 (4.48) (n=118)
<i>Pro-social behavior (PSB)</i>			
<b>Age</b>	<b><u>11</u></b> <b>(n=238)</b>	<b><u>11.5</u></b> <b>(n=240)</b>	<b><u>12</u></b> <b>(n=220)</b>
Comparison	7.53 (1.83) (n=108)	8.04 (1.81) (n=112)	7.74 (1.67) (n=104)
Philosophical COI	7.77 (1.76) (n=130)	7.78 (1.91) (n=128)	8.06 (1.66) (n=116)
<i>Emotional well-being (EWB)</i>			
<b>Age</b>	<b><u>11</u></b> <b>(n=238)</b>	<b><u>11.5</u></b> <b>(n=240)</b>	<b><u>12</u></b> <b>(n=219)</b>
Comparison	3.06 (2.24) (n=108)	3.16 (2.09) (n=112)	2.90 (2.22) (n=104)
Philosophical COI	3.53 (2.06) (n=130)	3.42 (2.45) (n=128)	3.06 (2.44) (n=115)

*Note.* RC=reading comprehension, MATHS=interest in math, SE=self-esteem, PSB=prosocial behavior, EWB=emotional well-being, SD=standard deviation.

The final composite model for the growth curve for reading comprehension, interest in maths, self-esteem, pro-social behaviours and emotional well-being, was:

$$Y_{ij} = Y_{00} + Y_{01}PROGRAM_i + Y_{10}AGE_{11ij} + Y_{11}PROGRAM_i \times AGE_{11ij} + (\epsilon_{ij} + \zeta_{01} + \zeta_{01}AGE_{11ij})$$

The multilevel model includes PROGRAM as a predictor of both initial status and change. Interpretation of its four fixed effects: (1) the estimated initial reading comprehension for the average non-participant was 47.13 ( $p < .001$ ); (2) the estimated differential in initial reading comprehension between program participants and non-participants was -5.22 ( $p < .001$ ); (3) the estimated rate of change in reading comprehension for an average non-participant was 1.50 (ns); and (4) the estimated differential in the rate of change in reading comprehension between program participants and non-participants was significant ( $p < .01$ ).

Figure 1: Results of a Fitted Multilevel Model for Change in Reading Comprehension.

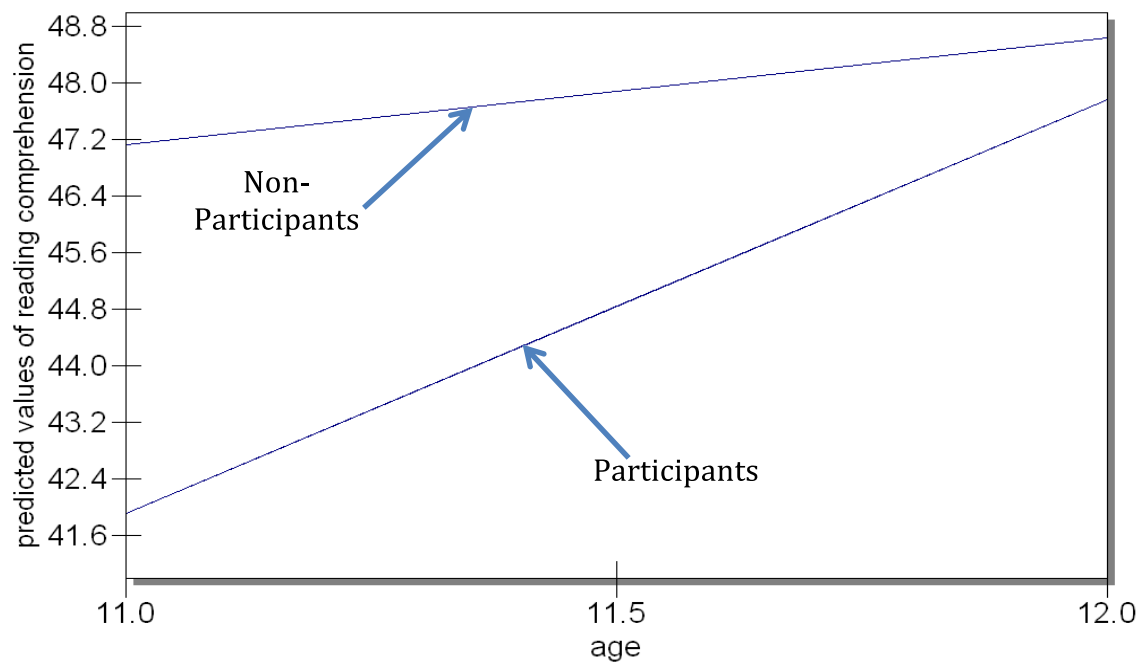




Figure 2: Results of a Fitted Multilevel Model for Change in *Interest in Math*.

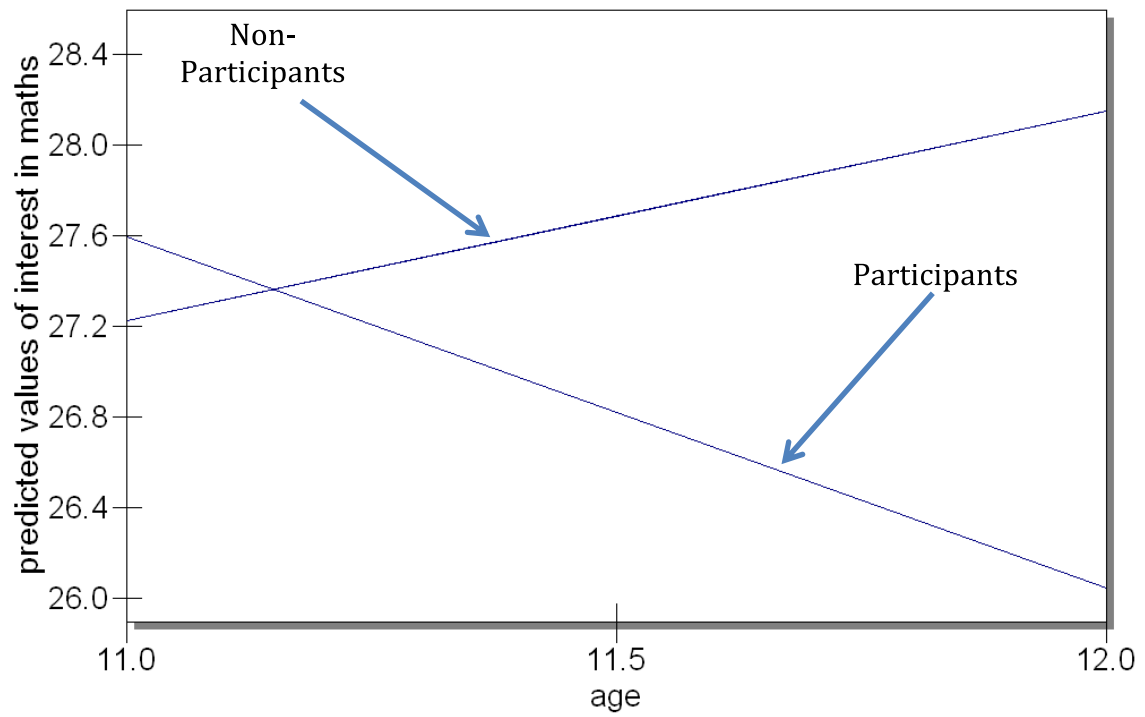


Figure 3: Results of a Fitted Multilevel Model for Change in *Self esteem*.

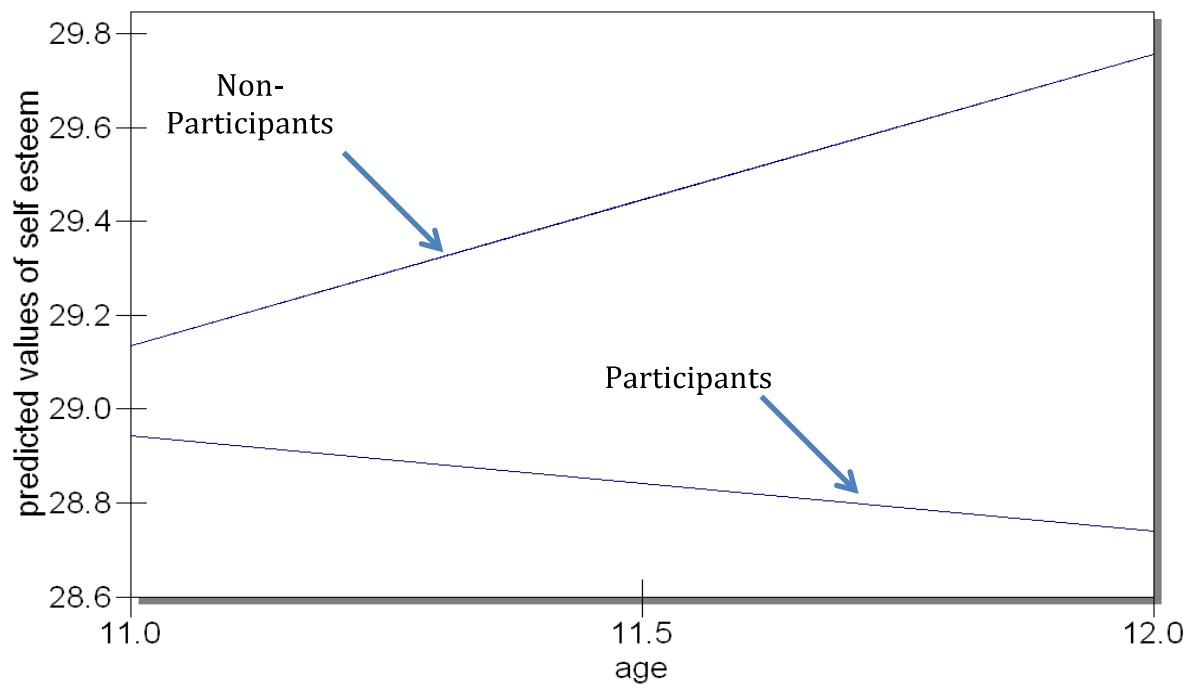


Figure 4: Results of a Fitted Multilevel Model for Change in *Pro-social Behavior*.

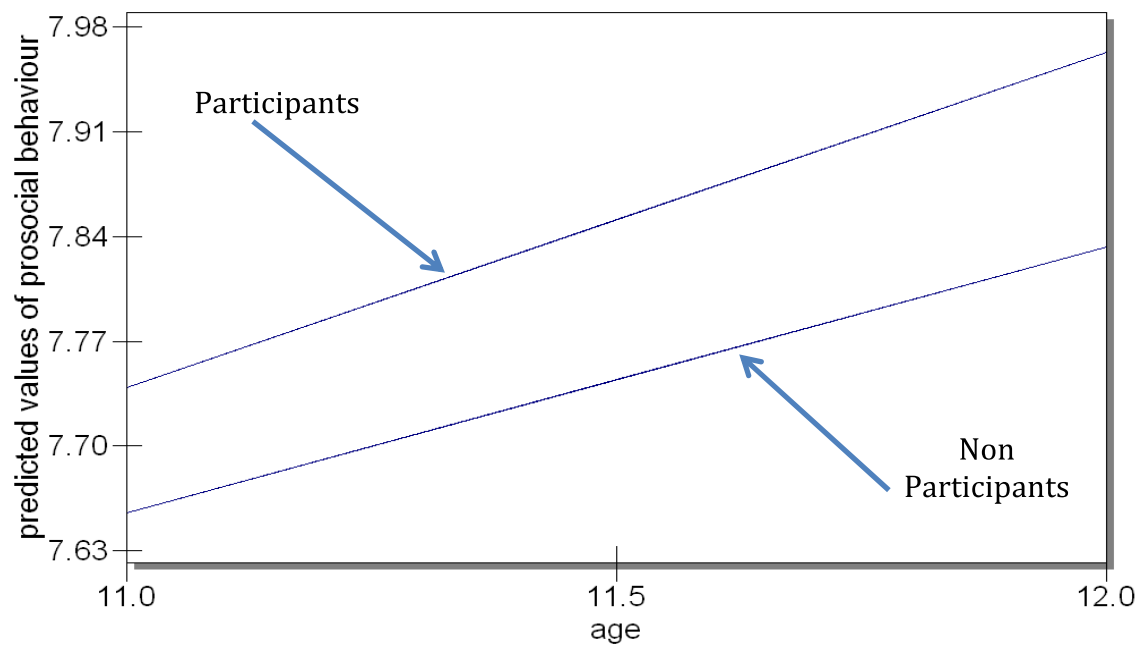
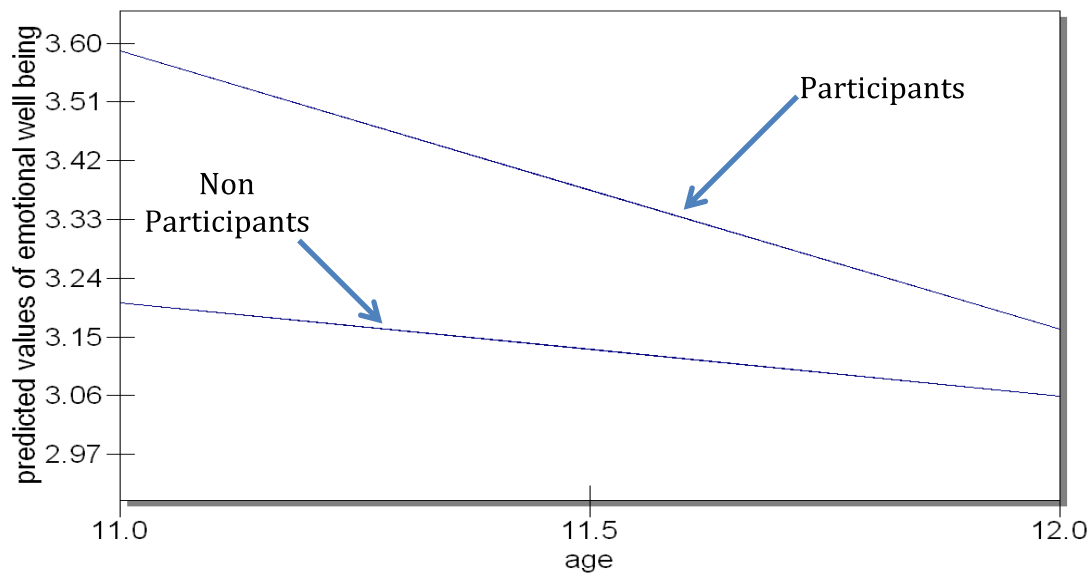


Figure 5: Results of a Fitted Multilevel Model for Change in *Emotional Well-Being*.



## Discussion

This study explored the effects of participation in a philosophical community of inquiry (COI) on Year 6 students' reading comprehension, interest in math, self-esteem, pro-social behaviour and emotional well-being. In summary it was found that students' reading comprehension improved but their interest in mathematics and self-esteem decreased, while development of their pro-social behaviour and emotional well-being remained relatively unchanged compared to students who did not participate in the COI.

The results of the current study suggest that the philosophical COI program improved reading comprehension for participants over one year faster than it did for students in the comparison group. These results are not surprising given that students in the philosophical COI engaged in a range of activities from talking, questioning and listening to writing, reading and drawing. The talking, questioning and listening, during the philosophical COI, interwoven with these other activities, could have aided reading comprehension as the program involved conversations that were ultimately and intrinsically linked with thinking. The findings suggest that students struggling with reading comprehension can significantly benefit from participation in a philosophical COI. These findings are consistent with the Dyfed County Council (1994), Banks (1987) and Yeazell's (1982) studies, which also found that reading comprehension improved for students involved in a P4C program.

On the other hand, exposure to a philosophical COI appears to have a negative effect on Year 6 student's growth in interest in math. The result is contrary to Daniel, Lafortune, Pallascio and Schleifer's (1999) investigation, which found that students exposed to the COI became more interested in math. However, those studies which saw an improvement in students' math interest used a mathematical COI and not a philosophical COI, which would have allowed students to exchange dialogue on mathematical and meta-mathematical matters. It is important to note that a philosophical COI and mathematical COI are not comparable in the sense that the content and material covered are different, although the method is the same. Specifically,

student engagement in a mathematical COI, by which dialogue on philosophical content is replaced by dialogue on mathematical content, may moderate levels of students' interest in math more effectively and positively, and would be expected to produce different interest in math results to that found in the current study. Alternatively, perhaps time spent facilitating the COI subtracted time that could have otherwise been devoted to math lessons, resulting in the teaching of 'basic' math only, although this was not explored in the current study. It would seem, however, that both the content of the COI, as well as the method, influences students' interest in math.

Both the experimental and control groups were comparable in their self-esteem scores at the beginning of the study. Students exposed to a philosophical COI, however, experienced a significant decrease in self-esteem over one year, while students in the comparison group significantly improved in self-esteem. These results suggest that the philosophical COI was not only ineffective in increasing self-esteem among program participants, but actually harmed their self-esteem. The current results are in contrast to other studies such as Sasseville (1994). Sasseville (1994), did, however, note that the largest gains in self-esteem were with students with the lowest pre-test self-esteem, while those with high self-esteem at pre-test, actually showed a relative loss compared with the controls. This could have been because the students with low self-esteem were involved in the COI more than students with high self-esteem. Others, however, such as Lane and Jones (1986) have shown that individuals with high self-esteem are more likely to assume active roles in social groups and to express their views frequently and effectively and that students' feelings about themselves affect their classroom performance and academic achievement (Amini, 2004; Marsh & O'Mara, 2008). Gazzard (2001) also suggested that when children cannot make decisions, they are prone to falling deeper into the pit of low self-esteem. It could be that the COI process is detrimental to the self-esteem of students, irrespective of baseline self-esteem levels, who do not take part in the COI, and therefore it is incumbent on the facilitator to engage all students in the COI, and not just allow a 'few' to dominate. Phillips (1996) specifies that if students are placed in a COI where the focus is on the development of complex thinking skills, they are necessarily confronted with situations in which their ideas are contradicted, their justifications are challenged, and their arguments are undone. To ensure positive development of student self-esteem, it suggests that students must consciously link success to surpassing oneself in a cooperative context, rather than surpassing others in a competitive verbal sparring match. Perhaps the way the COI was facilitated by the teachers allowed only the more confident speakers to engage in this discussion and thus students with low self-esteem felt even worse. Portelli and Reed (1995) have posited that the development of self-esteem relates to the respect of coming to value the self. This may not be possible after one-year exposure to a philosophical COI but may possibly occur after many years exposure to such a program.

In this study exposure to a philosophical COI appears to have no effect on pro-social behaviour. The current findings on pro-social behaviour are similar to those of Trickey and Topping (2006) who also found that on a scale for teacher observation of student social skills in problematic situations, a random sample of experimental philosophical community of inquiry students gained no more than controls overall. This was surprising given teachers encourage students to be social and cultural beings who learn through interactions with others and that ideas that are generated during the socio-cultural exchange are reflected upon, cognitively accommodated and then internalized. It is believed that through this process students learn to think for themselves. In regard to the current results on pro-social behaviour in the current

sample, and in line with the analysis by Daniel et al. (2000), it is suggested that the students in the current sample may require, at least, more than one year to enter into the community of philosophical inquiry and to experiment with the dialectical argumentation and that pro-social behaviour, as an end, would develop effectively in the medium to long-term.

In the current research, exposure to a philosophical COI program appears to have no effect on emotional well-being on philosophical COI participants compared to a comparison group. Although Gazzard (2001) made the claim that a philosophical COI has a lot to offer those interested in improving the way they relate emotionally to the world around them, and Dawid (2005) found that student's emotional intelligence significantly increased after one year, the findings in the current study suggest otherwise. These findings are in contrast to assertions that when children experience a difficult emotion, exposure to a philosophical COI could help them find a way to develop thoughts and behaviours that strengthen the messages from the "left hemisphere to the emotional centre" (Dawid, 2005, p. 47); further, that there is a possibility for the child to develop emotional flexibility if the child has experiences that comes from 'ah-ha' moments, which comes from seeing things in a different way and understanding them that way.

### **Strengths and limitations**

This study is the first on the effects of philosophical COI on students' reading comprehension, interest in math, self-esteem, pro-social behaviours and emotional well-being in Australia, using multilevel modelling. The use of this random coefficients technique, as an analytic strategy added statistical rigor to the study. The results, therefore, are believed to be a truer picture of differences between the groups than previous studies' results. It is noted, however, that due to the small number of clusters and small number of level 1 participants, further research using a larger data set is needed to fully substantiate the results. In addition, it is also important to note that although there has been research on COI's conducted with younger children, the current research focused only on students in Year 6.

### **Implications for practice**

With an already overcrowded curriculum, these results need to be carefully considered before widespread implementation of the COI in elementary schools. Additionally, it is recommended that the philosophy taught to future philosophical COI facilitators be practically oriented rather than the typical academic approach that is standard in university philosophy courses. It is suggested that ongoing coaching may also help first time implementers of philosophical COI sessions. Pre-service teachers aspiring to be facilitators of the philosophical COI need to be encouraged to develop their "ability to examine and identify the personal characteristics, beliefs and attitudes that make them who they are and influence the way they think about teaching and learning" (Baum & King, 2006, p. 27).

### **Conclusion**

In the current study a philosophical COI intervention found an increase in reading comprehension but diminished interest in math and self-esteem, with no changes for pro-social behaviour and emotional well-being in a group of Year 6 students compared to those who did not experience COI. The focus of the philosophical COI being mainly on language (wordiness) may have accounted for both the significant increase in reading comprehension over time and the significant declining trajectory of interest in math among these Year 6 participants.

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