The Plato Program: An innovative information skills curriculum

John Stanton

William Clarke College, 1 Morris Grove, Kellyville NSW 2155, Australia. www.wcc.nsw.edu.au. Email: jos@wcc.nsw.edu.au

Abstract
The Plato Program is an innovative and dynamic subject that was introduced to explore *learning how to learn* in Year 7. In response to observations by staff that students lacked critical thinking and research skills, it has metamorphosed into a vehicle for the delivery of information literacy within the curriculum, with a particular focus on electronic information sources. The course is structured using the well-known matrix combining Gardner's Multiple Intelligences with Bloom's Taxonomy, populated by tasks exploring information-based 'Essential Questions'.

Introduction

The Plato Program is an innovative and dynamic semester-long subject, taught to Year 7 students in half-size classes at William Clarke College, New South Wales (NSW), Australia. The subject is in its fifth year of presentation, undergoing a continuing development process.

Initially the project was conceived as a vehicle for introducing students to the concept of *learning how to learn* using Gardner's Multiple Intelligences and Bloom's Taxonomy. I offered to help develop and teach the Plato Program from the outset. As the course developed I came to see the huge potential of the subject, and I took it upon myself to shape the content, the lesson format, and to prepare materials for all teachers of the subject to use. Before long I found myself as subject coordinator, driving its development. It now enables students to develop deep understanding of information literacy within the framework of a combined Bloom's/Gardner's matrix.

Currently the course has two main parts:

- 6 weeks exploring Gardner's Multiple Intelligences through a range of hands-on activities
- A project based on Gardner's / Bloom's matrix, which has the six levels of Bloom's Taxonomy, set against Gardner's Eight Intelligences, making a grid of 48 fields.

The information literacy problem

Independently of my involvement with Plato, I was also grappling with a number of information literacy issues:

- An awareness of the disconnection between the research findings of a number of studies showing the measurable benefit of information literacy programs in student academic achievement (Lonsdale, 2003; Lance, 2004; Ontario Library Association, 2006; Oberg, 2002) and the reality that schools generally don't seem to want to take that seriously.

  > In 1994 the Australian School Library Association adopted a policy statement on information literacy… information literacy is synonymous with knowing how to learn. This means that the ability to process and use information effectively is more than a basic tool for the empowerment of school students; it is in fact the basic survival skill for those who wish to be successful (Pennell, 1999).

  However, this importance was not reflected, as there were no library classes timetabled for Years 7-12, nor was there space for them within the timetable. Culturally, collaborative planning between faculties is not strong. Information literacy itself remains a poorly understood concept and developing a library program collaboratively is not realistic as yet.

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- Unhelpful student information-seeking behaviours, including an uncritical acceptance of any information presented on a screen, an unwillingness or inability to read screen-based information, and ignorance of even the most basic research skills. As Pennell (1999) states:

> Technology has transformed the way that we retrieve information… A student can now find literally thousands of pieces of information on a particular topic by searching the automated library catalogue, CD-ROM indexes and the Internet. Therein, lies one of the basic justifications for developing information literacy… With so much information available, students must be able to scan through the information and evaluate it for its relevance and value for their purposes. Not only must they be able to determine the relevance but they must also be able to evaluate the authenticity of the materials, particularly those they find on the Internet. Anyone can publish information to the Internet and students must be able to verify the information contained on any particular site as being accurate and authentic.
>
> Senior teachers lamented the lack of critical thinking skills for information and research skills, including how to prepare a bibliography using academic standards, locating and using online subscription databases, using information from different sources, and checking information between sources for accuracy and reliability. They noted that students generally chose the easiest options for sourcing information, such as *Google* and *Wikipedia*. They often used the most basic of searches, and did not know how to identify and use appropriate keywords, or create more sophisticated searches using Boolean operators. These observations are not isolated. Two studies in the UK found similar results. Williams and Wavell (2006) discovered "What we're finding is a great inability to use search engines, etc. and filter out from all the amazing stuff you can get on the Internet". Ofsted (2006) ascertained "Even when pupils were able to locate information readily, they often found it very difficult to use it effectively. It was rare, in this survey, to find note-taking (from books or the computer screen), skimming and scanning skills, or effective use of search engines taught effectively". Further, Ofsted found "some of them are so familiar with using computers now they click, click, click on things and they don't really read the information that is on the screen".

In general, students lacked the critical thinking skills to evaluate information or information sources. The culture of digital *cut and paste* prevailed. Not only did students not read the screens, they accepted information from any source, without regard to the author, the author's purpose, bias, the validity or currency of the information.

One of the tasks students need to complete in the project is to compare two websites containing information about women and HIV/AIDS. One is a genuine medical website (Department of Health & Human Services., Centers for Disease Control and Prevention, 2008) containing technical but accurate information, accompanied by graphs, statistics, references and links to other information of a similar quality. The second is a self-proclaimed bogus website (Henderson, 2009), with totally fabricated information including the bibliography. Approximately 95% of my students either believe the ridiculous claims on the site, or state that the information is accurate without having actually read any of it. No student has attempted to verify the information on the website.

- Lack of student awareness of, and engagement with, sophisticated information sources such as online subscription databases, and a lack of opportunity to effectively teach students how to use them.

Online databases provide content which generally comes from more credible sources, and peer-reviewed literature. However, because of their sophistication, and differences between databases, they are often seen as *too hard* to use. And, because the contents do not appear on *Google*, they remain largely untapped as students opt for the free internet rather than deep web sources.

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Opportunities to familiarise students so they become comfortable in such quality online environments are few.

- The rhetoric that information skills are 'embedded' in the NSW Board of Studies syllabi.

  These so-called 'embedded' skills do not follow any logical sequence, or build from one year to the next, and are not delivered in any way which will develop student competence, especially meta-cognitively.

  Without a 'scope and sequence', I searched the Internet for library programs. Among the better ones were an excellent online scope and sequence from the United States (Curriculink, 2006) for K-12 (which even had lessons linked to it), and the Teacher-Librarian Program P-6 (Boyko, Davey &Macdonald, 2004) from the School Library Association of Victoria in Melbourne, written for primary schools. Many were 'regurgitate information' type units or fill-in-the-blanks worksheets for library skills.

- Dissatisfaction with traditional library lessons

  Library lessons had never existed in my school at a secondary level. While students did not have to endure lessons which were little more than a glorified *library and Dewey*, 'Library' did not appear on the timetable, and getting it there for teaching information literacy was extremely difficult.

Why integrate information literacy into Plato Program?

Library involvement in the Plato Program could help to address the lack of adequate information literacy skills amongst students. The Plato Program was not subject specific: it focused on thinking and learning, and offered potential opportunities for students to use the library throughout the semester. Information literacy therefore seemed an ideal topic to integrate into the Plato Program.

During the third year I really began to see the synergy developing between the Plato Program and the information skills problems. According to Henri (1999), information literacy is "the ability to master the processes of becoming informed", and from this premise the course content was reviewed. I posed the question: "What if the topic for the Project was *information* itself, with students investigating 'the *process* of becoming informed', and not just uncritically *using* information as a means to an end?" The aim was to bring information literacy learning to the fore whilst retaining the original intention of *learning to learn*. The model proposed by Bruce (1997) acknowledges the influence and coexistence of learning to learn and information literacy, as well as IT skills, computer skills, library skills and information skills.

The introduction of 'Essential Questions' (McTighe and Wiggins, 2005) across every faculty precipitated an analysis of the knowledge and skills students should master before graduation, such as 'What is research?'; 'How can I assess the accuracy and reliability of information?'; 'How do I create a bibliography?'' and 'What is Boolean Logic?' I decided that the project component of the Plato Program was the best place to integrate information literacy into the curriculum.

How has the Plato Program changed over time?

Integrating information literacy into the project has been a gradual process over several years.

Table 1: The development of Plato Program over time

Timescale	Structure	Topic	Content	Evaluation
1st year	Gardner's Multiple Intelligences, Bloom's Taxonomy	Students chose their own	Generic questions in each of 48 matrix fields	Student responses were superficial and showed little critical thinking or engagement

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2nd and 3rd years		Teacher chosen topics: 'consumerism'; 'body image and the media'; 'UNESCO world heritage'	Generic questions modified to suit topics	Social issues subjects were more successful as students had to think rather than just regurgitate information
4th year, 1st semester		Information literacy (trialled on 4 out of 6 classes)	All 48 fields were tasks based on a library Essential Question.	The Essential Questions gave students more scope to think and engage
2nd semester		Information literacy (all classes)	As above, but many tasks simplified. Tasks given specific topics to guide enquiry. Online and media resources incorporated	Sustained engagement for 10wks. Students began successfully applying knowledge and skills to other areas of curriculum. Quality and depth of responses was significantly higher than previous years.
Future	Bloom's Taxonomy; one other framework for learning e.g. Habits of Mind (*The Institute for Habits of Mind,* 2009)	Information literacy	Expanding to further cohorts, looking in greater depth at some Essential Questions, and adding further EQs	???

To integrate information literacy into Plato, the matrix was completely rewritten. A colleague experienced in using Bloom's/Gardner's matrices provided insight: she suggested making some of the tasks compulsory and helped develop a grading system for each level of Bloom's Taxonomy. A teacher-librarian colleague observed every lesson in order to critique the rewritten matrix, and student interaction with it. Subsequently, many of the tasks were simplified, and more and varied ICT activities (online games, quizzes, *YouTube* videos etc.) were incorporated to maintain student engagement. The results were successful beyond my expectations. Every student was fully engaged, though the quality of their results varied according to their academic abilities.

Project Outline

- 48 tasks, each headed by one of the information skills-based 'Essential Questions'.
- Each level of Bloom's is allocated a point score, and students must complete 42 points worth of tasks.
- Some tasks (from each of the intelligences and Bloom's levels) are compulsory.
- Students focus on seven electronic information sources: *Google, Wikipedia*, the school library catalogue, an online encyclopaedia, and three online databases.
- Each task contains a number of components: a question, instructions, a list of what needs to be handed in, and one or more 'Infoskills' (Koechlin and Zwaan, 2003) as a way of indicating 'outcomes'.
- Each task has a specific question, and often a carefully chosen topic as a research example. If students are asked to use particular resources, then topics are chosen to match.
- Two of the 48 squares are blank, owing to the difficulty in formulating 'Essential Questions' to satisfactorily populate those boxes. The 'Essential Questions' in the compulsory tasks are:
  - How do you use keywords to identify search terms?
  - How can you assess the accuracy and reliability of information sources?
  - What is Boolean Logic?

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    - How can you find print information?
    - What is research? What is the Research Process?
    - What have you learned, and how can you use it?
    - What are 'truncation' and 'proximity' searches, and how do you use them?
    - How do you make a bibliography?
- One task crosses all 8 intelligences. Students answer the same question, with a range of presentation options allowing for their preferred intelligence.
- The project is scalable for ability differentiation. By negotiation, for struggling students the minimum requirement is completion of compulsory tasks. By completing them, students will have an understanding of fundamental information skills.
- A deliberate decision was made to focus solely on electronic information tools and sources. To enhance student engagement, the Project uses many pre-existing online games and activities, and 4 YouTube video clips.
- The entire project is on the school intranet, providing links to all online resources, and copies of handouts and forms.
- Students have approximately 10 weeks to complete the project.

What issues does the 'information literacy' version of the Plato Program address?

- Having the Plato Program timetabled provided an opportunity for it to develop into a vehicle for the delivery of information literacy, allowing it to exist where it would not otherwise have been possible. The library's role in developing Plato was deliberately conceived to enhance the library's profile within the school – the library gains much from having the teacher-librarian in a classroom other than the library, and as a creator of curriculum content.

- Plato teaches students the critical thinking skills to evaluate information sources for accuracy and reliability, to investigate bias and to highlight the necessity of reading screen-based information before using it. It also teaches specific research skills, such as skimming, scanning, using the library catalogue, databases, *Wikipedia*, the internet, Boolean searching, phrase searching, using truncation and proximity searches. By using the Essential Questions as a framework, students are able to engage with metacognitive ideas, and not simply content details alone.

    - One student excitedly recounted how he told his mother about using Boolean operators to get better search results. She said "That won't work!" So he showed her, and by using appropriate Boolean search terms, he was able to cut several million results from his search.

- The project parameters require students to use only electronic information sources, meaning that they are required to develop their digital research skills. This includes *Google, Wikipedia*, the library catalogue, an online (subscription) encyclopedia, and three online subscription databases.

- The Project uses information and communications technologies (ICTs), delivering the entire project via the school intranet (enabling students to work at home and school, thus ending the era of "I forgot my Project sheet"!) and utilising a range of online materials, including *YouTube* videos about Boolean operators and keyword searching; interactive games to develop skimming and scanning skills; online evaluation forms; bogus websites and subscription databases. Online submission of work is being trialled to better track student progress, time management and achievement throughout the project.

- Student-directed learning and individualised support, which are features of the NSW Quality Teaching Framework (NSW Department of Education and Training, Professional Support and Curriculum Directorate, 2003), are incorporated ensuring student engagement is maximised. The incorporation of elective tasks, and the fact that there is no specific starting point or pathway through the project, encourages student-directed learning. My role became that of facilitator and mentor rather than teacher, assisting each student individually to explore deeper thinking and answer their questions. Consequently, differentiation for students of varying abilities is possible and simple.

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    - Throughout the semester, students are actively engaged in reflection on their learning. Each lesson, students complete a reflection diary, and a reflection activity is one of the compulsory tasks in the project.

- Plato Program eschews *traditional* library lessons. In developing the project, Loertscher's (2005) research, which strongly advocates against time-wasting, mind-numbing 'fill in the blanks' lessons and the endless reiteration of the Dewey Decimal System, was integral. In addition, the work of Koechlin and Zwaan (2003) provided important structural features such as the InfoSkills standards incorporated into every task on the project grid. A potentially boring topic has become fully engaging for all students.

Future directions: adaptation and development

Adaptation

During Term 1, 2010 I had the opportunity to create a similar program, across three grades, at an international school in Ethiopia. The school deliberately timetabled a subject to teach information skills to students to prepare them for education in the upper grades and beyond.

I had to develop a course across Grades 6, 7 and 8, including a logical scope & sequence, lesson plans and sourcing teaching materials. There were unique challenges. Slow dial-up Internet access was sometimes non-existent. Electricity supply was intermittent. Despite computers having backup UPS, if the power went off – which it did regularly for hours at a time – Internet connection was lost. Because this was an international school with a regularly changing cohort, there were large variations in student exposure to technology.

I took the essential questions as a starting point and worked to create a solution for their environment which allowed students to learn fundamental information skills despite the difficulties. With the Plato Program as a foundation, I adapted it, constantly asking, "How can I teach these concepts without any technology at all (if necessary)?" For example, I took Grade 8 to the basketball court where we drew Venn diagrams with chalk, and sorted the class into groups to explore the Boolean operators of 'AND', 'OR' and 'NOT'.

This whole experience illustrated that similar successful programs can be formulated for schools facing unique challenges.

Development

Future developments are planned to enhance some of the program's strengths. The priority is to enhance the thinking and *learning to learn* components so that the concepts, skills and vocabulary can be integrated across different curriculum areas. This means less emphasis on Gardner's and more on frameworks like Bloom's or Habits of Mind. The Program would expand to teaching information literacy over Years 7, 9 and 11 to incorporate new elements such as the critical evaluation of print information, visual information (e.g. video) and study skills.

Conclusion

The development of the Plato Program has, for the first time, enabled the integration of information literacy skills into William Clarke College's curriculum. It has been extremely well received by faculty, students and parents – with students demonstrating not only an understanding of course material, but an ability to transfer those skills to other subject areas. It will be interesting to see how it develops further in years to come.

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