Since salt is a major source of sodium, there is the potential for unintended high levels of sodium intake when cheese is promoted as a healthier alternative.

Concerns over osteoporosis have led to increased emphasis on calcium intake in childhood and adolescence, to ensure peak bone mass. The 2007 Australian National Children’s Nutrition and Physical Activity Survey (Australian Government Department of Health and Aging, 2007, p. 21) indicated that only 11% of 12–13 year old girls and 18% of 14–16 year old girls met their EAR for calcium. For boys, 50% of 12–13 year olds and 56% of 14–16 year olds met the EARs. Of the 4–8 year olds, 85% of girls, and 93% of boys, met the EARs. This same study (p. 24) found that all children exceeded the AIs for sodium for their particular age group. To promote bone health in children and adolescents, restricting salt intake is recommended (Prentice et al., 2006, p. 12).

The NRVs have recommendations along with consuming adequate calcium (Prentice et al., 2006, p. 12). The NRV Estimated Average Requirements (EARs) are used to indicate the adequacy of calcium. EARs are the daily amounts “estimated to meet the requirements of half the healthy individuals in a particular life stage and gender group” (National Health and Medical Research Council, 2006, p. 1).

Cheese and canteen traffic light guides

To guide school canteens in choosing healthy food to sell to children, the majority of states in Australia have adopted a traffic light approach to food selection (Healthy Kids School Canteen Association, n.d.a). The NSW Fresh Tastes @ School Healthy School Canteen Strategy (NSW Department of Health & NSW Department of Education and Training, 2008) is an example of the traffic light approach. In the Fresh Tastes Canteen Menu Planning Guide, reduced fat dairy products have been classified as ‘green’ foods (to be used freely in the canteen menu), while full fat dairy products have been classified as ‘amber’ to be used moderately or no more than a couple of times a week. In this case, cheese is included in the ‘green’ and ‘amber’ categories rather than the ‘red’ (occasional no more than twice a term) despite its sodium content. Registers of products meeting canteen guidelines or buyers guides, available from canteen associations, such as the NSW Healthy Kids School Canteen Association (n.d.a), are used by canteen staff to facilitate product selection. Currently, several reduced fat cheeses categorised as ‘green’, and a number of other cheeses, categorised as ‘amber’, are listed in the sandwich, burger, wrap and roll ingredients section of the Buyers Guide for the NSW Healthy Kids School Canteen Association (n.d.a). Another register, The Star Choice Registered Products Database, of the Western Australian School Canteens Association (n.d) had four cheeses—grated or sliced reduced fat products—categorised as ‘green’.

Canteen guideline revision and the Nutrient Reference Values (NRVs)
The guidelines for selection of foods for school canteens are being revised as part of the National Healthy School Canteens Project, and are expected to be completed in 2010 (Australian Government Department of Health and Ageing, 2009). The nutrient criteria for categorising foods are being reviewed to provide uniform national guidelines that address changes in nutrient recommendations in the NRVs (National Health and Medical Research Council, 2006). The NRVs recommend sodium and nutrient intakes according to age and gender. The NRVs recommend that the daily sodium intake of normally healthy individuals be within the Adequate Intake (AI) range for their age and gender group. Upper Levels of Intake (ULs) are higher than the top of the AI range. If average daily intakes are above the ULs, adverse health effects are expected. The NRV Estimated Average Requirements (EARs) are used to indicate the adequacy of calcium. EARs are the daily amounts “estimated to meet the requirements of half the healthy individuals in a particular life stage and gender group” (National Health and Medical Research Council, 2006, p. 1).

United Kingdom (UK) traffic light labelling

The UK has a traffic light scheme for labelling salt (sodium chloride) on the front of food packages (UK Food Standards Agency, 2007). Beard, Newson and Riley (2007) converted the UK salt cut-points to sodium for discussion in the Australian context. For a sodium ‘green’ light, food needs to have less than 118mg per 100g, for ‘amber’ between 118mg and 590mg per 100g, and ‘red’ greater than 590mg per 100g of food. Traffic light approaches for front of pack labelling have been investigated in Australia (Kelly, Hughes, Chapman, Louie, Dixon & King, 2008), but are not used yet.

Cheese in health promotion material: calcium versus sodium

Health promotion materials available to teachers and students promote dairy products as good sources of calcium for healthy bones and teeth. Examples of such materials are the Fact Sheet, “Help Young Bones Grow Strong” (CSIRO, 2007), and the Australian Dietary Guidelines for Children and Adolescents (Australian Health and Medical Research Council, 2003). In September 2007, the Federal Government distributed material about the CSIRO Wellness—Whey to all primary school students in Australia (Australian Science Media Centre, 2007). The CSIRO (2007) recommends two to three serves of dairy products daily, with a serve of cheese being 40g. Reduced-fat cheese is identified as suitable for daily use.

Dairy products can provide significant calcium, but serves of milk, yoghurt and cheese are not equivalent in sodium content. Sodium is added to cheese to manage growth of bacterial cultures and to aid flavour and texture (National Heart Foundation, 2009). The Australian Dietary Guidelines for Children and Adolescents (National Health and Medical Research Council, 2003, p. xvii) recommend including “milks, yoghurts, cheese and or alternatives” and “choosing ‘foods low in salt’.”

Thirty-eight convenience cheeses, from two major national supermarket chain stores on the NSW Central Coast, were included in the study conducted in September 2009. The cheese products contained 25g or less per 100g—approximately equivalent to the fat content of 25% reduced fat cheddar cheese—this is still a high fat content. Natural and processed cheese and cheese spread products were included. There were 25 sliced or individually portioned products, and 13 grated products.

Sodium and calcium contents in mg per 100g were obtained from product nutrient information panels. Three grated products did not list calcium content on the label. The proportions (%) of the cheese products classified as ‘red’, ‘amber’ and ‘green’, using the UK Traffic Light Classification criteria for salt converted to milligrams of sodium (Beard et al., 2007), were determined.

For each product, the sodium content in mg per 40g serve was compared to the appropriate

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**Research & Scholarship**

**A sodium loaded trap? What should schools tell students about cheese?**

**Robyn Pearce**
Senior lecturer in nutrition, food science and health promotion, Faculty of Education, Avondale College, NSW

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**Abstract**

This study evaluates the sodium and calcium content of convenience cheese products available for use in school lunches and the classification of such products using traffic light approaches designed to guide food selection for healthy eating. Thirty-eight convenience cheese products from NSW supermarkets were studied. Nutrition information panels provided sodium content for all products and calcium content for 35 products. It was found that a 40g serve of convenience cheese products can contribute a substantial proportion of children’s calcium Estimated Average Requirements (EARs). However, the accompanying sodium levels create difficulty for keeping daily sodium intake within the Adequate Intake (AI) range for school children of all ages, particularly, younger children (4–8 year olds). Due to the sodium content, many of the cheese products, especially processed cheeses, need to be classified as ‘red’ foods—to be avoided or eaten occasionally. The classification of the convenience cheese products as ‘green’, every day foods, to provide calcium conflicts with messages to choose foods low in sodium when promoting healthy eating.

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**Introduction**

The school has many opportunities for promoting healthy eating, but there is also the potential for conflicting health promotion messages. The school canteen has an important role in modelling food choices and complementing healthy eating knowledge, skills and behaviours addressed in the curriculum (NSW Department of Education and Training, n.d.; Victorian Government Department of Education and Early Childhood Development, 2007).

Convenience cheese products are used in children’s school lunches either packed from home or from school canteens. These products include individually packed portions and slices for snacks, and pre-sliced and grated products for sandwiches and wraps. Where do convenience cheese products fit in the promotion of healthy eating at school?
Calcium contents were compared to the EARs. (National Health and Medical Research Council, 2006). The mean, median, minimum and maximum percentages of these AI, UL and EAR values for the cheeses overall and the two categories of cheeses, grated cheeses and individually portioned / sliced cheeses, were calculated.

**Results**

**Sodium content:** UK Traffic Light classification

Figure 1 shows the proportions (%) of the cheeses that were categorised as ‘red’, ‘amber’ and ‘green’ using the UK Traffic Light classification for salt converted to sodium (Beard et al., 2007). Overall, the majority of the convenience cheese products were categorised as ‘red’. A higher proportion of individually portioned / sliced than grated products were categorised as ‘red’. None of the cheese products provided 76.5% and 26.9% of the EAR for 4 to 8 year olds. The cheeses differ considerably in their contribution to the sodium AIs and ULs for each age group. The grated cheeses tended to have lower sodium levels than the portioned / sliced cheeses (see Tables 1a and 1b). Some of the processed portioned / sliced cheeses contributed well over the AI and nearly half of the UL for 4–8 year olds.

Figure 2 shows the proportions (%) of the top of range of the AI for sodium for 4 to 8 year olds (600mg) provided by a 40g serve of each of the five cheeses with the highest sodium content. These cheese products were all individually wrapped, portioned / sliced processed cheese products, convenient for adding to school lunchboxes. The second highest sodium containing product is a processed cheese stick, packaged to be appealing to young children, and has endorsement by the Australian Dental Association Ltd on the pack.

**Calcium content:** % of EARs per 40g serve

Table 2 shows the mean, median, minimum and maximum (%) of the calcium EARs per 40g serve for each age group. The cheeses varied widely in their contribution to the EAR for each age group. The highest and lowest calcium cheeses respectively, provided 76.5% and 26.9% of the EAR for 4 to 8 year olds, compared to 37.9% and 13.3% of the EARs for 12 to 13 and 14 to 18 year olds.

**Discussion**

The Dietary Guidelines for Children and Adolescents (National Health and Medical Research Council, 2003) recommend choosing low salt foods. However, there are few consistent guidelines regarding the selection of lower sodium cheeses for school lunchboxes. There are canteen guidelines for sodium levels to be used in deciding whether certain energy dense foods such as hot foods, snacks and drinks should be classed as ‘red’ rather than ‘amber’ (NSW Department of Health & NSW Department of Education and Training 2006). Cheese does not appear to be considered a snack in these guidelines.

The Healthy Kids School Canteen Association (n.d.b), in their fact sheet on salt, recommend choosing foods with less than 120mg of sodium per 100g, and avoiding foods with more than 600mg of sodium per 100g. This is similar to the UK Traffic Light guidelines for salt converted to sodium (Beard et al., 2007). However, there are examples of cheese with more than 600mg of sodium per 100g that have been categorised as ‘amber’ rather than ‘red’, and cheeses with more than 120mg of sodium per 100g, that have been classified as ‘green’ rather than ‘amber’ on the NSW Healthy Kids School Canteen Association (n.d.b) Buyers Guide for sandwich, burger, wrap and roll ingredients. One of the cheeses categorised as ‘green’ had 600mg of sodium per 100g. Since it was sliced and grated convenience cheeses in this study with less than 590mg of sodium per 100g, it is possible to avoid high sodium cheeses in school lunches. However, in this study there were no convenience cheeses available with less than 120mg of sodium, so even the lower sodium cheeses are not a preferred source of calcium for daily consumption. None of the cheeses in this study...
Cheeses can contribute to calcium intake (see Table 2). However, for bone health (Prentice et al., 2006, p.12) it would be prudent to encourage sources of calcium that are lower in salt (sodium), than many of the convenience choices in this study. It could be argued that categorising individual foods based on nutrient content is the wrong approach, and that guidelines should be for the nutrient content of the overall meal or menu. In the UK, new standards for school lunchboxes have been developed with nutrient-based standards, taking an average meal approach, rather than considering individual foods (School Food Trust, n.d.). It would be difficult or impossible to remain under the UK’s average school lunch sodium requirements (School Food Trust, n.d., p.313), if 40% of some of the cheeses in this study were included in the meal. An Australian study of food consumed at school by 5–12 year old children, indicated that the role of school canteen food was to supplement lunch from home, rather than replace it. (Sanigorski, Bell, Kremer & Swinburn, 2005). The UK nutrient-based standards (School Food Trust, n.d.) for average meals may be less suitable in the Australian context than nutrient-based standards for food categories. The review of the nutrient criteria for categorising foods in the National Healthy School Canteen Project (Australian Government Department of Health and Ageing, 2009) needs to address the tension between the sodium and calcium content of cheese products. It remains to be seen whether cheese will have its own higher sodium threshold, as a concession to its potential calcium contribution, permitting it to be a ‘green’ or ‘amber’ food, or whether it will become a ‘red’ occasional food.

Whatever the outcome of the National Healthy School Canteen Project, the calcium versus sodium dilemma remains in health promotion material available for use in the curriculum. Considering the calcium and sodium contents of cheeses, compared to other dairy products and non-dairy calcium sources, provides an opportunity for improving food selection.

Conclusion and Recommendations

A 40g serve of convenience cheese products can contribute substantial proportions of children’s calcium EARs. However, the accompanying sodium makes keeping sodium intake for the day within the AI range difficult for school children of all ages, but particularly for younger children (4–8 years old).

For the many of individually portioned / sliced convenience cheeses in this study, the sodium content is so high that they need to be considered as ‘red’ or occasional foods despite their calcium content.

The convenience cheeses in this study illustrate the potential for unintended sodium intake when health promotion messages recommend cheese, as an alternative to other dairy products, to increase calcium intake.

A school that encourages healthy food choices will support increased awareness of sodium in foods such as cheese, and promote the availability and consumption of lower sodium sources of calcium.

References


Table 2: Proportions (%) of calcium Estimated Average Requirements (EARs) provided by 40g serves of convenience cheeses

<table>
<thead>
<tr>
<th>% of EARs provided by 40g serves</th>
<th>Calcium EARs for age groups</th>
<th>Grated cheeses* (n = 10)</th>
<th>Portioned and sliced cheeses (n = 25)</th>
<th>All cheeses (n = 35)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4–8 years</td>
<td>Mean %</td>
<td>61.7</td>
<td>58.3</td>
<td>59.3</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>61.5</td>
<td>61.5</td>
<td>61.5</td>
</tr>
<tr>
<td></td>
<td>Minimum</td>
<td>52.3</td>
<td>26.9</td>
<td>26.9</td>
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<tr>
<td></td>
<td>Maximum</td>
<td>72.1</td>
<td>76.5</td>
<td>76.5</td>
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<tr>
<td>9–11 years</td>
<td>Mean %</td>
<td>40.1</td>
<td>37.9</td>
<td>38.5</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>40.0</td>
<td>40.0</td>
<td>40.0</td>
</tr>
<tr>
<td></td>
<td>Minimum</td>
<td>34.0</td>
<td>17.5</td>
<td>17.5</td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>46.8</td>
<td>49.8</td>
<td>49.8</td>
</tr>
<tr>
<td>12–13 &amp; 14–16 years</td>
<td>Mean %</td>
<td>30.6</td>
<td>28.9</td>
<td>29.4</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>30.5</td>
<td>30.5</td>
<td>30.5</td>
</tr>
<tr>
<td></td>
<td>Minimum</td>
<td>25.9</td>
<td>13.3</td>
<td>13.3</td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>37.6</td>
<td>37.6</td>
<td>37.6</td>
</tr>
</tbody>
</table>

* For 3 of the 12 grated / shredded cheeses in the sample calcium was not on the label.

Table 2: Proportions (%) of calcium Estimated Average Requirements (EARs) provided by 40g serves of convenience cheeses

For bone health it would be prudent to encourage sources of calcium that are lower in salt.

### Mini Vegetable Frittatas

1. **Heat oil in a frypan and sauté onion until soft. Place in a large bowl.**
2. **Add camembert, aubergine, com cheese, four salt and sour to the bowl.**
3. **Combine eggs and oil and stir into vegetable mixture.**
4. **Spoon mixture into lightly greased muffin pans.**

Toddlers may need an extra 2 teaspoons oil.
Developing literacy skills with graphic organisers

Margaret Strickland
Teacher librarian, Endeavour College, Mawson Lakes, SA

Introduction

As teachers we are constantly looking for ways to improve student learning. In Australia, educational theory and practice have predominantly moved from the behaviourist school of thought to the cognitive school of thought. From this position, a constructivist theory of learning has developed. Within this model, students are actively involved in the learning process. Practices in education have also been informed by information scientists who understand that information is important and is processed and adapted by learners in relation to what they already know.

Howard Gardner’s multiple intelligences (Gardner, 1993) also influenced the development of new methodologies in school curricula during the 1990s. Teachers became more aware of students who preferred a visual and / or spatial style of learning, which responded to visual and spatial learning techniques like graphic organisers.

Within these learning models, the users’ needs are central to information retrieval practices. Over the last twenty years bibliographic, programmed instruction and distance learning have provided a way to our current concept of information literacy education, which looks at information literacy as a process to be learnt within the mainstream curriculum of the school (Gordon, 2002). In Australian schools, we are now teaching a variety of literacies and literacy now has a much broader meaning. We talk about information literacy, visual literacy, ICT literacy, media literacy, thinking literacy and multicultural literacy, amongst others, and the interplay between them. New literacies must change what teachers do and how they weave literacies together at all levels of school education. The South Australian Certificate of Education Literacy Policy (2006) says there is a need to “improve student proficiency across a full range of literate practices appropriate to changing social and technological times”.

The term ‘information literacy’, first coined by Zurkowski (1974), assumes “information problem-solving skills that enable independent and effective learning” (Capra & Ryan, 2002). Combes (2005) describes an information literate person as one who is able to use technology, is also ICT literate, is able to use a range of information resources, has a range of well-developed literacy skills, and is able to use information. This is a useful way of conceptualising information literacy because it allows a focus on the skills that students will need to acquire to attain this status. According to Combes (2005), an information literate person is able to manage the increasingly complex information environment.

While many writers have debated the nature of information literacy itself, educational institutions have proceeded to implement curriculum, which teaches students to become information literate. For example, Eisenberg & Berkowitz (1998) developed the Big6®, which is the most widely used approach to teaching information skills. The Big6® is an information literacy model and curriculum guide implemented in thousands of schools across the world from pre-school to higher education. Given a research task students are asked to work through a 6 step process:

1. task definition
2. information seeking strategies
3. location and access
4. use of information
5. synthesis
6. evaluation

Sometimes the Big6® is called an information problem-solving strategy, because with the Big6® students are able to handle any problem, assignment, decision or task.

A new level of awareness of the effectiveness of using graphic organisers to assist people to become information literate came in the late 1990s through the work of American educator, Jamie McKenzie. During his visit to Australia, he addressed curriculum development in an Information Age. Among other things, he discussed the need to develop “free range students” (McKenzie, 1999, p.40) with effective navigation skills in an Information Age and the use of graphic organisers, like the Inspiration®, to assist thinking and research skills in the twenty-first century.

Ausubel (1960) first described graphic organisers as a type of advance organiser presented prior to learning, so that the learner could organise and interpret new, incoming information. He developed the concept as a cognitive instructional strategy to promote the learning of new information—to bridge and link old information with new.

In the mid 1990s, Tony Buzan was a major player in developing the practice of using a particular type of graphic organiser, the mind map, to assist learning. He believes that “a mind map is the easiest way to put information into your brain and to take information out of your brain” (2002, p.6). Buzan and Buzan (2003) define a mind map in terms of four characteristics: (a) a subject or a central image, (b) several main themes which radiate from the central image, (c) branches which display key images and words, and (d) a connected modal structure formed through these branches. As such, the mind map is structured for radiant thinking. Novak and Gowin (1984) also believed that concept maps have the capacity to enable meaningful learning and to clarify the key ideas to be focussed on in a specific task.

The Inspiration® program has developed and computerised graphic organisers for an educational setting. It is a visual thinking and learning program used for concept mapping, webbing, outlining, planning and presenting work. It has the capacity to integrate visual learning and technology into the literacy curriculum. Anderson-Inman and Zeitz (1995) compared the use of the Inspiration® program with the paper-and-pencil approach to concept mapping. They found that using Inspiration® encourages students to revise their concept maps because deletions, additions and changes can be achieved quickly and easily. Figure 1 shows a sample template for the development of a concept map for story / novel analysis using Inspiration®.

It is not difficult to use graphic organisers in the classroom; however, it often requires a supportive, co-operative, risk-taking culture within schools (Nettelbeck, 2005). A movement towards the use of graphic organisers does not mean that writing is abandoned; rather, it gives teachers the option to diversify learning tasks and make learning more creative, open-ended and exciting. Nettelbeck (2005) believes that concept mapping is one way to create a high capacity educational system, in which “highly skilled teachers are able to generate creativity and ingenuity among their pupils”.

Carol Gordon’s (1995) research in which she combined her interests in education, information literacy and graphic organisers illuminates the current discussion. She created a student research assignment that integrated information literacy instruction with Biology curriculum. She comprehensively investigated the effect of graphic organiser training on the subsequent searching practices of Grade 10 Biology students in a Genetics unit. Gordon believes that concept mapping is a well-accepted method for clarifying concepts and discovering meaning “by graphically displaying the complex information environment” (2002, p.6). Buzan and Buzan (2003) define a mind map in terms of four characteristics: (a) a subject or a central image, (b) several main themes which radiate from the central image, (c) branches which display key images and words, and (d) a connected modal structure formed through these branches. As such, the mind map is structured for radiant thinking. Novak and Gowin (1984) also believed that concept maps have the capacity to enable meaningful learning and to clarify the key ideas to be focussed on in a specific task.

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Literacies addressed through the use of graphic organisers

<table>
<thead>
<tr>
<th>Literacy type</th>
<th>Number of respondents / 40</th>
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<tbody>
<tr>
<td>Information literacy(a)</td>
<td>32</td>
</tr>
<tr>
<td>Information technology (ICT)</td>
<td>26</td>
</tr>
<tr>
<td>Visual literacy</td>
<td>24</td>
</tr>
<tr>
<td>Traditional literacy</td>
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</tr>
<tr>
<td>Thinking literacy</td>
<td>9</td>
</tr>
<tr>
<td>Social literacy</td>
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</tr>
</tbody>
</table>

(a) Information literacy includes specific mention of information literacy Step 1
(b) Traditional literacy includes visual writing
(c) Thinking literacy includes brainstorming, negotiation and peer mediation

Research questions

The present study attempts to draw together literacy programs and graphic organisers and to look at how teacher librarians are using graphic organisers including mind-mapping software to address the literacy needs of their students. The current research literature fuelled further questions about the Australian experience of teacher librarians:

1. In which topics are teacher librarians using graphic organisers?
2. What type of literacies are they addressing?
3. What do teacher librarians perceive to be the benefits of using graphic organisers?
4. What methods do they use to create graphic organisers?

Research method

In the current study, participants were recruited from teacher librarians in South Australia through the listserv SLASANET and Australia-wide through the listserv OZTL_NET. Both quantitative and qualitative data collection techniques were adopted. Survey questionnaires, in email format, along with interviews were used to collect data on the behaviours, understandings, attitudes and practices of teacher librarians.

The respondents came from all states of Australia, all the major school education systems and all levels of schooling. The responses from the questionnaires were used to construct the themes and questions for the Interview stage. Interviewees were selected based on experience as teacher librarians; wide experience in various roles within the school setting; mobility within the education system; and participation in key professional networks. For purely practical reasons, those selected were all from South Australia.

Research findings

Using graphic organisers in a range of topics

Teacher librarians listed a wide range of topics in which they had used graphic organisers. The most common 38 topics were the human body, the environment, animals and Australia. The most common Key Learning Areas (KLAs) involved were Studies of Society and Environment (SOCSE), including History and Geography, and Science.

Research type

Table 1:

| Tab 1: Literacies addressed through the use of graphic organisers |
|------------------------|-----------------------------|
| Literacy type          | Number of respondents / 40 |
| Information literacy(a) | 32                          |
| Information technology (ICT) | 26                  |
| Visual literacy        | 24                          |
| Traditional literacy   | 20                          |
| Thinking literacy      | 9                           |
| Social literacy        | 2                           |

(a) Information literacy includes specific mention of information literacy Step 1
(b) Traditional literacy includes visual writing
(c) Thinking literacy includes brainstorming, negotiation and peer mediation

Table 2: The thirty-nine benefits of using graphic organisers

<table>
<thead>
<tr>
<th>Students can...</th>
<th>Number of responses / 12</th>
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<tbody>
<tr>
<td>1. plan their research</td>
<td>12</td>
</tr>
<tr>
<td>2. order and organise information under main headings</td>
<td>12</td>
</tr>
<tr>
<td>3. see their thought processes</td>
<td>11</td>
</tr>
<tr>
<td>4. extend thinking and establish connections</td>
<td>11</td>
</tr>
<tr>
<td>5. define the task</td>
<td>11</td>
</tr>
<tr>
<td>6. map existing knowledge What do I know?</td>
<td>11</td>
</tr>
<tr>
<td>7. focus on questions for research</td>
<td>11</td>
</tr>
<tr>
<td>8. use problem-based learning</td>
<td>11</td>
</tr>
<tr>
<td>9. view a visual representation of the process</td>
<td>11</td>
</tr>
<tr>
<td>10. engage in visual brainstorming</td>
<td>10</td>
</tr>
<tr>
<td>11. link ideas and concepts</td>
<td>10</td>
</tr>
<tr>
<td>12. sift and sort information</td>
<td>10</td>
</tr>
<tr>
<td>13. engage in collaborative learning</td>
<td>10</td>
</tr>
<tr>
<td>14. work on group thoughts and ideas</td>
<td>10</td>
</tr>
<tr>
<td>15. be motivated through the visual appeal of the program</td>
<td>10</td>
</tr>
<tr>
<td>16. move from the implicit to the explicit</td>
<td>9</td>
</tr>
<tr>
<td>17. use as a presentation tool including hyperlinking</td>
<td>9</td>
</tr>
<tr>
<td>18. work through all stages of information literacy cycle</td>
<td>9</td>
</tr>
<tr>
<td>19. exercise creativity</td>
<td>9</td>
</tr>
<tr>
<td>20. enjoy using graphics</td>
<td>9</td>
</tr>
<tr>
<td>21. relate to digital tools</td>
<td>9</td>
</tr>
<tr>
<td>22. think more clearly</td>
<td>8</td>
</tr>
<tr>
<td>23. see the links</td>
<td>8</td>
</tr>
<tr>
<td>24. exercise lateral thinking</td>
<td>8</td>
</tr>
<tr>
<td>25. judge the usefulness of the information</td>
<td>8</td>
</tr>
<tr>
<td>26. enjoy the open-ended nature of such tasks</td>
<td>8</td>
</tr>
<tr>
<td>27. retain information more efficiently</td>
<td>8</td>
</tr>
<tr>
<td>28. think more explicitly</td>
<td>7</td>
</tr>
<tr>
<td>29. use computers productively</td>
<td>7</td>
</tr>
<tr>
<td>30. have restricted opportunity to engage in plagiarism</td>
<td>7</td>
</tr>
<tr>
<td>31. produce quality work</td>
<td>6</td>
</tr>
<tr>
<td>32. use integrated tools</td>
<td>6</td>
</tr>
<tr>
<td>33. be less likely to lose work</td>
<td>6</td>
</tr>
<tr>
<td>34. compare before and after recording</td>
<td>5</td>
</tr>
<tr>
<td>35. work faster</td>
<td>5</td>
</tr>
</tbody>
</table>

Younger students can...

Table 3: Computer programs used in the creation of graphic organisers

<table>
<thead>
<tr>
<th>Computer program</th>
<th>Number of responses / 40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspiration</td>
<td>32</td>
</tr>
<tr>
<td>Kidspiration</td>
<td>7</td>
</tr>
<tr>
<td>Word</td>
<td>6</td>
</tr>
<tr>
<td>PowerPoint</td>
<td>2</td>
</tr>
<tr>
<td>Publisher</td>
<td>2</td>
</tr>
</tbody>
</table>

*Only those programs listed by at least two respondents have been included*
been used by at least two respondents. (For an overview of graphic organiser websites of use to schools, go to the Shambles website.)

In general, teacher librarians liked the simple, user-friendly structure of Inspiration® and the focus on process. The strength of Inspiration® is in the process, in the idea that constructing the mind maps can lead to creative thinking (Bell, 2004). The teacher librarians in this study initially chose Inspiration® because, in many cases, it was already networked in the school, or inexpensive to buy, and it is Mac compatible. The program appeals to users because (a) it is easy to use, (b) it uses colour-coding to aid visualisation of the relationships between ideas, (c) it allows students to record a lot of information and view a broad topic more easily, (d) it minimises giving up, and (e) it is flexible enough to allow students to easily move between the graphic organiser and traditional note-taking formats.

Conclusion
This research study revealed an impressive commitment from teacher librarians to their profession. They thought deeply about pedagogical issues, showed initiative in developing curriculum appropriate to their student populations and were involved in a wide range of curriculum initiatives. Their curriculum role gave them freedom to work with information literacy and graphic organisers, which are more about methodology and process; in addition, they are able to operate outside the usual KLA content constraints. Teacher librarians reported that a wide range of students in terms of age, gender and ability level responded positively to curriculum incorporating graphic organisers, and that graphic organisers facilitated the development of a range of literacy types. TEAC

References
Reflections, Impressions & Experiences

Kokoda Track

Jill Pearce
Principal, Macarthur Adventist College, NSW

What follows is my account of the journey of a lifetime for myself, two staff members and ten amazing students of Macarthur Adventist College.

The beginning

This story began at the end of 2007, a very challenging year at Macarthur. It started with the loss of a very dear staff member to cancer and our first group of students to enroll in Year 9 as we commenced our push into senior high school. In an effort to rally my staff and the students, the question was, “How do I create unity and purpose for these young people when the death of our secondary coordinator had just dealt such a blow to their confidence?”

I believe that it was a God-given idea to seek out the possibility of taking our 2008 Year 10 students on an experience that would transform their lives. I know some people thought I was crazy to attempt this journey with our young people but I believe God never gives us more than we can handle! I knew nothing of the many challenges we would face in the completion of this expedition. The Kokoda Track is renowned for challenging people—young and old. It has claimed lives in war and peace. It has changed people’s lives.

The biggest obstacle we faced in the initial stages was energising and inspiring 15 and 16-year-olds to do something that they thought was impossible to finance and outside both their interests and limitations. Thankfully, I had great people who were able to support me in getting the students excited about the dream. I had others to convince as well but that is another story. When we began this journey, it seemed a dream to us all.

Planning and preparation

During the initial planning stage, we felt that we needed more guidance than what we were able to get from just discussing the details with travel agents. As Kokoda is a national icon, it requires a lot of permits and paperwork. Once again, God provided for us. Ross Whelan, principal of Thomas Fielitz, a Christian School in our local area, and member of Beyond Me, offered to help. Beyond Me aims to change the lives of young people by taking them to Kokoda and they were willing to help us with the planning and finances for our trip.

My Journal

Day 1: Line

Day 2: Blank

Day 3: Blank

Day 4: Yes, there is a reason that I haven’t been writing. I have been too exhausted to! The past two days have been nothing short of exhausting, grueling, humbling, and emotional! The body is weak but the blessings and support that I have received from the porters, the kids and the staff have been enormous.

On day two, we crossed a cruel mountain range up to Lombrum, famous as the location where the Aussies showed their courage and tenacity while fighting off the invading Japanese army. That is another story that emotions and time won’t allow me to share today. The gradient was straight up, up, and up for kilometres. By my side, I had our ex-army man come guide, Colin, along with the head porter and my personal porter, Nick. I hadn’t eaten much for two days, not enough to give me the energy I needed to do this. I began vomiting and dry reaching, unable to stop for some minutes. Colin was such a gentleman, he encouraged me all the way and even gave me his Gatorade to keep me going! I later found out that they didn’t think the ‘boss lady’ was going to make it past that day!

At about 11 am on Day 2, I told Colin that I didn’t think I would make it, that I didn’t think I could go on. I had slipped and fallen three times that morning. I had bruises the size of tennis balls and lumps that made it hard for me to be comfortable moving, lying or sitting!

When we stopped at the end of Day 3, I even slipped on the steps coming down from the guesthouse. Luckily, I just ended up on my back on the grass, looking up at the sky and thinking what an idiot I was.

On Day 4, I’m still here! God what do you want from me?

God loves idiots

Some people would think that I was an idiot to even try doing the track at my age (53) and in my physical condition (I had a tumour removed from my knee in April). God loves me just as I am, when I make mistakes, when I fall, when I do things in the dark or in the light. He loves me enough to come along, pick me up, dust me off and get me going again.

God loves me all the way. As I walked, climbed and stumbled along the Kokoda Track, those thoughts came back to me, providing the comfort I needed. Each night, I talked with God about my day, thanked Him for getting me through it, asked Him to prepare me for the next day, and thanked Him for the courage of my colleagues and students.

While I lay on my mat each night, unable to move because my body was in so much pain, I would hear the voices of the students rising up in song as they worshipped God with the villagers. They didn’t know it but I had tears of joy and pride rolling down my cheeks as I lay there. I knew they too had been challenged by each day of the walk but they persisted and overcame.

God provides

On Day 2, after falling and vomiting my way to the top of a mountain ridge and passing through a dangerous water crossing, I came, completely exhausted, close to the rest stop. When I saw staff member, John Kama, waiting for me, I was so overcome that I burst into tears. Andre, our school chaplain, came down and they both prayed for me. From that day on, the students devised a system to protect and encourage Mrs Pearce! It didn’t take me long to realise that two of the students were ‘assigned’ to stay with me and encourage me along the track. Oneporter, or you could fall hundreds of metres to the valley below. We all had to trust our porters. My porter, Nick, had done many treks and was more than capable of guiding me. He helped me turn my body side on and inch my way along, holding onto my pack and trust.

Trust

Have you ever held the hand of a stranger? Ever felt that if you didn’t grasp a hold of something, you would lose it? On the Kokoda Track, there are sections where you have to turn your body side on and inch your way along, holding firmly to tree roots and the hand of your porter, or you could fall hundreds of metres to the valley below. We all had to trust our porters. My porter, Nick, had done many treks and was more experienced than I, I had to trust him. Those who
Reflections, Impressions & Experiences

have done the track say, “If your porter holds out his hand for you, take it!”

When you are offered a hand, how ready are you to take it? Does pride sometimes get in your way? I have to admit that pride has been in the way for me in the past but Kokoda has changed all of that.

I spent four days walking through the jungle of Kokoda, holding the hand of a complete stranger and feeling totally at ease about it. My pride came tumbling down after Day 2, when I realised that if I didn’t humble myself and accept Nick’s help, I would be at risk. I learned to take his hand when he held it out to me, and to seek his hand when I needed the reassurance and support.

How many times have you sought the hand of another? How many times have you sought the hand of the Master? How many times have you fully admitted to Him that you can’t do it on your own? Doing the track gave me, and the students, first-hand experience of the need to trust.

Submission

Three times I begged the Lord to make this suffering go away. But He replied “My kindness is all you need. My power is strongest when you are weak.” So if Christ keeps giving me this power, I will gladly brag about how weak I am. Yes, I am glad to be weak, or insulted or misunderstood or to have troubles and sufferings if it is for Christ. Because when I ask, He is strong. (2 Corinthians 12:8–10)

I had read this verse many times but I didn’t get its application to my life until I went on the Kokoda Track. I had turned to the Bible for answers to the pain I was enduring on Day 4. My right knee had swollen to twice its size and I wasn’t able to walk without great pain.

As Day 5 wore on, my knee became more and more uncomfortable, stiff and swollen. I had taken all the painkillers I could in an effort to reduce the swelling. I took myself off to pray about it and asked God to provide me with a miracle. The word soon spread that the ‘boss lady’ was having trouble. It wasn’t long before a natural healer from another trekking group came over to massage heated reeds over my swollen knee. However, that evening, I was in so much pain I couldn’t sleep. I lay in bed tossing and turning, praying and pleading with God to let me have my miracle—the chance to continue the journey. By morning, I still didn’t have the miracle I was wanting. My leg was swollen and painful—there was no way I could continue.

I had fought with God and He had won. I had to submit to Him and what He had planned for me and for the rest of the team. It wasn’t easy. I did not want to leave them but I knew that God had them in the palm of His hand and I could let go.

Have you had a wrestling match with God? Was it an issue for which you felt you knew the right answer? How often do you submitted to God and His will for your life?

When I look back on my life, I can see how God has used tough experiences to bring me to my knees. He is molding and sculpting me into who He wants me to be. Those experiences aren’t gentle or pleasant but, in the end, they will produce something beautiful. Sometimes it is hard to see how God is working or to recognise the miracle He sent but I am willing to accept that He is in control.

The end of my Kokoda

As I watched the students leave the next morning, I prayed God would provide them with memories that would transform their lives.

The journey continues

We are often reminded of the character traits of Kokoda: “sacrifice, courage, endurance, and mateship”. I would love to report that the students were transformed and that they are now doing great things for their school and community. In reality, we are still on the journey of discovery and revelation. They are still discovering what God has planned for their future but they know that with God all things are possible. They conquered one of the most grueling climbs in the world! They did it as a team and they did it despite great difficulties. I am excited about what these students will do with their lives.

God has more ‘life lessons’ to teach each of us as He molds us into the person He created each one to be. As the changes take place, we are provided with living examples of the character of God.

Kokoda has taught me that, “I can do all things through Christ who strengthens me.” (Philippians 4:13)
When the whole world was talking
World Forum on Early Care and Education, 2009
Kaye Judge
Director, Kindy Patch, Eleebana, NSW

Commencing the conversations
It was in Belfast, Northern Ireland, June 2009, when 625 early childhood professionals from more than 80 countries gathered to attend the Eighth World Forum on Early Care and Education.

We arrived as strangers, unsure of what to expect but certain that destinies would be determined and career paths changed through listening to professional dialogue and engaging with communities in passionate conversation.

Conversations to connect children as citizens
A challenging question was posed to the group.

The UN Convention on the Rights of the Child is 20 years old: should we celebrate? Every one of us here, whatever country or context we come from, can give proof to the fact that the rights are not a reality for every child.

We must celebrate the existence of the Convention as a platform on which to stand and address the needs confronting and surrounding all of us. Individual schools have achieved great things through the involvement of young children in indentifying their rights as citizens. Children from the Boulder Journey School in Colorado contributed their perspectives.

Children have the right to have fun; be listened to; clean air; play tea parties, even with real tea; hang upside down when it is safe; guess how things work; have their hair look like they want; and lots more!

Presenter Clonagh Boyle challenged our views on quality environments, media initiatives and programmes to support special differences, giving us a greater understanding of the complexities of the ecology of Child Rights.

Critical conversations on conservation
If we want to save our world then we have to develop the love of nature in our children while they are young. We all need to love the earth and its natural treasures before we will work to save it.

Presentations covered topics such as perspectives on Education for Sustainable Development (ESD) in Early Childhood through indigenous knowledge, entrepreneurial thinking, and the recycling of waste, all critical issues for human survival (John Siraj-Blatchford). Early Childhood Reggio inspired environments in Australia and America (Fran Basilon); and the richness of nature as the foundation and uniting thread in all quality learning experiences (Claire Warden).

Creative conversations
Delegates were creatively courted and converted by verbal and non-verbal conversations. A workshop by Maureen Harris on Montessori music was discussed around tables long after the event. The role of photography and filmmaking was another creative avenue presenting new directions in education. The busy art session challenged participants to think creatively by "creating community through the language of materials".

Conversations with champions
Lillian Katz in her address, Conversations on Early Childhood Education, said “Whoever might be the leader of our country in 40 or 50 years from now, is likely to be in someone’s early childhood program today… Knowing about children is not enough, we must know each child.” She spoke with such wisdom and clarity, challenging us to think about the essentials of teacher education and competence.

It was life changing and life giving to be present and share “real space” with amazing creators, mentors and leaders. I found myself chatting with Lillian Katz over a book signing; catching a lift with Margaret Akinwbe, a beloved spokeswoman for Africa’s children; listening to the gentle Jan Peeters crusading for men in Early Childhood Education; devouring Dr Stuart Shanker’s critical findings on how social and emotional interactions develop the mind thereby affecting the development of the brain; and reflecting with Professor Colin Gibbs as he described teachers who have “presence” as those who promote wonderment, love and compassion. These experiences now make reading research seem like a friendly chat with newly found friends.

Captured by a conversation
Whilst taking a final stroll around Belfast, I witnessed an inspirational scene. There amongst a double row of water fountains a young, bright-eyed, giggling boy with light black curls ran, jumped and danced for joy as spouts of water splashed over his face and soaked his beautiful clothes. With arms raised high to the sunshine, ready to catch the water as it fell, he clapped enthusiastically, spreading the water all around. His father, a well-groomed businessman, stood back laughing. Passers-by paused, suspending their lives for a moment to absorb this sacred scene of childhood joy.

I realised that captured and expressed in this moment was much of what this World Forum promoted; the importance of the role of men and father’s in the lives of children; the importance of spontaneous play; the need to incorporate natural play-spaces in public places in order to connect children to nature; the willingness of adults to suspend their agendas and allow time to appreciate the spontaneous expressions of children’s joy; the friendship and hospitality of strangers; the celebration of diversity; the view of children as our teachers and often times, healers; the call to remember that children are our first priority, they are citizens now; and the refreshing notion that it is good to take time to celebrate!

The conversations go global
The power of our conversations throughout this week will result in the creation of something new, something good. Our words create worlds, worlds of hope, peace, love and greater joy for children and those who work with them and for them. Bonnie Neugebaur offered the 2009 World Forum Challenge, which can potentially involve all of us in advocating for children. It’s called 1:01. At one minute past one, everyday, take 1 minute to advocate for improving the life of young children in some small or large way. There is an online web blog where you can be inspired by others or tell your story of advocacy for children (www.worldforumfoundation.org).

In 2011, the World Forum is destined for another city. Wherever that may be, plan to attend. It is a time where you will feel the world’s warmest heartbeat and hear the most inspiring words helping to re-ignite your love of children and empower your contribution to it.

Whoever might be the leader of our country in 40 or 50 years from now is likely to be in someone’s early childhood program today.

Conversations on Early Childhood Teacher Education
Co-editors: Andrew Gibbons & Colin Gibbs
Introductory chapter by: Lillian G. Katz, PhD

This book is for all student teachers, teacher educators, and early childhood professionals who choose to share in, and continue, inspiring conversations within their own early childhood experiences and settings.
BOOK REVIEW

The brain that changes itself

Kristin Thompson
Lecturer, Faculty of Education, Avondale College, NSW

When scientists first started to look at the convolutions of the brain, they may well have been reminded of a geographical landscape. There are few geographical frontiers still to be conquered, but the very latest equipment is only now making exploration of the brain a feasible venture. In 2007, the Canadian psychiatrist, Norman Doidge, M.D., wrote a book that has received several favourable reviews, The brain that changes itself. I paid $35 for my paperback version. Although it is of equal interest to the layperson, teacher, administrator, therapist and scientist, the writing style is easily accessible to the layperson. It has been such a hit that it has become an international bestseller. It was reprinted five times in 2008, with yet another reprint in 2009. Doidge uses numerous case studies to illustrate how amazingly the brain is able to change in response to various situations or trauma in order to improve quality of life. The book’s main theme is that people learn because brains can change. This proposal is of great significance to teachers and education administrators. This book emphasises that biology is not destiny—things can change—and that the environment can help. Doidge shows that the brain is not static.

We have been so enamoured by the machine and by computers that we have limited our understanding of the brain to the likeness of a machine that we ourselves have made. Doidge claims contact with many dedicated scientists and laypeople that have experienced the recovery of brain functions traditionally considered unrecoverable, and concludes that the brain is plastic. By providing biological explanation for some of our wilder taboos, he also makes sense of unconventional phenomena. The shoe fetish, for example, may arise because the brain maps for feet and sex are very close.

After reading this book we may feel guilty that we have not had the money, or have not been able to mobilise the effort needed to help our students and staff achieve the potential for change that our plastic brains allow. Some of the changes reported in the book have required considerable financial, physical, emotional and faith resources. Case study after case study is cited, challenging the status quo.

Norman Doidge visited Australia this year. I heard him open an address by quoting the Hebrew Scriptures, saying that the Lord God spoke and there was light. He said, “thought influences substance”. He went on to say that in the Gospel, the Word becomes flesh—“thought influences substance”. He then went on to use video case studies to illustrate his point. During the book signing, I asked whether Jesus’ words about telling a mountain to throw itself into the sea is an indication that Jesus sees the world as plastic, to which Norman Doidge answered, “Well, thought influences substance.”

The book is very engaging and accessible. It makes change seem not only possible, but understandable. I have also been given new inspiration in reflecting on the teachings of Jesus. Enjoy the case studies and see what it does for you!

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