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NEW SOUTH WALES

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W elcome to the new millennium (well, at least the popularly regarded new millennium)!

This issue of *Scan*, **Research columns** presents the work of Dr Carol Gordon. Dr Gordon is not new to this readership, having published in **Research columns** in vol 17 no 4 of *Scan*. Carol is Head of Educational Resources Library (ERL) in the School of Education, Boston University. She is responsible for development and maintenance of the education collection. Its K-12 resources include young adult (YA) and children's literature, tests, curriculum guides, textbooks and materials on instruction and curriculum.

The library is presently expanding its collection to include web based resources, and its home page is being redesigned to include Boston University and World Wide Web links. The ERL will move into a new facility in 2001. It will include a K-12 library, which will serve as a learning laboratory for pre service teachers and house an electronic classroom. Carol also provides information literacy instruction and support for coursework and university community services. Publications in progress include: *Effective information literacy in international schools* (ECIS); a CD-ROM product on integrating technology into curriculum; and a book to be published by Scarecrow Press.

Putting the learner in charge:
Are information literacy skills enough?

Dr Carol A. Gordon

Just as the school library media center has moved far beyond a room with books to become an active, technology-rich learning environment with an array of information resources, the school library media specialist focuses on the process of learning rather than dissemination of information."

(Information power, 1988, p 1.)

What does it look like when teacher-librarians focus on learning? Is it that they simply teach information literacy skills that enable learners to locate, evaluate, select and apply relevant and authoritative information? Even when taught in academic contexts, fired by genuine information needs, are information literacy skills enough?

Goleman argues that "the predominant models among cognitive scientists of how the mind processes information have lacked an acknowledgment that rationality is guided by - and can be swamped by - feeling" (Goleman, 1995, p 41). Do emotions play a role in information literacy and its corollary, independent learning? "School success is not predicted by a child's fund of facts or a precocious ability to read so much as by emotional and social measures..."

(*Head start*, 1992, p 7). What does it look like when teacher-librarians put the learners in charge?

Scenario

Consider the design of the following personal learning task. It forms the backdrop to the research undertaken in this article.

Create a personal information project around an interest. It may be a performance, a model, a design, an exhibit or a demonstration. It may not be a written research paper or report. It may or may not be related to a school subject. You may work alone or in a group of two or three.

In this instance, the teacher-librarian strips away trappings of traditional assignments that 'deliver the curriculum' and seeks to encourage intrinsic motivation and diverse learning styles. The design is open ended, rather than prescriptive: the learner makes choices and defines tasks.

Write a proposal for your project that includes:

- **Purpose**: What do you want to learn and achieve? What do you want to communicate?
- **Outcome**: What will the audience experience? What will your finished project look like?
- **Resources**: What materials, equipment do you need? What will your costs be? Who will be your adviser? (Choose an adult who is not your parent.)
- **Problem solving**: What problems do you anticipate? How might you overcome them?
- **Approval**: Adviser's signature.

The teacher-librarian also sets up mechanisms to gather feedback to assess the learning process: What have students learned about themselves as self managers? The teacher-librarian uses appropriate measures of performance based learning.

Keep a journal as a record of progress. Include diagrams, photos, or sketches. Record how you organised your work and time. Include a calendar of appointments and deadlines. Discuss problems and how you solved them. What decisions did you make? What would you do differently? How did you get help?

The teacher-librarian is also interested in what is difficult to assess, such as

maturity, self discipline and perseverance, and asks learners to use ongoing self assessment.

Assess your personal management skills (planning, meeting deadlines, organization, problem solving, decision making, working with an adviser. Include evidence from your proposal and journal to support your ratings. Ask your adviser to assess your skills. Compare and discuss your own ratings with your adviser.

Ratings: Excellent; Good; or Weak plus examples, evidence and comments.

Design a rubric with at least three standards. Two assessors apply the rubric to your project at an exhibition. Include one standard for the finished project and one standard for display and/or presentation.

The teacher-librarian structures peer editing sessions, allowing learners to develop assessment criteria (rubrics) and indicators (standards) and give each other feedback as they talk about their work.

Discuss your project with a partner and give each other feedback on how you are doing. Use three steps to give your partner feedback:

1. **Praise**: What are the strengths of your partner's project?
2. **Question**: What questions would you like to ask? What problems do you see?
3. **Polish**: What suggestions do you have to solve problems or improve the project?

The teacher-librarian who focuses on the process of learning sees the task and assessment as one. Outcomes are not merely goals, but measures of assessment. Learning and assessment are performance based.

You will present your information project at the exhibition. Two assessors will examine your journals, personal management rubrics and peer editing reviews, in addition to using your rubric. You will not receive a grade; assessors will write a narrative report on your school record.

The 'authentic' learner uses tools of the expert as he or she perceives the project as a real life challenge rather than an academic exercise. What would data generated by authentic assessments of a performance based unit tell us about independent learning?

Metacognition and emotional intelligence

Underpinning performance based and outcomes based teaching in an information rich environment is the question: What does a successful, independent, information literate learner look like?

A theoretical framework emerged from observation of students as independent learners working on the personal project described above. It is metacognitive experience that nurtures independent learning, which will not take place until the learner begins to learn how to learn and think about his or her own learning. Vygotsky (1962) noted that knowledge is acquired prior to the conscious control of knowledge. His distinction between cognition and metacognition was described as a difference in self awareness and control (Vygotsky, 1978). During the interim period between non reflective and reflective thought, these developing skills are demonstrated when a student is able to carry out a task with the assistance of an adult which the student could not have done alone. The distance between the actual developmental level, as determined by independent problem solving, and the level of potential development, as determined through problem solving under adult guidance or in collaboration with more capable

peers, is the zone of proximal development (Vygotsky, 1978).

The theory of multiple intelligences (Gardner, 1993) identifies intrapersonal, interpersonal, and six other intelligences which correspond to, but are not synonymous with, "domains" such as music or mathematics. Schooling, which emphasises the verbal-linguistic and logical-mathematical intelligences, has traditionally relied on quantitative measures to chart progress and label success and failure. Gardner (1983) goes beyond these measures to redefine intelligence as the ability to solve problems, or to create products, that are valued by a culture.

Goleman (1995, p xii), extending Gardner's theory, asks, "What factors are at play... when people of high IQ flounder and those of modest IQ do surprisingly well?" He argues that the difference quite often lies in abilities called *emotional intelligence* (Goleman, 1995, p 259). A study of the problem solving model showed that "...emotional literacy programs improve children's academic achievement scores and school performance. This is not an isolated finding; it recurs again and again in such studies" (Goleman, 1995, p 284).

The research design

This non causal research looks for evidence of metacognition and emotional intelligence exhibited by ninth graders participating in a personal research project designed as an authentic learning and assessment unit. How would thirteen year olds react to an assignment that targeted their ability to traverse the zone of proximal development? The action research was developmental in purpose, ie. to pilot and evaluate the design of the personal project. The fieldwork was grounded in performance based, authentic assessment practice and constructivist learning theory.

Proposals, journals, peer reviews, rubrics and narrative evaluations intersected continuously as:

1. learning tasks
2. assessments of product and process, and
3. data collection instruments.

Observation, documented by field notes, was continuous.

The chair of the English department, the ninth grade adviser and the teacher-librarian formed a steering committee to monitor the project. The setting was an accredited international school. An Anglo-American curriculum was taught to 400 high school students from 42 countries. Teachers were concerned with ninth graders' academic malaise and detachment. Parents questioned whether the high school provided nurturing and advising in a caring school culture. Emerging from a learner centred, hands on, middle school program, and not yet engaged in the academically rigorous International Baccalaureate (IB), it seemed ninth graders were 'falling through the cracks'. Designed by the teacher-librarian and supported by the principal, it aimed to prepare students for IB coursework. The *Extended essay* required: sustained interest in a long term project; working with an adviser; setting interim deadlines; venturing into the community for resources; and working with others to collect data and seek help.

Free choice of topic, and the exclusion of the written research paper format, ensured that successful independent learning would not be impeded by students' lack of enthusiasm for a mandated topic or their inability to write well. The project was set outside of the academic program to shift responsibility to students. The 'home room' period, a fifteen minute morning session, was advisory by intent and design. Logistics and announcements took place in this venue. Plenary sessions, held every two weeks during the six week project, were held during lunchtimes.

Sampling was purposive: sixteen students involved in ten projects were chosen, ad hoc, from the ninth grade

population of 100 students. In order to select the sample from the population, five characteristics were identified as filters:

1. native or non native English as a second language (ESL) speakers
2. academic averages (A, B, C, D) for the first semester
3. gender
4. concrete or abstract project outcome, and
5. individual or group work.

The sample contained each characteristic proportionate to its occurrence in the population. When appropriate, the entire population was used to analyse quantifiable data. Condensation of written and verbal data from the population was constantly compared to data supplied by the sample to establish reliability. Data from journals, rubrics and peer editing sessions were triangulated to test for validity and reliability. Data reduction and analysis were aimed at observing patterns across data sources within the sample rather than generalising from sample to population.

Findings
Student engagement in the project

The population of 100 students was used to analyse topic choice. Students favoured subjects that were non existent in school curricula (design technology, crafts) or school subjects designated as 'minor' (art, music, dance, theatre). Areas of heavy curricular emphasis (English, history, geography, mathematics, science, sports and computer technology) were chosen by less than one quarter of students. This can be explained, in part, by the models used to motivate students at the beginning of the project and the emphasis on 'personal' projects. The extracurricular nature of the design may also have contributed to this trend. Observation and field notes revealed that most students saw the project as an opportunity to explore or develop interests. The proposal prompted them to choose familiar topics as they felt constrained

a deadline. Journals revealed that students welcomed the opportunity to integrate personal interests in a school based activity, helping them to realise connections between emotional intelligence and academic success.

Most design technology projects, and almost half of arts and sports projects, related to students' ethnic backgrounds. ESL students consistently chose traditional crafts (regional cookery, handwork, and woodcrafts), art forms (painting, dance, and music) and sports related to their cultural heritage, as documented in their journals:

> "I could do something on Korean customs or maybe beliefs or myths... I'm really proud of these 'Korean things' and I really think it'd be great to teach other people about it."

The peer review session enhanced student engagement by offering opportunities for discourse that reached high metacognitive levels. The sessions lasted 45 minutes, twice as long as the intended time. *Table 1* replicates the form and process with comments extracted from the sample group.

The session was charged with high levels of empathy. Since the peer review session was held at midpoint, many concerns addressed presentation of projects as well as process. Students who were struggling with project completion, and students who worked on concrete outcomes (painting, crafts), elicited questions about product, rather than process, from their peer reviewers. Questions, concerns and suggestions were thoughtful and constructive.

The role of adults

Students documented conversations with their families at the initial stage of topic choice:

- "My dad said he thinks the strongest part of my writing is my dialogue so I should be good at playwriting."

Praise: What are strengths of the project? Be specific. Refer to your partner's proposal.

✓ Sounds like a good idea. It would make the world safer to teach children the rules of biking.

✓ Very creative, perfect expression of emotions. Don't worry about rhyming. I loved your song. It is focussed on your feelings. Keep it up and you'll be a great composer some day!

✓ Sounds fun and exciting. It will be a different experience for the audience —they are participating.

✓ I think an English-Portuguese dictionary is a good idea. What a great way to improve your English!

Questions: What helpful questions do you have? What problems is your partner having?

✓ Who can you go to for help in teaching the children? How much will the project cost?

✓ Do you have everything planned? eg. How much time each of the scenes will take?

✓ Do you have any background information for those who might not know what the story is about?

✓ Did you split up the work evenly between the three of you?

✓ How are you going to present this information?

✓ How many words are translated in the dictionary?

Polish: What suggestions do you have to solve the problems or improve the project?

✓ Work on the refrain for a better rhythm.

✓ Try working on it as often as you can like during lunch and breaks and even during class if you can.

✓ Talk to your adviser.

✓ Clearify (sic) the roles between the three of you to accomplish your project in the end.

✓ Use posters and other visual materials depicting the situation.

✓ Make sure that the dictionary has an attractive cover.

Table 1: A sampling of peer review comments.

- "The deadline for proposal signed by adviser is due tomorrow and I still didn't have ideas. I've been thinking about it everyday and even asked my family what I should do."

Parents assumed supportive, rather than dominant, roles as their children delegated logistical tasks to them:

- "My dad made arrangements to use cones, tape, and street signs with Rhein Main Airbase."

- "My mom picked up pictures from the developer."

Ethnicity and family pride were evident at the exhibition, attended by over 400 people, most of whom were parents, grandparents and siblings. Students maintained their autonomy and enjoyed their independence:

- "Over the weekend I performed for my parents. They really enjoyed it and I think they were surprised that their little Amanda could (can) act."

Heavily involved as advisers for other people's children, parents accounted for 41% of advisers. 33% were parents of students attending the school, and 8% were teachers in the school. Their advisory roles helped parents understand the importance of student

autonomy. When given free choice of advisers, proximity was a factor: 29% chose high school teachers and teachers were chosen 53% of the time. Community members who were not parents or teachers comprised 14% of advisers. Many were coaches, neighbours, and church members.

As the project progressed, advisers' roles assumed increasing importance. Students' references to advisers were often accompanied by a sense of urgency, especially when advisers were inaccessible. Emotional support was evidently a strong incentive to maintaining communication:

- "Oh no! My adviser's going to be away for the whole of this week! What should I do? I need to work on my criteria and also go over my plans with him and figure out exactly how I'm going to be presenting this. I guess I have no choice but to keep researching and be ready to discuss my ideas as soon as Mr M. gets back."

- "I feel as though I really need to meet with my adviser once again before the performance... It's not that I'm unprepared, it's that it will help me relax."

Students most often sought advice to: solve logistical problems; and develop criteria for project rubrics.

The fact that 47% of advisers were not trained teachers may explain why students found writing project rubrics their most difficult assignment, despite the training sessions held for advisers.

Metacognition

Two categories emerged from analysis of proposals. Students in Group A worked on projects with concrete outcomes and consistently stated their purposes in terms of product:

- "I want to compose my own song and perform it in front of an audience."
- "I want to make muffins, cookies and a cookbook for myself."
- "We want to try to produce a short length, no budget movie."

Group B students created projects that were activist or abstract in nature, for example, performance or community work. They described outcomes in terms of process and learning goals:

- "By the end of this project I would like to be aware of the problems encountered by children with disabilities and to see if there are cheap and easy ways for schools to make their lives easier."
- "To learn about the differences between the (school) community and the refugees in (our town)."

Language was not a determining factor for native English speakers, however only 17% of ESL students chose projects that had abstract outcomes. Girls were almost three times as likely as boys to choose abstract projects. Students who chose concrete outcomes did not show a strong preference for individual or group work, but students who chose abstract projects showed a strong preference for working alone. The propensity for ESL students, boys and group workers to choose projects with concrete outcomes is a consequence of the homogeneity of groups with regard to ethnicity and gender. Students who were group workers were twice as likely to be ESL students.

Language and gender emerged as factors in students' preferences for working individually or as group members. Language was a stronger factor for ESL students, with only 37% choosing to work individually while 63% worked as group members, than it was for native English speakers. There was a stronger relationship between gender and work preferences: Girls preferred group work (71%) while boys showed a preference for individual work (65%).

A breakdown of grades, using the average grade for members of groups for the sake of comparison with individual workers, revealed that students with A averages chose abstract outcomes at the rate of two to one when compared with students with B and C averages. When asked what they expected to learn about themselves, Group B consistently identified specific personal management skills:

- "I expect to find out how good an actor I am and how thrifty I can be with little resources we have."
- "How well we can work together: how well I can organise and do a project."
- "I expect to find out if I have the stamina, organization skills, and personal leadership to carry out such a project."

Group A, on the other hand, defined learning in terms of technique or skills specific to the craft or technology relevant to the concrete outcomes of their projects. It is possible that these kinds of projects were less transparent, with outcomes that obscured the learner's ability to think about learning.

While Group A students looked for help when faced with logistical problems and issues of technique and style, Group B initiated problem solving, rather than relying on others. Some of their solutions included:

- "Plan ahead."
- "Not go to ISST (drama competition)."
- "Excuse myself from track."
- "Set up a proper schedule."
- "Take plenty of notes."

Students with abstract project outcomes engaged in analysis, that is., breaking down tasks, sequencing tasks and defining their roles:

- "My part in the project is labelled 'Head of Dancing'. My responsibilities are choreography, teaching the dances, assist in casting."
- "I was thinking about the auditions and decided that the people who we cast should:
  - be able to project their voice
  - have confidence on stage
  - be able to portray characters and feelings moderately well
  - have stage presence
  - fit a character's appearance relatively well."

The fact that members of Group B were more likely to be native English speakers accounts for their facility in expressing metacognitive thought. It is possible that the choice of an abstract

outcome is a marker for students who have achieved higher levels of metacognitive thinking. It is also possible that projects with abstract outcomes are more conducive to concerns with process rather than product or presentation.

All students were concerned with logistics, ie. "adequate site"; "finding the right text to sing"; "training the scouts"; "settings, sound, quality, acting, lighting".

Most students expressed logistical concerns about executing the assignment successfully: "Not having enough time"; "following instructions"; "understanding cooking terms"; "finding time to spend with the children".

Group B students were better divergent thinkers, able to reformulate when faced with problems:

- "We better be able to do the refugee interviews next Tuesday, otherwise we're in trouble!... Why does everything go wrong? The refugees didn't show up Tuesday! We rewrote our entire proposal. We have an appoint-ment for Monday @ 3:00. We'll video it and take pics, and if we don't have enough time to edit the film we'll just make posters instead."

Evidence of metacognitive thinking frequently surfaced as concerns about time and deadlines for both groups.

- "The one thing this project has taught me? It's better to get things done early! I'm too much of a procrastinator and I hope this project has relieved me of this!"
- "Today Sheba and I used our spare time to work on a timeline for our project. We thought this would be a good idea so we wouldn't get behind and not have the production ready in time. This is also one way to help me with one of my goals. That is to learn how not to procrastinate."

Journal entries consistently included self-imposed deadlines and strategies for managing time:

- "My criteria for assessment needs to be done by April 12. I need my lines memorized by April 20. And the week of the 20th maybe Mom and I can go costume hunting."
- "I have actually about three weeks left to work, but I decided I'll be finished with the script in two, so I can have time to organise the reading."

Assessment

The *Personal management rubric* required students to use evidence from their proposals, journals and calendars to justify self ratings. Advisers also provided ratings and comments. *Table 2* summarises a personal management rubric that was representative of Group B students. The level of metacognitive thinking was high. Despite guiding questions, which were provided to encourage detailed, reflective answers, students and their advisers often interpreted or applied standards differently (eg. **Organisation** in *Table 2*). Students routinely evaluated themselves more critically than their advisers

Skills assessed	Student's ratings* and comments	Adviser's ratings and comments
Planning	Excellent: I think I achieved the aims I set out. I also matched my abilities with the time given.	Excellent: No comment
Deadlines	Good: This depended on the week. I missed one or two deadlines.	Good: Connie was initially a little late with deadlines but this was due to a creative writing block.
Organisation	Good: I think I could have organised my presentation better. I underestimated the time it would take.	Excellent: This didn't really apply to writing the play. Once the script was completed, Connie's organisational skills were excellent. eg. booking auditorium for rehearsals; organising actors; directing the play.
Working with an Adviser	Good: I probably should have had more meetings with my adviser. I feel the questions I asked her were fine.	Good: This was not as frequent as was desirable but was more due to Connie's shyness and not wanting to impose on her adviser.
Problem solving & Decision making	Excellent: I knew what I wanted. The reading of the play gave me a lot of problems, but I worked through them successfully.	Excellent: Connie's initial objectives were clearly defined. There didn't appear to be major problems to re-solve. She dealt with major decisions and possible problems at the onset.

Table 2: Assessment of personal management skills with a rubric. (*Ratings: Excellent; Good; Weak.*)

and gave themselves lower ratings. Comparison of ratings and sustained discussion between student and adviser afforded each student feedback that helped him view his performance from a different perspective. The ultimate benefits from this type of assessment seemed to accrue through discourse rather than through the written exercise.

Student written rubrics, used to evaluate 75 projects at the exhibition, were analysed for their emphasis on product versus presentation, with regard to five characteristics. Language was the only variable that was consistent with students' choices of emphasis. Presentation, rather than product, was of great concern to ESL students and to students who worked in groups, which is not surprising since most ESL students chose to work in groups and felt insecure about making oral presentations. Although native English speakers who chose abstract project outcomes wrote exemplary rubrics, which addressed process rather than product or presentation, data from these rubrics was not considered reliable. Students, particularly ESL students, found this task difficult.

Initially, students had expressed disappointment in a non graded assignment but expressed no interest in grades at the exhibition. During assessment interviews at the exhibition, students were more concerned with displaying their journals and talking about process. The shift from initial preoccupation with *product* in early journal entries and proposals, to *process* is indicative of progress in meta-cognitive thought and self reflection. They understood the concept of formative assessment and appreciated the value of substantive, qualitative feedback. One student made the paradigm shift within the first few weeks of the project:

Student: Why aren't we getting grades?

Teacher-librarian: Why do you want grades?

Student: Because our parents want them?

Teacher-librarian: Why do your parents want grades?

Student: So they can see how we are doing compared to other students.

Teacher-librarian: Why is it difficult to compare your projects and give them a number grade?

Student: Because each of our projects is different. It wouldn't be fair to compare them!

Unlike teachers of primary and intermediate grades who had experience with authentic assessment, secondary teachers expressed discomfort. Some persisted in giving numerical grades in addition to writing narrative reports. Contrary to the perceptions of students and teachers about parents' concerns for grades, parents who assessed projects expressed support for the project design and narrative reports.

Implications for teacher-librarians

A personal project addresses self management skills in a context that is motivating by virtue of its unobtrusive design. Even in this context, however, students need support as independent learners. The scope of information literacy, expanded to include emotional intelligence, sets a new agenda for teacher-librarians to define the prerequisite skills for independent learning. The model of the personal project as designed for this study, is one of many possible models. Developmental appropriateness and individual differences suggest that elements of this model could be integrated with traditional, academic assignments that address cognitive facets of information literacy. A personal project, in part or whole, recurring at various grade levels, can provide archival material to track growth and progress, for which the use of the portfolio, another powerful authentic assessment instrument, is indicated.

Authentic learning and assessment are viable tools for the teacher-librarian, who becomes a facilitator in the process of learning. Authentic methods are particularly well suited to promoting emotional intelligence because they assess process, yet accommodate evaluation of product and presentation. Crafting lessons and units with journal writing, rubrics and peer review, the teacher-librarian takes responsibility for instructional design and puts the student in charge of his learning. Although authentic assessment is generally confined to primary and intermediate grades, teacher-librarians can use performance based strategies for articulation, both horizontally across curriculums, and vertically, through the upper grades.

The involvement of family and community in advising and assessment roles makes 'one on one' contact feasible, affording students personal attention and sustained discourse, which emerged from this study as stimulants for metacogntive thinking and self reflection. The performance based personal project model strengthens ties between school and community and helps parents to understand how they can support educators' goals for information literacy and independent learning.

Implicit in this study is the role of the teacher-librarian as a facilitator. Rather than teaching emotional intelligence and metacognitive thinking, teacher-librarians create opportunities for students to learn them. They generate and manage project work in an exemplary way, as a pro-active, rather than reactive, agent. The performance based design is an instrument for teaching the entire community of learners: administrators; parents; and other teachers. Action research, as a component of the instructional design, promotes reflective practice among colleagues. The teacher-librarian is seen as a researcher and role model, and is perceived as truly concerned with the process of learning. ■