# Portfolio tools: learning and teaching strategies to facilitate development of graduate attributes

**Jacquelyn Cranney**, Psychology, **Michelle Kofod**, Science, **Gail Huon**, Psychology,
**Lene Jensen** and **Kirsty Levin**, Careers and Employment Services,
**Iain McAlpine**, Educational Development and Technology Centre (EDTeC),
**Michele Scoufis**, Learning and Teaching Unit, and **Noel Whitaker**, Science,
University of New South Wales
j.cranney@unsw.edu.au  m.kofod@unsw.edu.au

*Abstract:* *Background and Aims:* *Based on previous developments at UNSW of an electronic* Graduate Attributes Portfolio *(Brawley et al. 2003), and the increasing body of evidence on the educational use of portfolios, this project embedded the* Portfolio *into a Bachelor of Psychology course, with a particular emphasis on professional development and employability skills of students. The primary aim of this project was to encourage and support students in taking responsibility for identifying their own goals, identifying the qualities required to achieve those goals, and reflecting upon and documenting their own career-relevant achievements.* Method: *The* Portfolio *required students to record anecdotal evidence of their academic, extracurricular, and employment-related activities relevant to each of the UNSW graduate attributes. Specific strategies were implemented to (a) assist students to become aware of their current level of achievement in each of the graduate attributes and how these attributes relate to the employability skills, (b) provide structured development of specific attributes within the course, and (c) encourage further development of these attributes prior to graduation and associated job interviews.* Results and Conclusions: *To date, the specific outcomes of this project have been (a) the development of learning and teaching strategies that enable students to see the relevance of documenting and further planning the development of graduate attributes and career-related achievements, (b) the development of a portfolio support website that can assist any current and future students in these activities, and (c) the development of teaching resources that can be implemented in assisting students develop these skills.*

## Background

UNSW is committed to supporting students in the development of graduate attributes through the creation of learning and teaching strategies. Universities need to not only create opportunities for students to develop graduate attributes in both specialist degrees (e.g., Medicine) and generalist degrees (e.g., Arts, Science), but also impress on students the relevance of these attributes to their careers (Franklin and Peat 2003). Students need to develop an awareness of graduate attributes and their relevance early in their studies so that they can take full advantage of opportunities for developing them during the course of their program of study.

UNSW is promoting student-centred learning and the development of attributes required for life-long learning, such as creative problem solving, critical thinking, communication, team-work and management skills. These attributes overlap conceptually with what the Australian Chamber of Commerce and Industry and the Business Council of Australia (2002) have more recently termed 'employability skills', skills essential 'not only to gain employment, but also to progress within an enterprise so as to achieve one's potential and contribute successfully to enterprise strategic directions' (p.3; see also Knight and York 2003; Warn, Tranter and Fulford 1997; Weir and Matthew 2003). In displaying evidence of these attributes, applicants are required to draw on examples from their study, employment, extracurricular activities, and general life experience. Many students have spent their years at university focusing on their academic achievements and fail to see the importance to employers of these other aspects of their career development. Student reflection on their own attributes is critical for their further development of these qualities (Bowden, Hart, King, Trigwell and Watts 2000).

One approach to assisting students in this process is to embed the development of graduate attributes into the curriculum by utilising a portfolio tool that involves documentation of examples of the attainment of attributes, and self reflection regarding those attributes (Department of Education, Science and Training 2004). There has been a recent increase in the use of portfolios in tertiary

education (e.g., Barrett 2005; Biggs and Tang 1997; Cooper 2001; Woodward 2000), although the purposes of portfolios, and the methods of implementation, vary substantially (Barrett and Carney 2005). For example, a portfolio can take numerous forms, from a repository of examples of work to a reflective transcript of students' experiences and achievements. Barrett and Carney (2005) argue that 'electronic portfolios can be powerful tools for learning if they are part of a balanced system of assessment *of* and *for* learning… whenever possible, learners should have the opportunity to actively connect elements of their knowledge, consider how artifacts of learning reflect their values and goals, assess their own learning, receive feedback from members of a learning community, and formulate new learning goals…' (p.11). Following Cochrane, Mahoney, Bone and Johnson's (1999) work on using a portfolio to support and monitor graduate capabilities, our focus in this project was on the use of formal assessment and anecdotal evidence of experiences and achievements in relation to the attainment of graduate attributes, thus allowing students to demonstrate to prospective employers the skills and knowledge they have gained while at university.

## Aims

This project involved the development of strategies for student self reflection, recognition of graduates attributes and implementation of portfolio tools in the context of a first year course. These strategies were implemented to: (a) assist students to become aware of their current level of achievement in each of the graduate attributes, (b) provide structured development of specific attributes within the course, and (c) encourage further development of these attributes throughout their degree, prior to graduation and associated job applications.

## Process of implementation

The project focused primarily on the implementation of the portfolio and learning and teaching strategies within the PSYC1021 course. The development occurred in four stages:

### Stage 1 - Electronic graduate attributes portfolio development

In 2003, a joint project led by the UNSW Careers and Employment service and the Faculties of Science, and Arts and Social Sciences, developed a prototype of an electronic *Graduate Attributes Portfolio*, in which students could record evidence of their progress toward attaining graduate attributes. This *Portfolio* consisted of three separate sections, academic, employment, and extracurricular, and sub-sections for each of the UNSW graduate attributes (Table 1). On a voluntary basis, students were required to record examples to demonstrate how they had developed these attributes in each subsection. Students were slow to make use of the portfolio as (a) they felt it was difficult to identify examples and (b) exercises did not contribute to marks (Brawley, Jensen, Kofod and Whitaker 2003).

### Stage 2 - Implementation into PSYC1021 (Introduction to psychological applications)

In Session 2, 2004, the electronic *Graduate Attributes Portfolio* was embedded within the PSYC1021 course, with 63 first year students. Implementation of the *Portfolio* was sequenced with strategies for the development of selected graduate attributes. A series of lectures and workshops was delivered that involved career management, graduate attributes and the use of the *Portfolio*. Students' assignments were graded according to their contributions to the *Portfolio*, along with the submission of a resume and a cover letter, in response to a mock job advertisement for an internship in a psychological setting. Concurrently, programs of skill development within the course were being undertaken in oral and written communication (particularly laboratory report writing), aspects of the research process, and critical and creative thinking. Links to the graduate attributes and portfolio were made explicit during the learning activities.

The learning and teaching strategy was embedded throughout the ongoing lecture and tutorial/laboratory streams of the course. That is:

- **Week 1:** Lectures: Introduction to course; baseline measurements of experimental design, knowledge of cognitive fallacies and research methodology; delivery of career/portfolio assignments including initial resume and cover letter for the mock psychology internship position and an assignment on researching extracurricular activities at UNSW(due Week 2).
- **Week 2:** Lectures: What employers look for (employability skills, graduate attributes and an introduction to career management); introduction to the *Portfolio*; students completed self assessment surveys on their graduate attributes.
- **Week 3:** Tutorials: Students: discussed the extracurricular activities at UNSW; read sample resumes and application letters, selecting who they would interview if in the role of potential employers; were given feedback on their initial submissions of the resume and cover letter; began the documentation process with the *Graduate Attributes Portfolio* (due Week 12).
- **Weeks 3-9:** Lectures and Tutorials: Development of research skills, written and oral communication skills (final submission due Week 6), critical and creative thinking skills (iterative feedback as well as final examination in Week 9). These activities involved a high level of interactivity and supported group work, and links to graduate attribute were made.
- **Week 8:** Tutorials: Careers/resume/cover-letter Workshop: Introduction on how to write a resume and cover letter (including the 'STAR' methodology: i.e., describing the situation, task, action and result); students were provided with examples of portfolio entries that related to their current and immediately past psychology courses.
- **Weeks 10-13:** Lectures: Professional psychology - guest lectures from professional psychologists who outlined potential career directions.
- **Week 14:** Lectures and Tutorials: General feedback on course outcomes and on critical and creative thinking; general feedback on *Portfolio* assignment, resume and application letter.

Challenges arose in the portfolio implementation: that is, there were technical limitations with the electronic *Graduate Attributes Portfolio* prototype, leading to the in-course development of a simple but effective word-based proforma (Portfolio Template).

Table 1: UNSW Graduate Attributes

| The University of New South Wales will provide an environment that fosters in our students: |
|---|
| 1. the skills involved in scholarly enquiry; |
| 2. an in-depth engagement with the relevant disciplinary knowledge in its interdisciplinary context; |
| 3. the capacity for analytical and critical thinking and for creative problem solving; |
| 4. the ability to engage in independent and reflective learning; |
| 5. information literacy – the skills to appropriately locate, evaluate and use relevant information; |
| 6. the capacity for enterprise, initiative and creativity; |
| 7. an appreciation of, and respect for, diversity; |
| 8. a capacity to contribute to, and work within, the international community; |
| 9. the skills required for collaborative and multidisciplinary work; |
| 10. an appreciation of, and a responsiveness to, change; |
| 11. a respect for ethical practice and social responsibility; and |
| 12. the skills of effective communication. |

**Stage 3 - Student portfolio support website development**

During late 2004 and early 2005, based on the previous work at UNSW, the *UNSW Portfolio Working Party* developed the *UNSW Student Portfolio Support* website with the anticipation that a university-wide electronic portfolio could be developed in the future. The website contains information on the transitions from high school to university and through the various stages of their degree, why students should create a portfolio, what employers see in graduates, why students should start a portfolio from first year, how to develop a portfolio, and how to use it in job applications (see Figure 1). The immediate aims of the development of the portfolio website was to support the Session 1 2005 delivery of PSYC1021, whereas the long-term and general aims were to help students with the practicalities of constructing a portfolio (either by themselves, as part of university volunteer

experience, or as a course requirement), and to provide resources, advice and examples for lecturers on how a portfolio could be integrated within their course.
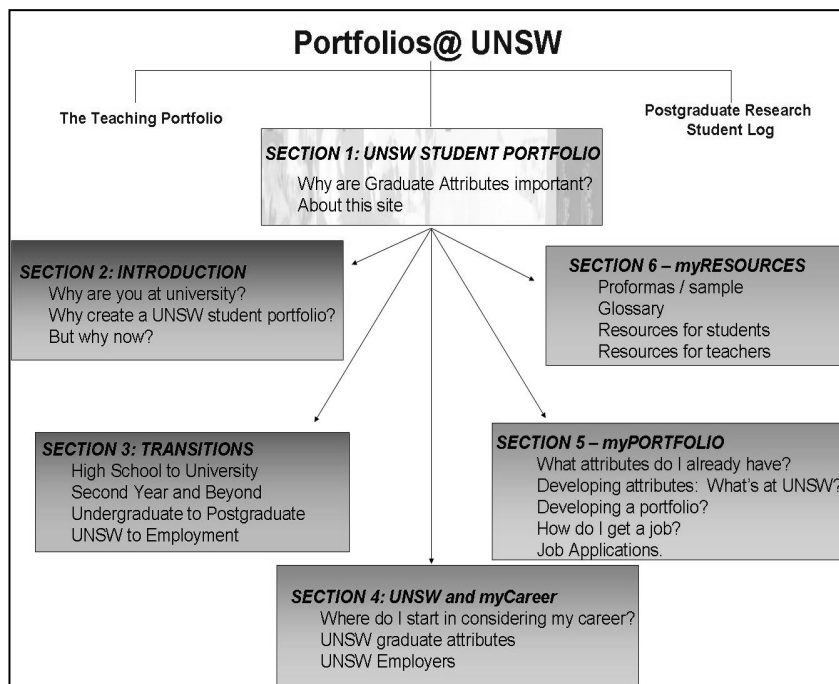


Figure 1. *UNSW Student Portfolios Support Website* site map

**Stage 4 - 2005 - Implementation into the PSYC1021 course**

In the Session 1 2005 implementation (60 students), no major changes were made to the previous learning and teaching strategy. Minor alterations included: a partly student-designed group research project; student use of the newly developed portfolio website; implementation of a revised Portfolio Template on the course *WebCT* site; criteria-based marking of the portfolios with individual feedback forms for each student.

# Results

**Stage 2 - 2004 implementation**

Results of assessment activities and staff/student evaluations indicated that students improved in the targeted skill areas such as critical and creative thinking in psychology (e.g., average mark for experimental design increased from 41% to 63%). The specifically designed and delivered activities assisted in students' awareness of their skills, how to develop those skills, the relevance of the skills to their studies and future life goals, and how to utilise those skills in career advancement. That is, students responded positively to the explicit integration of strategies that assisted them in identifying and planning the development of attributes they saw as meaningful. This was evidenced by the marked improvement in the resumes and cover letters from initial to final submissions. The implementation of the *Portfolio* embedded within the course and contributing to their assessment was more successful (88% of participants submitted) than the initial voluntary, 'unembedded' and unassessed Stage 1 *Portfolio* trials (33% submitted). Students were marked for their contribution to each section of the *Portfolio*; the average overall portfolio mark was 95% (range: 50% to 100%).

**Stage 4 - 2005 implementation**

In the second implementation of the *Portfolio* in PSYC1021, initial indications from assessment tasks and from student and staff evaluations indicate the success of the learning and teaching strategies. For example, in the written communication component, there was an improvement from an average mark of a (high) pass for initial individual submissions to a distinction average for the final group

submissions. In the resume and application letter component there was an improvement from the initial to the final assignments with only 11% of students having been successful for an interview initially (i.e., scored 75% or above) to 33% of students being successful in the final assignment. The median mark for this component was 70% (range: 40% to 90%). For the portfolio component, the average mark was 84% (range: 50% to 100%). In addition, by completing the portfolio it was evident, from their entries, that the students were able to: (a) reflect on their class content and activities in both this and other courses; (b) identify the links between what they were being taught, activities they were undertaking and the graduate attributes they were attaining; (c) identify gaps between what they have and what employers would require in the future, and (d) see the relevance of addressing career development from their first year. For example:

'Completing a graduate attributes portfolio allowed me to begin to document information relating to my career. The evidence of graduate attributes that I have compiled will be of great benefit to me when seeking work (paid and voluntary) in psychology. This exercise also allowed me to become aware of the weaknesses in my portfolio of skills and has resulted in me thinking of ways to improve on these areas. My path to attaining a career in psychology is clearer as a result of finding these solutions. Also, learning to write a cover letter has been useful and should help me attain the future positions that I seek. Finally, the resume exercise has also been of benefit. Learning facts about resumes, such as the fact that my chance of attaining a position increases by approximately 30% when I include a statement about my career objective, has been interesting and will also be helpful when I apply for my next position.' (Diana Matovic - PSYC1021 student 2005)

Such student reflections have informed our critical appraisal of students' ability to identify the skills that they were actually acquiring.

## Conclusion and future directions

By embedding the use of the portfolio within the curriculum and providing the structured development of specific attributes within the course, students increased their awareness of their current level of achievement in each of the graduate attributes and were encouraged to plan how to further develop these attributes. While the process was quite time-consuming for the teaching staff involved, it was seen as worthwhile by the students, and the portfolios support website is now available for university-wide use. In conjunction with general or career-specific Portfolio Templates, these strategies can now be readily implemented within other courses or within alternative contexts, such as student-organisation extra-curricular projects.

For the future success and sustainability of the project, the viability of a university-wide electronic portfolio tool is being investigated as well as modifications to the strategies including (a) focus on the development, documentation and assessment of a subset of attributes within each course, (b) peer evaluation of portfolio entries, (c) implementation of career-related activities other than the writing of resumes and cover letters (e.g., mock interviews), (d) follow-up in senior-year courses, and (e) input from relevant employers via panel sessions, informational interviews and presentations.

A possible future challenge will be implementation within the large first year psychology course Psychology 1A, which has approximately 800 students from over 20 different programs of study. We intend to investigate employing strategies whereby students are introduced to the portfolio support website, and are given a specific assignment that asks them to document academic and non-academic examples in selected areas, such as critical thinking and scepticism.

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