

## ***Developing professional competencies in occupational therapy students: linking student-centred assessment with learning outcomes***

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*Allied health tertiary education programmes including occupational therapy, have a responsibility to develop professional competencies in their students. These competencies extend beyond factual knowledge; rather they require the application of evidence-based knowledge and skills within a given context. Course learning outcomes that reflect the required graduate competencies can assist students to focus their learning. Aligning assessment activities with the learning outcomes enables educators to assess students' achievement of the competencies. Providing opportunities for student-centred assessments that are placed in a real world context can facilitate depth of student learning and develop professional competencies.*

### **Introduction**

The challenge for a professionally oriented tertiary education course such as occupational therapy is to graduate students with the necessary knowledge, skills and professional behaviours to meet standards set by the clinical profession and relevant professional accreditation and registration agencies (OT Australia, 1994). To ensure they fulfil their duty of care to patients and clients in the community, it is not sufficient for occupational therapy graduates to possess only factual knowledge. They need the ability to reason and apply that knowledge to solve problems within professional practice settings.

Therefore students must have a clear understanding of what will be expected of them as practicing therapists. As part of the learning process, these expectations can be articulated through the learning outcomes of the various units of their educational programme. Achievement of learning outcomes that incorporate required professional practice knowledge, skills and professional behaviours, and are aligned to assessment activities, reflect the students' achievement of those competencies.

Alignment of assessment to learning outcomes has been discussed in the literature as a strategy to support student learning (Gibbs & Simpson, 2002; Hall, 2002; Handfield-Jones et al., 2002). Many students currently juggle the demands of study, part-time employment and social relationships. Consequently students become pragmatic and prioritise their learning around assessment activities, often only giving attention to those learning resources and activities that are directly related to assignments or examinations that are to be graded (Gibbs & Simpson, 2002). If this is so, then the importance of aligning the learning outcomes with assessment activities is further highlighted; however many educators find this challenging. This paper describes how a student-centred assessment is aligned with the learning outcomes in one unit to develop professional competencies among occupational therapy students.

### **Levels of understanding within learning outcomes**

Educators have different beliefs and concepts of teaching and learning, and the purpose and value of assessment. Those who are 'teacher-focused' and 'content-oriented' tend to view assessment as a mechanism for students to demonstrate factual knowledge. In contrast, teachers whose approaches are 'learning-oriented' and 'student-directed' use assessment to provide opportunities for students to develop deep levels of understanding (Entwistle, 2000). Regardless of their concept of teaching and learning all educators use assessment as a means of determining the quality of student learning. However students have a different perspective; they use assessment activities to determine

what it is they need to learn (Ramsden, 1992). Quite simply, the belief among many students is that if knowledge and skills are not assessed then they are not important in their learning.

Students will achieve different levels of understanding in their learning, based on individual academic ability, motivation and learning styles. As educators we can anecdotally recount examples of students within each year cohort who excel in all assessment activities with seemingly little effort, and those who, despite lots of time and effort, achieve little more than a passing grade. The relationship between effort and student achievement (quantified by grades) has been studied (Kember, Ng, Tse, Wong, & Pomfret, 1996). Students who have a superficial approach to their learning, coupled with assessments that involve memorisation of facts without application, can lead to lesser achievement of the learning outcomes, regardless of the amount of time spent to complete the assessment tasks. Students' perceptions of what is required should align with the teacher's expectations, and this can be articulated via the assessment activities.

Given individual differences in student abilities exist, it is important that assessment activities are structured so as to encourage students to seek out and apply knowledge and skills in ways that are compatible with their individual learning needs, and also facilitate achievement of the desired learning outcomes. When developing learning outcomes it is essential to specify the content (knowledge and skills), and also be explicit about the level of understanding that is expected of the students (Biggs, 2003).

Demonstrating levels of understanding ranges from mainly descriptive reporting to analytical and critical thought including the formulation of arguments and opinion based on evidence. Harden, Crosby, Davis and Friedman (1999) propose a concentric three-circle model to classify the learning outcomes of medical doctors, and this model is relevant to the professional education of other health professionals, including occupational therapy students. The innermost circle contains learning outcomes that describe the acquisition of fundamental skills and knowledge required to practice medicine, referred to as *what to do*. The middle circle contains learning outcomes related to *how to do it* and address higher level competencies, including appropriate decision making skills, clinical reasoning and evidence-based practice. The outer circle contains *what to be* learning outcomes that describe the ongoing professional and personal development of the health professional. Unless assessment activities are designed to allow students to achieve the highest level of understanding possible, then educators are limiting instead of facilitating student learning.

### **Embedding professional competencies in learning outcomes**

Many graduates of the occupational therapy programme at Curtin University of Technology are employed in the field of 'work injury prevention, management and rehabilitation', where job responsibilities include case management and vocational rehabilitation of injured workers to facilitate a return to work, occupational safety and health (OS&H) coordination, and ergonomics consultation to industry.

To develop the relevant knowledge and skills to carry out these job roles, students complete a unit in occupational health and ergonomics (OT 205 Ergonomics and Health) within the occupational therapy curriculum. The learning outcomes for this unit are written using language that describes the application of evidence-based knowledge to identify and solve problems in a real world context (Table 1).

Accordingly, the students' achievement of these learning outcomes is assessed with a practical, industry-based field project.

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| <ol style="list-style-type: none"><li>i. Select and apply relevant tools, including legislation and industry codes of practice, to identify hazards and assess risks in a workplace; and</li><li>ii. Develop, implement and evaluate the effectiveness of suitable risk control strategies to eliminate or reduce hazards in a workplace.</li></ol> |
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*Table 1. Learning outcomes from OT 205 Ergonomics and Occupational Health*

## **An industry-based field project aligned to the learning outcomes**

The main assessment activity for this ergonomics and occupational health unit is a field project that is student-centred in its design and overtly assesses the occupational therapy students' knowledge of *what to do* and *how to do it*. The 'hands on' nature of the project allows the time that students spend engaged in the process to complete the project to be credited towards the required 1000 hours of fieldwork as mandated by the World Federation of Occupational Therapists, the organisation which accredits the occupational therapy programme at Curtin University.

The field project requires students to conduct an OS&H review of a workplace in order to identify hazards, and assess and control the risks present. The project commences at the beginning of the semester and is due in week 12 of the 14 week semester. Students select a project partner from other students enrolled in the unit. Based on the findings of the OS&H review, the students develop a safety management plan that is presented in a written professional report, which is made available to the workplace after it has been marked.

Students are responsible for locating a suitable workplace in which to conduct the review, and for negotiating written approval for the project with the workplace owner or senior management. Students develop their own schedules for conducting site visits, collecting observational data, and speaking with employees in conjunction with the availabilities of the workplace.

Through their weekly lecture series and assigned readings, students are provided with a framework for the OS&H risk management process. Rather than being prescriptive and limiting, lectures can facilitate self-directed learning among students by providing a context and scope for background information (Murphy, 2000). For example, students are introduced to local OS&H legislation including the key responsibilities of employers and employees to maintain safety and health at the workplace. Each week topics related to the unit are presented in both lecture format and in practical laboratory activities. Learning resources including on-line lecture material, audiovisual resources, and recommended readings are provided at the commencement of the semester to allow students to access this information as early as is required to assist them in completing their field project.

### *Hazard identification*

Students can choose how they collect information on hazards at the workplace; including direct observation and note taking, photographic and video recording, review of past accident and incident reports, interview with employees and supervisors, the use of checklists and comparison to statutory guidelines including regulations, codes of practice and guidance notes.

The lecturer and tutors provide clear links between the content of the weekly learning activities in the classroom and the field project outcomes, however, given the wide range of workplaces and possible hazards students direct much of their own learning to complete the project. Some students will become skilled in identifying manual handling hazards and developing control measures based on codes of practice, while others will focus on risks for cumulative trauma disorders such as repetitive keyboard and mouse work in office environments.

### *Risk assessment*

Once hazards have been identified, students determine the degree of risk associated with each hazard. The risk is based on the possible consequences (e.g. injury, disease or damage) of the hazard and the likelihood that the injury or damage will occur. This risk assessment involves analysis of the information obtained and assignment of a risk rating using an industry accepted risk assessment matrix (Standards Australia, 1999). The students collaborate with the employer and employees to complete this phase, using professional communication and negotiation skills.

### *Risk control*

Recommendations for the control of the identified hazards are developed by the students using evidence from statutory guidelines and contemporary published scientific literature. Alternative solutions are proposed using a hierarchy of most effective to least effective control measures. Students determine if the control measures will eliminate or reduce workers' exposure to the hazards, and ensure that no new hazards have been created. Once again this process requires the students to communicate and negotiate with the workplace to determine the feasibility of each of the proposed

control measures.

A safety management plan is developed that summarises the hazards, risk rating and control options; the time frame for implementation, approximate costing, who is responsible for implementation; and review of the controls and a proposed time frame for implementation and review.

## **Using a rubric to grade the report**

The final written report is assessed by either the lecturer or one of the tutors in the unit and although students work in pairs to conduct the review, the final report has a joint component and individual chapters. Students must work with their partner to negotiate allocation of the workload and sharing of resources. The students author individual chapters of their report that include the risk management process for each hazard identified.

The report is graded using a rubric with grade related descriptors which is given to the students at the commencement of the project. Students must clearly demonstrate evidence of the hazards or other OS&H concerns in their report; either through written text or photographs. Some students have supplemented their written work with videotaped footage of the worksite that is included as an appendix. The subsequent risk assessment and risk control strategies must be clearly linked to the hazards that are shown, and based on evidence from the literature or statutory documents. Reports in which basic aspects are addressed, that demonstrate mainly descriptive skills, and where application is based on limited evidence are given a pass (50-59%). In contrast, a report in which all aspects are researched and addressed in depth, that demonstrates depth of analysis and interpretation and innovative application, and is based on strong evidence is awarded a high distinction (80+%). For example, the student has explained how the identified hazard constitutes a breach of legislative guidelines and/or presents a case for a damages claim at common law; the consequence of injury pertaining to the hazard has been documented as being a health concern within the literature and the suggested strategies to control the risk are based on evidence-based practice.

Of the total 40 marks for this assessment, 10 marks are given as a combined mark for the executive summary, introduction to the organisation and worker demographics, safety management plan and general organisation of the final report. The remaining 30 marks are assigned to each student based on their individual contribution to the report as demonstrated in the individually authored chapters. This approach to the allocation of marks ensures that if one student contributes little to the project then their partner is not penalised by a lesser grade, and also provides the opportunity for students to excel at an individual level.

Additionally a senior management representative of the workplace completes an assessment of the students' professional behaviours and the perceived value of the OS&H review to their organisation. The workplace representative does not provide an actual mark towards the students' final grade; however this external assessment serves to validate the students' work in a real world context and provides feedback on their professional communication and negotiation skills that are relevant not just in OS&H consultancy but across all fields of clinical practice.

## **Student self-evaluation of learning objectives**

To incorporate assessment activities that relate to the *what to be* outcomes (Harden, Crosby, Davis, & Friedman, 1999) students are required to develop 4-6 personal learning objectives for the skills and professional behaviours they wished to develop during their field project. These individual learning objectives are a component of the students' formal fieldwork activities and are included in an appendix to the report. Past examples of personal learning objectives have included:

- develop my communication skills to develop a professional relationship with the employer and employees at the worksite
- understand the role and contribution of occupational therapists within an occupational safety and health context.
- improve clinical observation skills to perform the hazard identification
- improve my time management skills to get the project completed on time

For each learning objective, students identify what activities and resources they will use to achieve their personal

learning objectives. Upon completion of the field project, students reflect on their experience and evaluate their achievement of the personal objectives, providing evidence of how the goals had been met or if they require further developmental opportunities. These reflections are included as a written addendum to their field reports and reviewed by the teaching staff marking the assignment, but not made available to the workplace.

## **Success in aligning assessment and learning outcomes**

Over the past five years this fieldwork project has become an integral component of this unit in the occupational therapy programme at Curtin University. Although there has not been a formal evaluation of the process that has aligned the learning outcomes to the assessment activities, there is evidence that graduates from the occupational therapy programme at Curtin University demonstrate achievement of the stated learning outcomes of the OT 205 Ergonomics and Occupational Health unit. Third and fourth year students who are placed on clinical fieldwork placements in the injury prevention field consistently receive positive feedback from their clinical supervisors regarding their knowledge and application of the OS&H risk management process.

This is further validated by the high numbers of Curtin University occupational therapy graduates who are offered employment in the injury prevention and injury management field without having to complete additional training in the area. Graduates of the occupational therapy programme have provided feedback through focus groups that this particular project provided them with the knowledge, skills and confidence to work in industry as OS&H consultants and injury management coordinators.

## **Conclusion**

Alignment of assessment activities with learning outcomes has been used to facilitate the knowledge, skills and behaviours required for successful professional practice among occupational therapy students. As they engage in this field project the students realise that what they are learning is a process that teaches them how to problem solve in a real world context. Successful completion of the field project will provide them with the skills and confidence to assess any work environment, and for future professional education and development, including knowing how to access pertinent statutory regulations, industry guidelines and contemporary research on the topic. Linking assessment to learning outcomes is relevant in a professionally oriented tertiary education course such as occupational therapy, but is suitable for a wide range of disciplines that focus on professional practice skill development.

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