

Assessing Capstone Projects and Dissertations

Mick Healey, Emeritus Professor, University of Gloucestershire

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Introduction

The assessment of capstone projects and dissertations (CaPDs) is critical not only because they form a major piece of work for the students, but also because students are, in most cases, expected to demonstrate achievement of many of the key programme learning outcomes as a culminating pinnacle of their studies. Comparability of standards between different forms of CaPD is an important issue. As accountability pressures grow, the CaPDs are increasingly seen as an important way to assess the learning experience of students in their major or degree programme (Jones et al 2012). In Sweden for example it is the only piece of student work that is examined by the external quality and standards panel (SNAHE 2011), while in Australia it is recognised that capstone projects can 'provide a robust vehicle for assessing the professional capabilities of individual students who are about to graduate, as well as provide evidence of the effectiveness and standards of a programme of study for accreditation' (Rasul et al. 2009, 209).

Diversifying the form of assessment

Diversifying CaPDs means considering a wider range of assessment tasks that can enable students to develop their own interests and engage more fully with the learning process (Biggs and Tang, 2011). As Bloxham and Boyd (2007, 34) argue: "We need an assessment process which more closely judges the students' capacity to act as well as to express their factual and conceptual knowledge of the topic." Assessment should be integral and not separate from learning. In providing students with a choice as to how they



undertake their CAPD and a degree of flexibility in how it is assessed, students should gain greater ownership of the process. This can be enhanced by allowing students to showcase their work in a variety of ways including undergraduate conferences, end-of-year degree shows, presentations to colleagues, academics and professionals, production of documentaries and preparing consultancy reports, as well as, or in some cases instead of, a written thesis.

Experiencing a variety of different learning approaches through their degree programmes helps students to gain what they will require in future roles in society. When designing CAPDs,

therefore, it is crucial to consider new, different or varied forms of assessment that can enhance the student learning experience. It can, for example, "be useful to consider the balance between generic educationally-focused learning and work-based/ professionally-focused learning" (Macquarie University 2009, 4). Furthermore it may be beneficial to students to offer a range of options, which provide them with an opportunity to develop knowledge and key skills in their area of interest, rather than trying to go for a one-size-fits-all. Students in biosciences at the University of Plymouth (*case example one*) are offered a choice of undertaking either a traditional dissertation or a group project including individual analysis and write-up supplemented by an individual research proposal. The University of Greenwich's Design dissertation is more specific in its assessment outputs, but the choice remains with the student regarding what to research and produce.



Self and peer assessment are other ways of diversifying the assessment of CaPDs. Self assessment is often used to encourage students to reflect on their work. This may involve keeping a reflective diary or blog as part of the process of undertaking the project. For example, Media students at Swinburne University of Technology write a 1,000 word reflective self assessment. Peer assessment, in contrast, is most commonly used where projects are undertaken in groups. There is pressure from students, particularly in the final year, for summative marks to represent the work of individuals. Sometimes this may mean asking for individual write-ups of projects. Alternatively there are well-developed ways of using peer assessment to redistribute group marks between team members. Arguably only the members of the group can reasonably make judgements about the quality of the contribution of other team members to various group activities. For instance, both peer and self assessment were used in an environmental issues capstone project at the University of Gloucestershire (*case example two*) to redistribute the mark given to

the group project among team members (Healey and Addis 2004).

Assuring standards

Designing different approaches to assessing CaPD may help meet a range of students' needs, but it may also raise concerns about maintaining academic standards. In developing CaPD it is essential to ensure that academic standards are maintained through the assessment process and there is comparability between different forms of CaPD.

Assurance of standards of CaPDs can be achieved in the design of the programme and learning outcomes and the design of assessment criteria. Assurance of standards in higher education in Hong Kong is achieved through institutions' own internal procedures, including arrangements for external examining, and periodic audits undertaken by the Quality Assurance Council (QAC). Mechanisms in place are expected to ensure that "learning outcomes are linked to assessment methods and that students have appropriate opportunities to demonstrate their achievement of learning outcomes" (*QAC Audit Manual: Second Audit Cycle*, p .29).

Where options are offered to students, the clarity of the learning outcomes, assessment criteria and detailed module guides are key in ensuring standards. Although the outputs and nature of the projects can vary, if the expectations – in terms of student input and the nature of the research and inquiry – are equivalent, then academic standards should be assured. The University of Leeds' bioscience programme demonstrates how a range of different projects can be offered while maintaining academic standards (*case example four*).

Where a choice of projects is allowed, using identical assessment criteria is a common way to ensure comparability of standards. This is the approach in the Database Professional MSc at Sheffield Hallam University, where students may submit either a traditional report or a portfolio of artefacts (the latter typically in the form of a website with hyperlinks to multimedia resources). In order to maintain equity and transparency between the two options, the marking criteria are identical.

In some circumstances, however, using different forms of assessment for different types of project is appropriate, as in the case of the inter-disciplinary Letters to Africa and Pipeline Projects at the University of Central Lancashire (*case example four*).

Another way to build in consistency of standards and to enhance the quality of work produced is to formalise both formative and summative feedback. At

Queens University Belfast, students submitted three interim progress reports for their dissertations, on each of which staff gave written and oral feedback (Heylings and Tariq 2001). Podcasts have also been used to provide feedback on projects (Hill et al. 2012). Supervisors of third year Psychology student research projects at Liverpool Hope University used the commentary on their supervisees' second year projects to give guidance to the student on how to develop their new project (O'Siochru 2008).

Assessment criteria

Whether undertaking a traditional dissertation or a more innovative or creative kind of CaPD, the assessment criteria tend to be similar, even though the weightings may vary. In some disciplines, particularly in media and art and design subjects, a distinction is made between the criteria used to assess the outcome and the process of producing it. In these subjects students are often asked to reflect on their own creative work in relation to assessment criteria and their adopted approach and form. Here the concern is with assessing knowledge,

understanding and ability to contextualise their work. Table 1 presents a composite of criteria used in dissertations in geography and business.

Variation in marking is often higher for CaPDs than for other pieces of work, which is why double-marking is essential (Webster et al. 2001). Greater consistency can be encouraged through careful design of assessment criteria and marking procedures that are regularly discussed within teaching teams, so as to gain a shared understanding of meanings and application while allowing flexibility in their implementation, to prevent the criteria stifling creativity (Pathirage et al. 2007). Identifying expected achievements against the assessment criteria should allow for the differences in the degree of autonomy students have in independent, group and co-researching models of CAPD (Hill et al. 2011). Nonetheless, it is just as important for students to understand the assessment criteria as it is for markers. Asking students to assess example projects or parts of projects and then discuss what they see as the strengths and weaknesses is an effective way for them to develop an understanding of the criteria (Rust et al. 2003).

Table 1: Assessment Criteria for Honours Dissertations in Geography and Business in the UK

<p>Fundamentals of the dissertation</p> <ul style="list-style-type: none"> • Evidence of originality and perceptiveness • Clarity of aims and topic identification • Evidence of reading and awareness of literature • Quality of research design and methodology • Awareness of any shortcomings of design and methodology • Quality of data • Presentation, analysis, evaluation, synthesis and interpretation of data • Conceptual awareness and theoretical understanding • Sustained argument • Logical organisation • Findings and conclusions justified and contextualised in the literature • Where appropriate, improvements or further developments of study • Recommendations for the topic and research process <p>Presentation</p> <ul style="list-style-type: none"> • Standard of presentation, use of English language and structure • Use of complex academic terminology • Correct use of referencing conventions 	<ul style="list-style-type: none"> • Coherent integration of illustrative materials • Clarity of communication and ideas <p>Administrative</p> <ul style="list-style-type: none"> • Conduct including engagement with administrative processes • Assessment of risks and ethical considerations • Fulfilling requirements <p>Independence</p> <ul style="list-style-type: none"> • Ability to work independently • Demonstration of personal initiative and responsibility • Conduct and competence during practical work • Cognitive, intellectual, practical and personal skills • Appropriate and correct use of ICT applications • Reflective, critically evaluating own performance and personal development <p>The 'X Factor'</p> <ul style="list-style-type: none"> • Demonstrable critical ability • Creative thinking • Flair and innovation
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Assessing the development of project skills

Developing project skills and gaining applied experiences are important aspects of undertaking a CAPD. The research skills framework developed at the University of Adelaide provides a useful tool for designing the skills expectations of CaPD (Willison and O'Regan 2007). There is evidence that its use 'developed a variety of discipline-specific research skills and that these skills were useful for subsequent studies and especially for employment' (Willison 2012, p. 905). Evidence that well-designed CaPD help develop research skills and graduate capabilities also comes from a study of the development of two capstone subjects in physiology at La Trobe University (Julien et al. 2012). Final grades were found to be significantly higher in 2011 than in the previous two years. However, reported staff workloads had increased. Another way to encourage students to reflect on their skills development is to build in a requirement that students keep a project log and undertake a self-evaluation of skills (Heylings and Tariq 2001).

Practical assessment can occur by 'showcasing' it in the workplace or laboratory. The project Nurturing Biochemical Research Skills at Queensland University of Technology (QUT), for example, combines group-

work, laboratory skills and practical assessment (*case example five*). Diversifying assignments can offer greater opportunities to match different student needs. In a second such example from QUT, students undertaking a virtual Law placement are assessed through their submission of a placement application, their contribution to online discussion, the project itself, and an ePortfolio reflection on their experiences (*see case example six*).

Practical experience can be incorporated into CaPD not just through engaging industry professionals, as in the previous example, but also by involving community organisations. An interesting instance of how this can be assessed comes from the Liverpool Institute for the Performing Arts, where 80% of marks go to a student conference involving industry experts and the criteria for the remaining 20% is determined by the students themselves (*see case example seven*).

A further example of a final-year project, this time involving business students at Bradford University, illustrates how the development of employability skills may be assessed (*case example eight*). The project engaged students in teams in raising money for charities. Assessment was through a formal presentation, involving employers as well as tutors, and documentation of the team project processes.

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