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Getting it Right: The Case for Supervisors Assessing Process in Capstone Projects*

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Capstone projects represent the culmination of an undergraduate engineering degree and are typically the last checkpoint measure before students graduate and enter the engineering profession. In Australia there is a longstanding interest in and commitment to developing quality capstone experiences. A national study into the supervision and assessment of capstone projects has determined that whilst there is relative consistency in terms of what project tasks are set and assessed, there is not comparable consistency in how these tasks or assignments are marked. Two interconnected areas of assessing process and the role of the supervisor in marking are identified as contentious. This paper presents some findings of a national case study and concludes that whilst further investigation is warranted, assessing process as well as project products is valuable as is the need for greater acceptance of project supervisors as capable of making informed, professional judgments when marking significant project work.

Keywords: projects; assessment; marking; process; subjectivity

1. Introduction

Getting assessment right in capstone project courses in engineering education programs is critical not only in terms of ensuring students have met course outcomes, but because the projects themselves are often indicators of wider requirements. In Australian universities current wider requirements include meeting AQF (Australian Qualifications Framework) research capabilities and satisfying Threshold Learning Outcomes to be used by TEQSA (Tertiary Education Quality Standards Agency) as well as Stage 1 Competencies for Engineers Australia—the national course accreditation and professional body for registered engineers. In addition, many universities in Australia take project courses as evidence of achievement of graduate attributes and/or generic skills. Assessment of project or capstone courses is typically a final indication of the student's readiness for graduation and entry into the engineering profession. It is important to get both the tasks and assessment processes right.

For the purposes of this paper, the term 'assessment' is taken to mean both the gathering of information about student learning and the interpretation of that information. Thus a supervisor or mentor of a capstone project can assess tasks and submissions and determine individual and overall grades of that work. Elsewhere in the literature, a distinction is made between the gathering of data—seen as measurement—and the associated interpretative activity such as grading [1]. In such instances the distinction is thus made between 'assessment' and 'evaluation'. However, because this paper explores the complexities of the role of the supervisor in assessment and his or her ability to make accurate decisions about learning that has taken place, it is most appropriate to use just the single term assessment and acknowledge that within assessment, judgment or evaluation are inextricably linked.

Additionally, when discussing assessment of final year or capstone projects, we are necessarily talking about assessment as authentic—as an opportunity where students can meaningfully engage in activity that approximates work undertaken in their discipline [2]. It is also a place where formative feedback is provided to support learning throughout the process of undertaking project work, and summative decisions are made about overall grades on particular submissions or performances such as those seen in oral presentations. This paper provides a brief description of the final year or capstone project before presenting the details of a large Australian study undertaken to explore the assessment and supervision of final year engineering projects. It outlines some of the wider findings before presenting the vexing and unresolved problems of what process is, how (and whether) to assess process and the role of the supervisor in marking. The problems are highlighted by coordinators of capstone subjects who were interviewed as

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part of the project. The paper concludes that process should indeed be assessed together with supervisor involvement marking.

1.1 Final year engineering projects

A Final Year Engineering Project (FYEP) or capstone project is a unique undertaking as students work largely in self- directed ways whether in groups or as individuals and are expected to embark on significant assessment tasks without structured support [3].The project often represents a culmination of learning and incorporates both technical and professional skills and knowledge. The student is not entirely unsupported; however, it is likely that they have not previously encountered a subject with assessment requirements such as those associated with the final year or capstone project. Students are typically assigned (or nominate) an academic supervisor or mentor who advises them throughout their project and assessment submissions. The supervision relationship often spans a year, through planning, implementation and presentation phases. This relationship holds particular implications for assessment and is seen to manifest at the point of marking work. Where students conduct projects in a workplace, they might also have what is called an industry supervisor who mentors them. In Australian universities, there is always an academic supervisor (from within the university) who will mentor alongside the industry supervisor. Subject coordinators hold overall responsibilities for designing the subject and its assessments and will also be responsible for support of project supervisors and moderation grades.

The type of project undertaken in an engineering capstone typically varies within and across institutions with students either working individually on single projects or in groups on multidisciplinary projects; they might initiate their own projects or be assigned them. Where students work on group projects, they often make individual assessment submissions. Where group submissions are made (and this varies within and between universities), individuals are expected to identify their specific contributions. All students are expected to demonstrate all subject outcomes. It is important to note that in Australia, in most cases, the project supervisor or mentor holds both formative and summative assessment responsibilities. That is, they provide feedback on planning and reporting submissions as well as a grade for the overall performance. In only a couple of instances will the supervisor hold formative assessment responsibilities and then the coordinator or another academic, grades the final report or thesis.

The projects themselves can be experimental, design, or research based and may be aligned with institutional or supervisor research activity or be student generated. Others may be based in industry or workplace settings where students complete a project as part of an internship. The variation in itself is not necessarily a problem providing particular outcomes and standards are being demonstrated and assessed. The final year project has long been a strong feature of engineering programs and whilst there is great variation in the types of projects undertaken there is some commonality in how projects are structured—following research or design principles with the ultimate goal of students integrating and extending their learning and demonstrating a preparedness to graduate to go on to become a professional engineer.

1.2 Assessment of final year projects

The literature shows that there is a variety of ways in which students are assessed in their final year projects. Assessment of projects can involve the full range of tools including self-assessment, peer assessment, assessment of process and product, and formative and summative assessment [4]. Typical product submissions for assessment include proposals, plans, literature reviews, and final reports. Oral presentations such as those seen in seminars or exhibitions are also common. Since the project course is usually extended and typically culminates in a final submission, there is often an emphasis on the place and value of formative assessment [5]. Sometimes, portfolios and e- portfolios as means for recording and reflecting on project learning are advocated as effective assessment tools [6]. The complexity around the tasks set for students in these courses points to the need for consistency of practices and an assurance that project courses meet accreditation requirements. The type of project might vary, and the associated assessment tasks or submissions. Getting assessment 'right' in terms of quality and equity is sometimes addressed by making tasks and their marking criteria explicit to students. Marking rubrics have been widely adopted in this process.

There is some debate around the use of rubrics for marking however and claims that they ensure rigor are contested. On the one hand, there is perhaps a rightly argued provision of 'clearly articulated levels of proficiency in assessment criteria' [7, p. 2] However, Sadler identifies that preset criteria is problematic and indeterminate and suggests holistic marking be explored as a possible alternative. Indeed, he goes on to suggest that even where preset criteria are used, some markers will still mark holistically and then try to work backwards to have criteria match or reflect their overall judgment [8]. Similarly, in acknowledging the problematic nature of rubric grading, Littlefair and

Gossman [9] suggest some of the contention in such marking stems from the subjectivity to be found in the supervisor student relationship. This is at the heart of the marking debate and will be discussed further below.

1.3 Assessment of FYEPs: an Australian context

A large research project with seven partner universities was conducted investigating best practice for capstone or FYEPs. The project, entitled Assessing Final Year Engineering Projects (FYEPs): Ensuring Learning and Teaching Standards and Australian Qualification Framework (AQF8) Outcomes, was funded by the Australian government's Office for Learning and Teaching. The research comprised two phases: a mapping and review of existing assessment and supervision practices followed by the development and promotion of guidelines to assist engineering disciplines to improve FYEP assessment. It addressed the need that although Australia has a strong history of developing FYEPs as capstone courses in engineering education, there is no national approach to assessment or supervision [10].

Adopting a case study methodology, the project drew on several sources of qualitative data: National and international literature, documentation such as course profiles (unit outlines), assessment rubrics and marking schedules and; semi-structured interviews with course coordinators. Data was also captured in the form of feedback at a series of national workshops. A summary of the data sources can be seen in Table 1.

This paper focuses on one aspect of the wider study—what academics had to say about assessment. The interview data in particular offered rich insights into the practices accompanying the described assessment and enabled coordinators to articulate strengths and challenges. The findings highlighted that university coordinators of final year project courses are reflective and committed to improved practice with many course coordinators commenting on changes and improvements made to capstone courses over time. Four main, interrelated areas themes emerged from the data overall– intended outcomes, curriculum, supervision and assessment and within these a number of related topics and issues. This paper will focus on the area of assessment and what the findings to date illuminate, in particular, about the place of assessing process and the role of the supervisor in marking.

2. Methodology

Semi-structured interviews were conducted with sixteen individual coordinators of capstone project courses across a range of ten Australian universities. The wider project team members approached coordinators from their own institutions as well as those with whom they were connected. The research officer conducted all interviews which ranged in length from 30 to 50 minutes. All interviews were transcribed. As mentioned, these comprised one part of a wider data set. The interviews allowed participants to explain their documentation and their practices, and in particular to articulate the strengths and challenges of assessment and supervision. Interviewees were prompted with questions such as:

- Tell me about some of the challenges you face with your final year project course.
- What do you see as some of the strengths of the way you do things?
- How are supervisors involved in the assessment and why do you do things this way?

The interview data supplemented and explicated the extensive documentary data mentioned earlier. All documentary and interview data were analyzed thematically. Initially deductive coding took place with themes preset by the research proposal. Inductive coding allowed for consideration of uncoded but poignant data and for a more fine grained approach to analysis (Table 2). Coding was conducted using NVivo© software.

3. Results

How students are assessed varies across (and often within) institutions. Such variation might be expected given that the nature of the projects varies considerably—from design and implement to more research focused projects and from industry sponsored projects to internal university projects. Similarly, the outcomes and standards, against which students are assessed also varies with some universities assessing against Engineers Australia

Table 1. Data Collection

Data type	Responses	Universities providing this data
Documents (profiles, rubrics, guides, teaching resources)	n > 100	n = 15
Semi-structured interviews with coordinators	n = 16	n = 10
Feedback from national workshops	Workshops n = 8 Total participants n = 102	n = 26

Table 2. Sample of Data Coding Categories

Coding category	Number of sources (the number of artifacts, interviewees or workshop participant surveys where this data category appeared at least once)	Number of references (The total number of times a particular data category was identified, including multiple instances within the same artifact/interview/survey)
AQF outcomes/EA competencies	26	159
Assessment	33	139
Challenges	15	51
Curriculum	23	47
Definition of project purpose	68	104
Issues for supervisors	29	99
Preparation for enrolment	53	63
Project skills	25	47
Project selection	23	48
Research outcomes (of project)	12	26
Research skills	41	78
Self-directed learning	45	66
Support for students	19	47
Types of projects	19	31

Stage 1 Competencies, others graduate attributes and course-specific outcomes. It should be noted that by 2015 all Australian universities wishing to teach embedded honours as their undergraduate engineering degree will need to have their programs reflect Australian Qualification Framework level 8 outcomes.

There are a number of commonalities across institutions with many requiring students to submit a report or thesis at the end of their final semester and this is inclusive of literature review, methodology and findings sections. In most cases the report or thesis is the most heavily weighted assessment component, comprising between 35 and 100% of the final grade. Having the thesis as a final product and with a heavy weighting demonstrates that there is a preference for viewing a written product or physical artefact as the strongest indicator of meeting course outcomes. Indeed rather than the project itself being the object of assessment or student development of skills within the project implementation, the process undertaken is assumed to be captured in the final report.

Many rubrics for the thesis or final report included criteria for technical content knowledge as well as academic writing skills. However, the documentation from four of the 15 universities showed that in some instances, students are also assessed on project execution, overall competency, performance and/or professional conduct. In one case, 'project assessment' or 'quality project execution' was seen as 'initiative, diligence and originality'. This suggests that some attention is given explicitly to assessment of process. In this latter case, the weighting for execution was equal to the final report. Other times, process seems to be marked implicitly, as aspects of the supervision relationship. The interview data (presented below) revealed that in practice, some supervisors allow their knowledge of the students' effort and progress to influence the overall grade. In some cases this is seen as an undesirable aspect of bias and in others a reasonable acknowledgment of supervisor judgment.

There is no agreement amongst supervisors about what is actually assessed or should be, or even by whom. Some universities allow supervisors to mark all assessment pieces, including the thesis. Others give heavier weighting to a second marker who is not the supervisor and two universities in our study have moved away from the supervisor marking the thesis altogether and show examination practices more consistent with higher degree programs. At one university, supervisors had previously allocated a mark on "how good the student was", implying that process and personal skills were assessed. However, the practice was abandoned when the marks consistently mirrored proportionally what supervisors were giving the thesis. The degree to which a supervisor is well positioned to mark a thesis of a student they have worked with is contentious, as one coordinator commented:

> *It's interesting that we seem to making a point about supervisors assessing the project themselves as an owner and yet they are quite capable of assessing everything else up that point. Why is this final year project so wonderful that they can't make a good, you know, decision on that sort of thing and so I think, I personally think that the supervisor should be involved in it. . . You're OK all the way up to the report but then you can't do it anymore . . .* (Coordinator A)

The following quote from one interview participant encapsulates further the complexities around fairness in marking but also shows the emphasis of his institution on process over product. The interviewee is commenting on whether the supervisor of the project should be on the assessment panel for the oral presentation. In addition the comment shows

the importance of reflection in this process—a skill not usually associated with engineering programs [7].

> *Some semesters we say 'no, no. The supervisor shouldn't be part of the panel because he's biased' but then we say 'no, no. The supervisor knows very well what's going on so he should be in the panel.' . . . I think the more people get involved in the assessment the better . . . So my feeling is yes the supervisor should be part of the assessing because I make a huge emphasis to students what we assess is the process. We don't care what you are doing really. I mean I am very cynical and I tell them, tell it like this to make an impact: '"We don't care what you are doing, what we care is how you do it . . . How you make your decisions, how you make your assumptions, how you select components, what do you see as constraints, how do you plan, how do you follow your plan, how do you reflect on your plan, how you can say 'oh, I underestimated this activity' or 'I thought I had to do this.'" You know things like that. So that process, I think only the supervisor can really speak about, because in a 15 minute oral presentation it is very difficult to really convey all that process. So definitely, I think it is crucial that the supervisor is involved in that first assessment of the project.* (Coordinator B)

Conversely, at another institution, the importance of the final product is emphasized, with the argument that only the 'product' in the form of the thesis is available to accrediting authorities so that the process—or insider supervisor knowledge—is not considered important, though the participant acknowledges that this does conflict the team. In other instances, this insider supervisor knowledge is referred to as supervisor bias.

> *Actually, coming back to the challenges, probably that's one of the challenges that we've faced, the fact that sometimes . . . particularly with the implementation part we see the thesis as the lasting artefact. So when Engineers Australia comes to accredit us, that's what they see. That's what we show them and that's what they see. So they can't see the other bits. So we are always a little bit conflicted, I think, about the difference between the fact that thesis is the artefact and it's the lasting artefact of the student's work and yet sometimes there are other things that may impact on the grade you want to give the student and that can be a little bit of a tension sometimes I think.* (Coordinator C)

This is similar to the following:

> *Well, basically, we think the supervisor may sometimes be biased because they know. We want the people just to look at the report itself instead of how they did the project. I mean the supervisor has other components (that they mark) so he or she knows how good the student is regarding project management and how much effort they put in, but we actually want the second assessor to read the project independently without knowing anything about how they did the project and things. So we think we should give the second assessor higher weight.* (Coordinator D)

In one institution, supervisor bias was seen in the following statement but mitigated at a moderation meeting:

> *I mean we have typically, you see in the moderation that some supervisor will mark high distinctions because the student's been a high performing student but the end result is that the student has put in a lousy report and we'll moderate it down . . .* (Coordinator E)

Conversely, and curiously, the following supervisor—from an institution where no second marking or moderation took place, suggested that effort be considered: *it should be fair at the end and the mark should be related to effort that the student put (in)* . . . but also commented that standardizing marking across supervisors was tricky:

> *The marking for instance is depending (sic) on the supervisor . . . some students can get lucky with their supervisor. Even too tough (sic) or just you know quickly gives some marks and in other cases some supervisors are tough and even though the student may do a good job they may not receive a high mark.* (Coordinator F)

This is consistent with a comment made by another coordinator, also in an institution where marking of the final report was out of the hands of the supervisor:

> *We have found out that there are in some cases, significant differences in marks. Supervisors tend to become very generous in some cases. In some cases where there is a problem between the student and the supervisor, they sort of mark it differently.* (Coordinator G)

4. Discussion

The data suggest that academics working with students on final year project courses grapple with complex assessment issues like supervisor bias and how to assess process. Coordinators can articulate some of these complexities but seem largely unable to resolve them and either opt for adjusting marks in the process of moderation or remove the supervisor from the assessment process altogether. Coordinators acknowledge that the supervisor has knowledge about the student's work which may not be reflected in the 'products' submitted (an oral presentation or a thesis) and recognize this as a potential dilemma. In the first two instances above (coordinators A and B) the supervisor knowledge is viewed as valuable and should contribute to the marking process. The third (coordinator C) is a bit more ambivalent, suggesting that what outsiders see should be completely defensible and therefore more tightly focused on product. Other interviews revealed that supervisor knowledge was thought to bias marking and so academics other than the student's supervisor were assigned to marking major assessment pieces. Such uncertainty about the role of the supervisor in the marking process points to the lack of consistency about what is marked: is it the project?

The artefacts of the projects? The process? The implementation? The following discussion premises three ideas all of which require a new conceptualization of subjectivity. Firstly, academics, as qualified engineers, know, tacitly, good engineering when they see it but might not be able to identify it by reading about it. Secondly, supervisors are uniquely positioned to assess project process, and thirdly, supervisors should assess both process and product. Each of these premises is now discussed in turn.

4.1 Premise 1: Engineers and supervisors use tacit knowledge when assessing projects

Arguably, experienced engineers have tacit knowledge and skills about quality engineering projects. These have been developed and honed through many cycles of practice and reflection. These skills will be technical, professional and personal. Interestingly, employers tell educational institutions that communication and teamwork skills, enthusiasm to learn are favored over technical skills in graduates. When reading students' final year reports, it is likely that supervisors draw on this tacit knowledge. That is, they simultaneously draw on what they know about engineering, what they have seen the student do as he/she undertook the project as well as what they are reading in a final report or thesis. It might be that they can't articulate it, but our data suggests that there is a strong recognition of the notion that supervisors use tacit knowledge when assessing.

In some instances, it could be argued that effort and process are assessed in the early stages of student projects where progress or planning pieces are submitted as assessment items. These include progress pieces such as reports and seminars as well as proposals and risk assessments. Such progress pieces are consistent with the literature that shows the importance of formative assessment in fostering student learning [5]. What remains unresolved however is the extent to which this early assessment and feedback shapes the supervisor's marking of the final report or thesis. What is clear is that knowledge of the student and their progress, and the associated student-supervisor relationship manifests in the marking of products such as final reports or theses even where elaborate and detailed rubrics exist. This seems to support Sadler's contention that some academics mark holistically even where analytic tools are provided.

Further, it is difficult to assess the extent to which process is captured in a written document. Process attributes are highlighted in accreditation documentation (e.g. EA stage 1 competencies [11]) as well as educational institution materials such as graduate attributes. Such skills can be a key differentiator in employability and (arguably) career success. It is possible that an overemphasis on written documents such as final reports or theses places too much emphasis on the representation of technical skills and knowledge. It is acknowledged that it is possible to represent some processes in written text, but not all processes might be best or accurately represented in this way. New ways of thinking about how process might be best assessed are needed.

4.2 Premise 2: Supervisors are uniquely positioned to assess project process

If it is accepted that process is important, and both our data and wider accreditation documentation suggest it is, then supervisors are in a perfect position to assess how students have undertaken their project. A few institutions include project assessment criteria to try and capture process skills when they seek evidence of execution, professional conduct, enthusiasm, perseverance, thoroughness, thinking process, effort. Precisely what is meant by these terms is unclear—but they could be components of tacit process skills. More importantly, rather than removing the supervisor from the assessment process, he/she might be the only one in a position to accurately determine the extent to which any of these skills have been demonstrated.

It could be argued that any academic or supervisor could mark technical knowledge and skills such as those embodied in a written document, but only someone who has observed and communicated closely with a student throughout his/her project could or should comment on personal and professional skills and processes. The insider knowledge that the supervisor holds has been developed as a result of the student-supervisor relationship which has been built over a period of time. Of course, this can work to the students' advantage or disadvantage (as noted by coordinators F and G) so there needs to be a clearly stated set of skills that all supervisors look to assess and this should happen in transparent and rigorous ways. We argue for broad acceptance of the insider knowledge a supervisor has about a student's engagement with their project. In other areas of education, particularly teacher education, acceptance of a teacher's professional judgment of learners is longstanding [12]. Hence, the tasks that can be assessed within a final year or capstone project can be broadened to include the project process; things that only the supervisor and student know such as commitment, time management, creative problem solving, effort and implementation.

4.3 Premise 3: Supervisors should assess both product and process

Process is important. Supervisors are uniquely positioned to observe and ascertain process in the

student projects they supervise. Therefore, supervisors should remain part of the assessment process and play a role in marking products such as reports and theses, but also in determining the achievement of process outcomes. We suggest that this can be done in two main ways. Firstly, process, although observable, might be articulated through dialogue. We state elsewhere the importance of the conversation that develops around project planning and implementation [13].

Part of good assessment is dialogue—where students engage in learning focused conversations with their advisors and peers—because it enables them to become more reflective and develop capacity for autonomous learning [14].This means the first part of assessing individuals within groups is developing a culture of dialogue, self-reflection and peer assessment. Therefore process might be better seen in conversation and action than a written document. Secondly, and critically, a language for discussing process must be developed. This means that the implicit or tacit knowledge held by many supervisors about what constitutes good engineering and about the student project they are supervising, needs to be made explicit. Once a common language for discussing process is developed, then ways and means for assessing it can be developed.

4.4 Addressing subjectivity

Each of the premises above requires a new way of thinking about subjectivity. Primarily they require that we understand that subjectivity is not only unavoidable, it is actually desirable in understanding or assessing process. The coordinators above have indicated that subjectivity can be both a source of bias, skewing marks and impacting student grades, whilst others see it as something to be harnessed. We suggest that the latter should be adopted but with the caveat that it is not personal or arbitrary. Just as qualitative researchers deploy measures to address subjectivity, but nevertheless remain part of the research process, there are practices that can be adopted that both accept subjectivity and address the resulting potential bias.

In other educational settings such as classrooms in schools, the teacher as the primary assessor of learners is positioned as 'a sensitive, reliable, trustworthy and credible instrument of data collection' [12, p. 158] In ensuring credibility and trustworthiness of their judgments, procedures used by qualitative researchers in the field can be used to increase the validity and rigor of their 'insider' assessment. Specifically, these procedures include:

- Prolonged engagement on the site
- Persistent observation
- Triangulation
- Peer debriefing
- Negative case analysis
- Referential adequacy
- Member checking [12, p.160]

It is not difficult to see how each of these can address the subjectivity of the supervisor in assessing final year projects. Note, this is not an attempt to make supervisors objective; that is impossible. It is about strengthening the trustworthiness of their judgments as 'insiders' or as people with vested interest in the success of a student project. Prolonged engagement on the site simply means the researcher, teacher, or in this case the supervisor, spends significant time with the student and his/her project. With regular meetings and where necessary, work in laboratories, over what is usually two semesters is not difficult to achieve and is almost a given. Where students work in isolation and do not meet or communicate frequently or regularly with their supervisors, assessing process will be more difficult and perhaps confined to assessing documents such as progress reports, design reviews and logbooks that describe process. Related to this first procedure is persistent observation—the skill of being able to discern what is being observed, achievable only once sufficient time is spent with the student and project. This is why making process explicit via a shared language is so important. Most researchers are familiar with the concept of triangulation and in this instance it simply means ensuring evidence of process is gathered more than once and derived from more than one source. Peer debriefing and member checking involve supervisors checking their evidence with their peers and the students respectively. As Cambourne et al. [12, p.161], note, negative case analysis 'helps ensure that we don't get too carried away by first impressions, or by any unconscious biases we might have' by actively seeking examples that might disprove your interpretations. Finally, and consistent with triangulation, referential adequacy is about keeping tangible evidence to support judgment or grading. Such a framework means that far from marking process implicitly or intuitively as seems to be the case in our data, supervisors can engage in rigorous assessment that gives their marking of process credibility and trustworthiness. Assessing process rigorously also helps supervisors differentiate between students who complete simple projects well and complex ones poorly; the technical product can be separated from the process.

5. Conclusion

Students undertaking final year or capstone projects are expected to conduct sustained projects in largely

self-directed ways and complete a number of assessment tasks with a supervisor mentoring them over an extended period. This supervision relationship can be seen to influence student grades in a couple of ways and there is some variation in marking practices within and across universities in Australia. Much of the contention hinges on assessment of process and the difference in perception about the role of the supervisor and the degree to which the knowledge they have of the student influences marking. There is a case to rethink and perhaps systematize how supervisors are used in the assessment process together with how to effectively assess and value process as well as product. Supervisors or project mentors are charged with dual responsibilities: support students to achieve high quality work and reliably assess that achievement against agreed outcomes. Perhaps rather than trying to mitigate subjectivity altogether, we argue it should be seen as a valuable and meaningful way to assess the whole project rather than parts of it. This study has revealed that there are still areas to address in terms of best practice for assessment of FYEP or capstone project courses, particularly in conceptualizing and defining process and the next logical step—assessing it.

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