



MONASH
University

Academic skills for programmers:

Collaborating to embed skills support in the
Information Technology curriculum

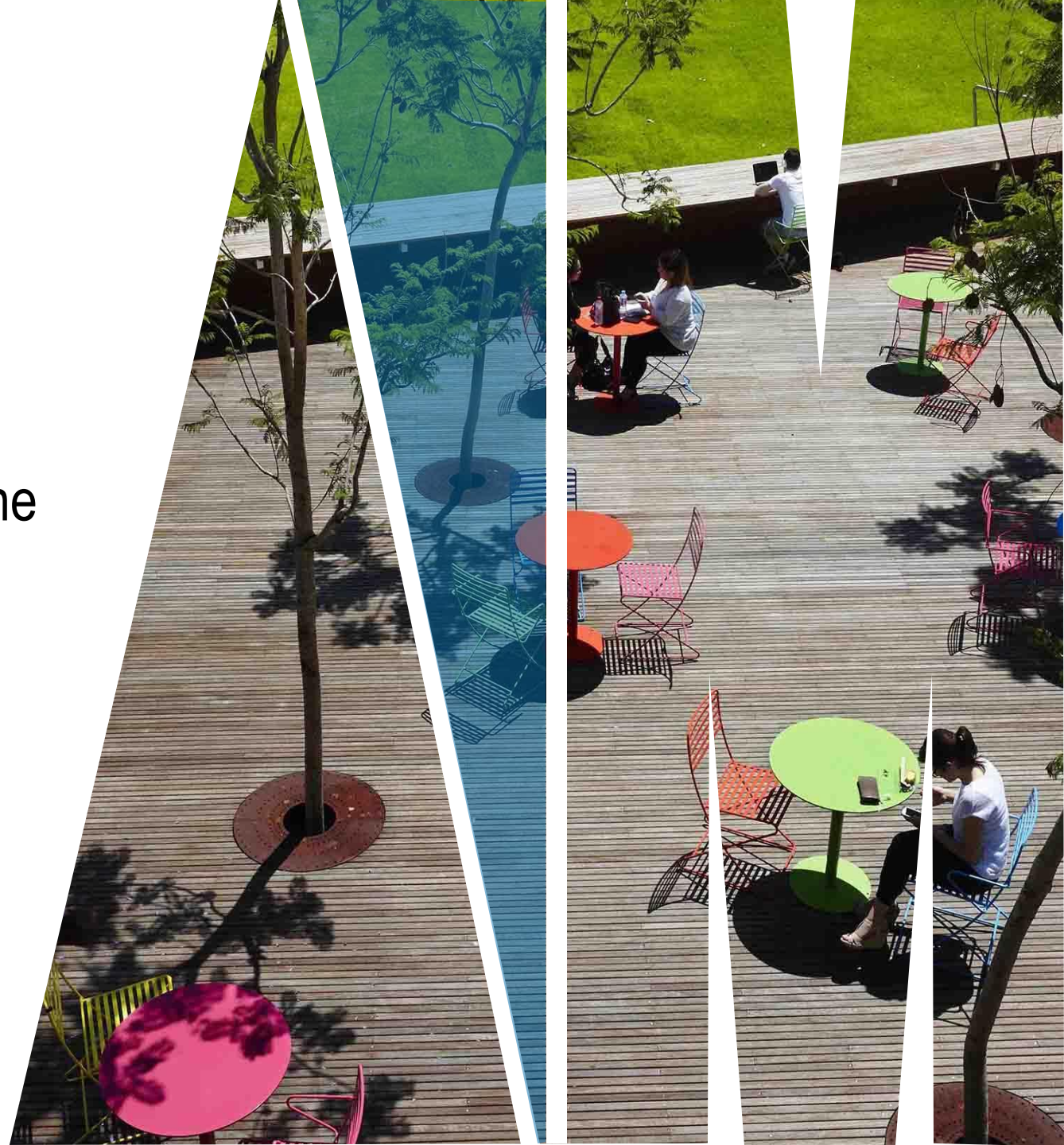
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Learning skills advisers

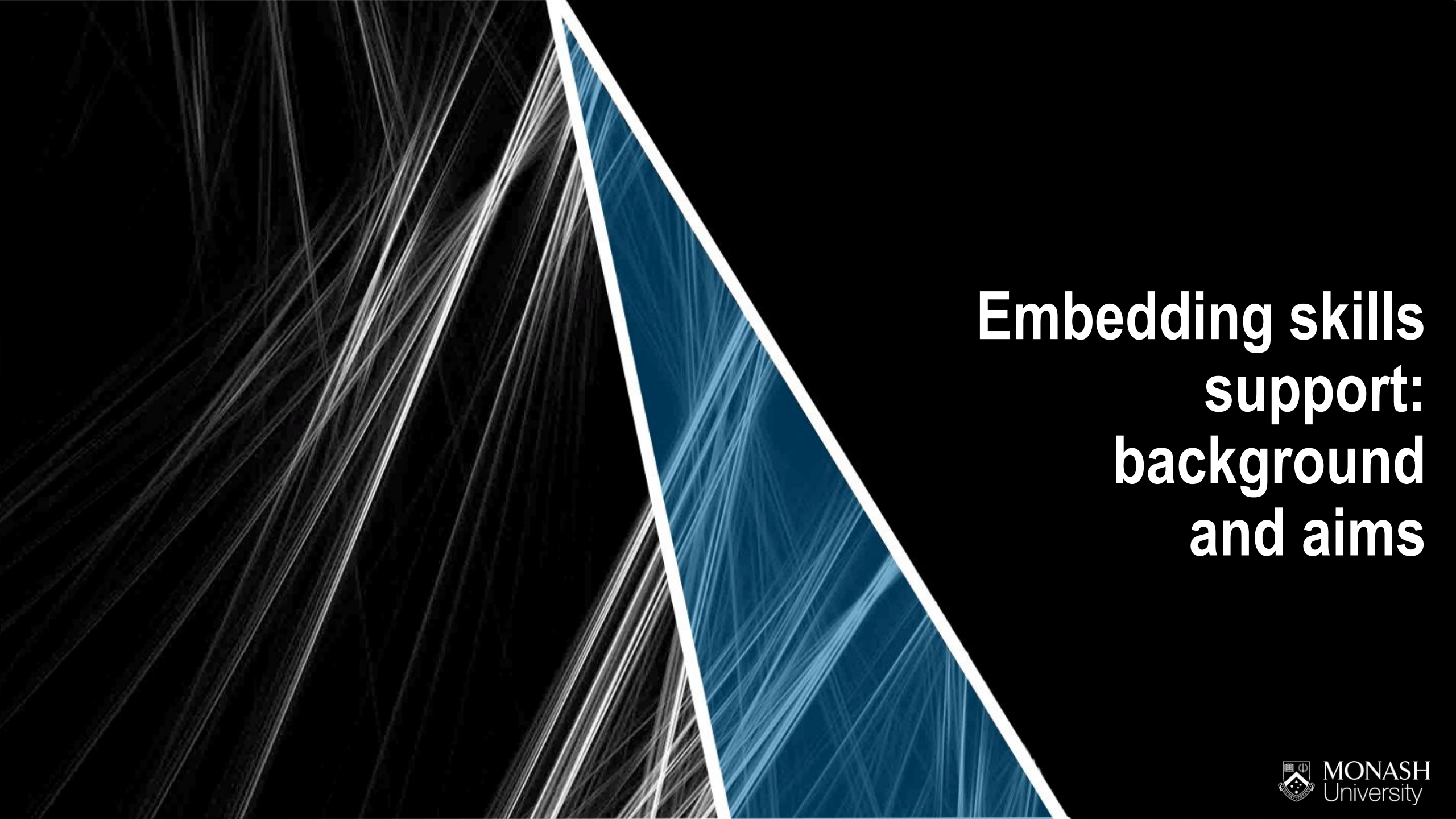
IT faculty team

Monash University Library



Outline

- Embedding skills support: background and aims
- Example 1: Project management
- Example 2: Academic integrity for programming units
- Reflections and conclusions

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Embedding skills support: background and aims

Background: the IT faculty context

Information Technology (IT) faculty team, Monash University Library

- learning skills advisers and subject librarians working together across two campuses (Smith, 2011)
- in-curriculum and co-curricular academic and research skill development (face-to-face and online)
- work alongside faculty-based ed. designers, English Connect

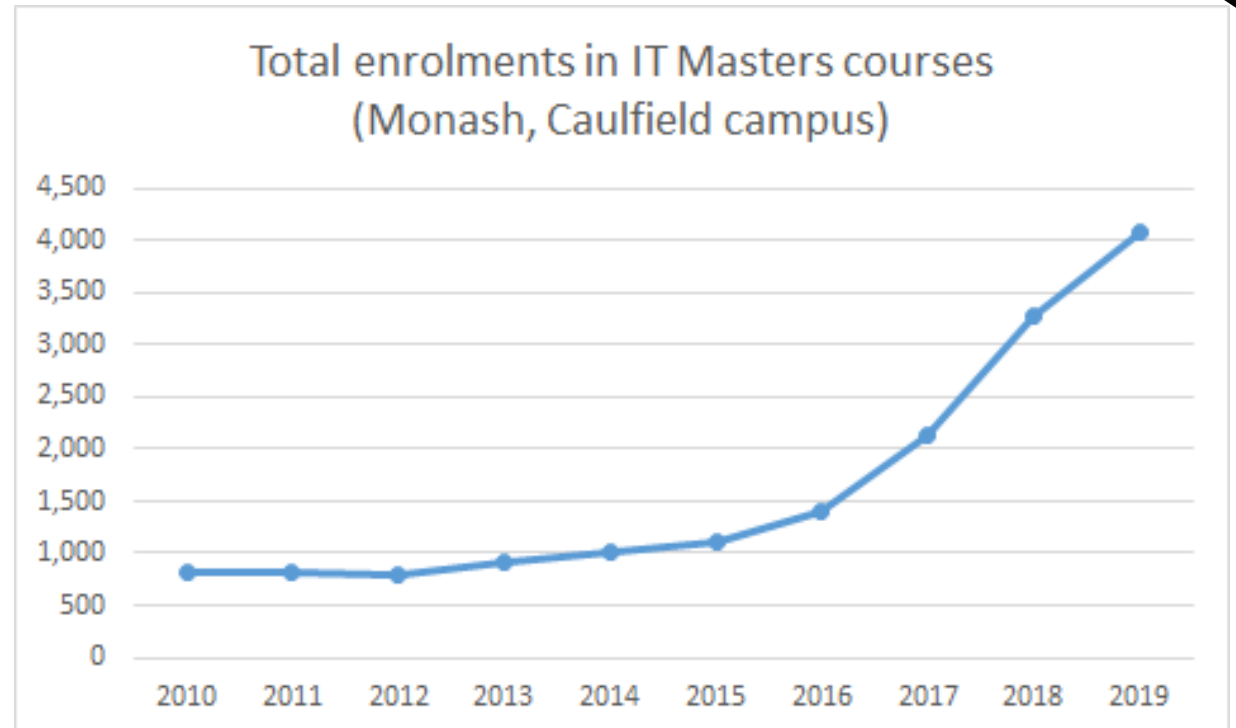


How is working in the IT faculty different?

- Division between technical units and those that require research, critical analysis and academic writing
- STEM vs. HASS
- Technical training vs. teaching role
- Professional programming culture vs. 'academic integrity'

Background: rising demand

- Rapid increase in IT Masters enrolments since 2016/2017
- Cohort consistently 80%+ international and NESB
- Few embedded skills development programs in postgraduate curriculum c. 2017
- Traditional focus on weekly Library-based workshops for new Masters students
 - Positively received, but reached small % of cohort; students most in need often wouldn't opt in (Harris & Ashton, 2011)



The existing Library workshops

- Longstanding program of co-curricular skills workshops for IT postgraduates
- Multimodal delivery: face-to-face workshops, videos and interactive resources on LMS site

Pros

- a well-received, comprehensive program of essential skills
- a forum and contact point for student questions/issues

Cons

- Reaches relatively small proportion of IT postgraduate cohort; students most in need often don't opt in (Harris & Ashton, 2011)
- Somewhat generic (Faculty-specific, not discipline-specific)

Workshop topics	
Week 1	Academic expectations and study skills
Week 2	Academic integrity, citing and referencing
Week 3	Research skills
Week 4	Critical thinking
Week 5	Academic writing
Week 6	Teamwork
Week 11	Exam preparation

Aims of embedded approach

We aimed to support skill development for this expanding IT Masters cohort in ways that:

- would scale sustainably and expand 'reach'
- fit authentically within the IT curriculum
- would enable closer pedagogical relationships with content expert teaching academics
- extend the legitimacy of Library's IT faculty team as pedagogical partners

Two illustrative examples of embedding:

- A core Project Management unit
- Three foundation computer programming units

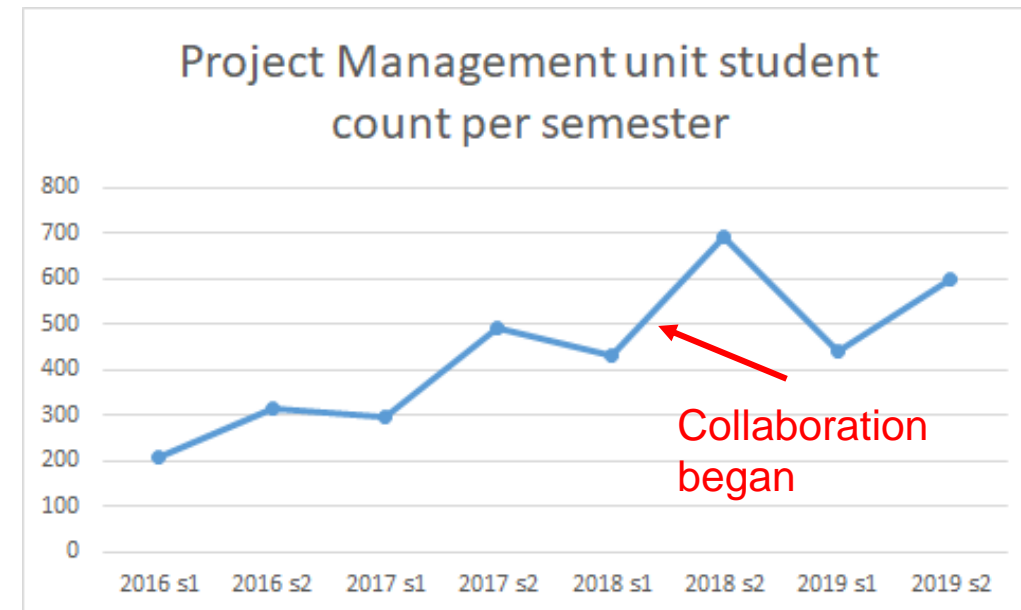
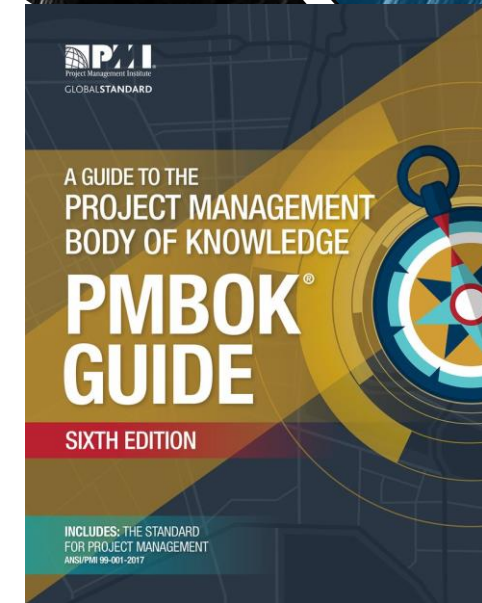




Example 1: Project management

Key facts and challenges

- Core project management unit in IT Masters course
- Diverse student cohort (in past two years, 95+% international and 91% NESB)
- Chief examiner had a 'problem'
 - jump to ~700 students
 - sought help to scaffold students' critical skills to AQF level 9, and replace exam with summative written assignment
- Tutoring team expert in project management concept knowledge, but not all familiar with reflective practice, critical analysis and providing qualitative feedback to student work



Critical skills development program

Resources embedded in lectures and Moodle LMS

- Presentations and resource links provided on critical thinking, reflection, research and written communication skills

Collaboration with lecturer on assessment design

- Critical reflection tasks (formative and summative) and marking rubrics
- Task modelled on IT project retrospective to build professional reflective skills (Dybå, Maiden, & Glass, 2014)

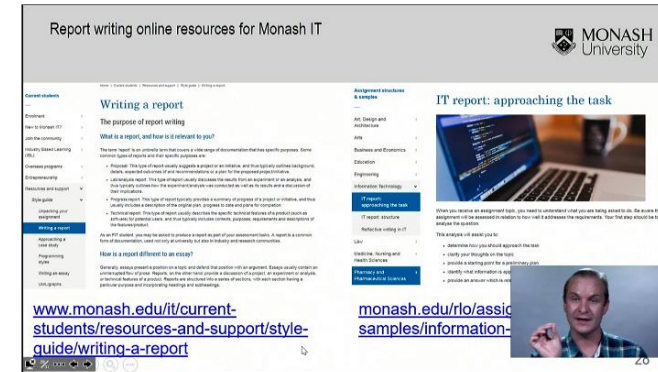
Contributions to tutors' training

- Advising tutors on critical thinking and research skills in week 0
- Facilitating markers' meeting for critical reflection assignment in week 15

Critical skills development resources

To help you succeed with your team report, the library's IT faculty team has developed the below video presentation on *Synthesising and communicating ideas in the report*.

This video has been tailored specifically for the FIT5057 critical skills development program. Please find resource links relevant to the report assignment below the video.



Resources for report writing

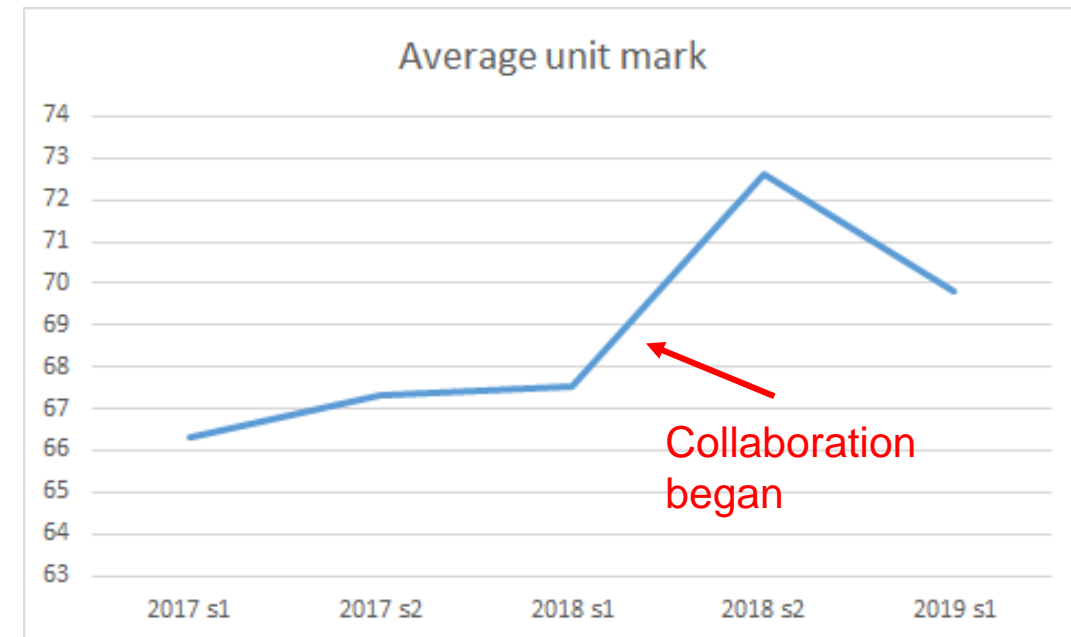
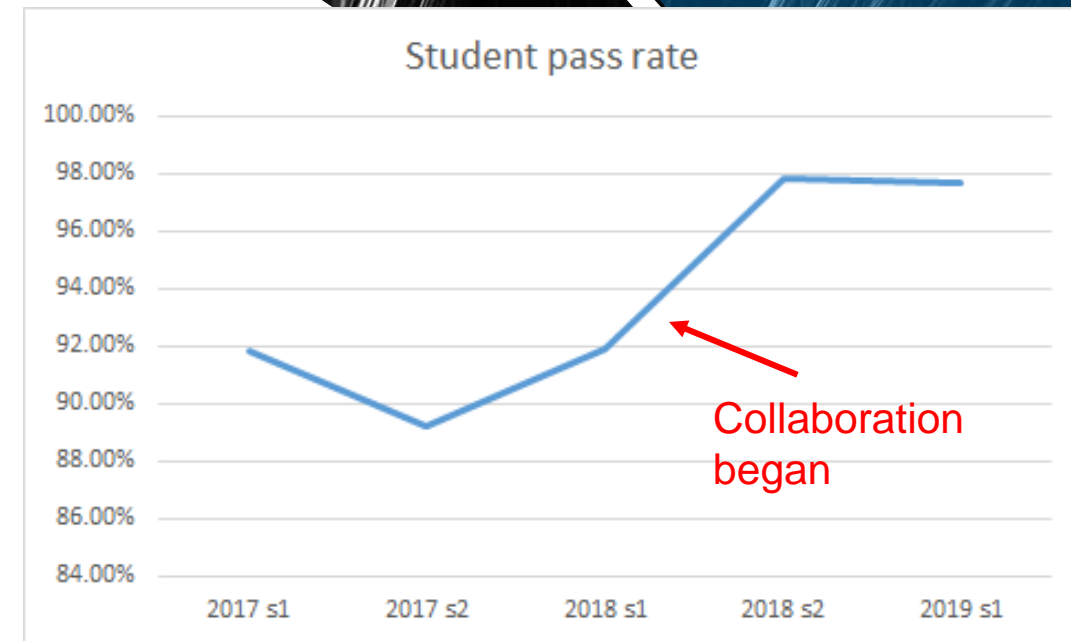
- [Writing a report \(IT Style Guide\)](#)
- [Writing the IT report \(Research & Learning Online tutorial\)](#)
- [Critical thinking \(Research & Learning Online tutorial\)](#)

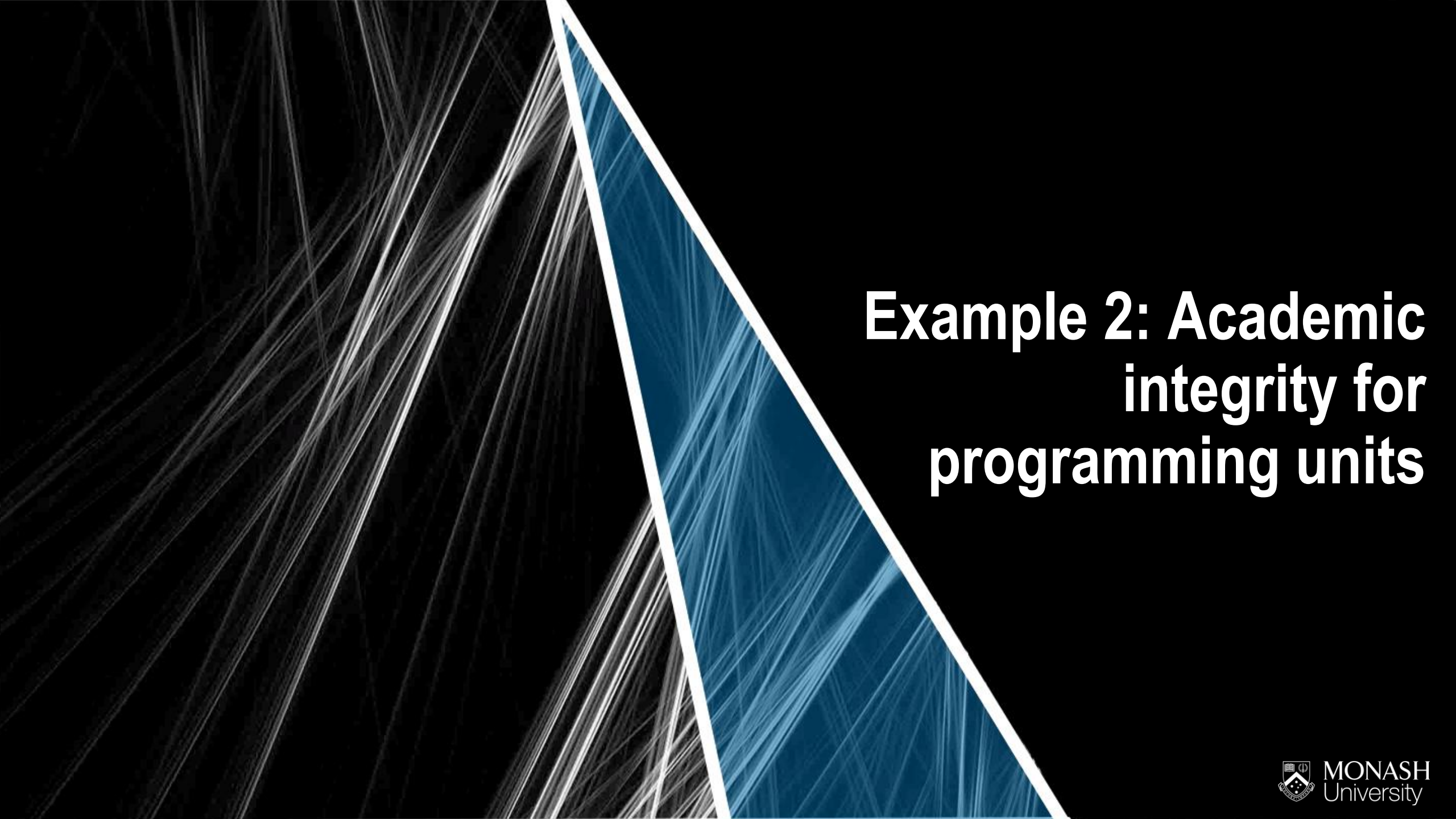
Resources for referencing and academic integrity

- [APA citing and referencing library guide](#)
- [Monash University's academic integrity online learning modules](#)

Outcomes

- Students provided more explicit guidance on expectations of critical skills at AQF level 9
 - in curriculum, feedback and resources
 - reaching whole Masters cohort in core unit
- Higher pass rates and average marks
- Increased LSA engagement with IT students
- Tutoring team better equipped for critical reflection tasks and effective qualitative feedback
- Expanding collaborative relationships and capacity in IT faculty



The background features a large, dark blue triangle pointing towards the top right. The interior of this triangle is filled with a dense, chaotic pattern of thin, white, diagonal lines that create a sense of motion and complexity. The rest of the background is solid black.

Example 2: Academic integrity for programming units

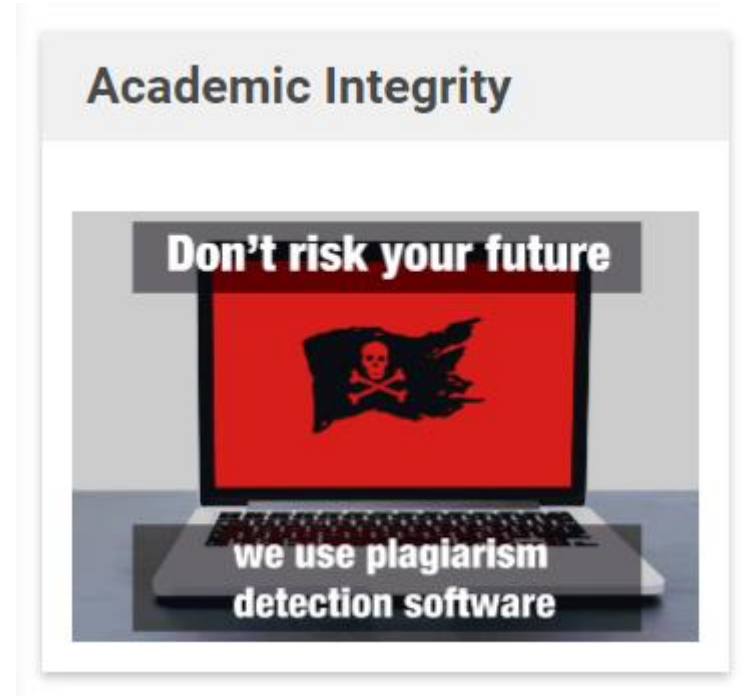
Key facts and challenges

Background:

- numerous cases of plagiarism and collusion among IT cohorts
- Faculty has its own Academic Integrity Officer
- Learning Skills Advisers were asked to provide support (pre-emptive, educative role)

Challenges:

- Academic integrity for computer programming: What does it look like to reference code? (Simon et al., 2018)
- Large cohorts: how to get the message across?



Our approach

Engagement in 3 Foundational FIT units

Digital product: learning skills resources on Moodle:

- 2 sets of 5-minute quizzes at key dates of semester (Week 5, Week 10)
- Quizzes contained authentic scenarios - relevant to students' personal experience
- Based on quiz results, students referred to tutors, learning advisers and/or the Library's central academic integrity online learning modules

'People development':

Learning skills adviser engagement in lectures

- Learning Advisers went to weekly tutors' meetings in key weeks (Week 4, week 9)
- demonstrated Moodle quiz to tutors

Collaboration with Academic Integrity officer and other 'in faculty' staff members

- Revision of quizzes based on tutors' feedback

This short quiz is designed to test your understanding of academic integrity as it applies to programming and coding as a student in Monash IT. Many students are aware of [how to avoid plagiarism and collusion when writing assignments](#). However, to study ethically, we must also demonstrate the principles of academic integrity when doing programming assignments.

Please complete the quiz to receive feedback on how well you understand the expectations of academic integrity, and for advice and resources to further build your knowledge.

The quiz should take 5 minutes or less. Please click the buttons at the bottom of each section to make sure you proceed to the end and receive your final feedback.

The quiz is not marked or assessed, and you will not get in trouble for incorrect answers. It is a learning tool, designed to help your self-understanding.



Source: pixnio

You need to enrol in this unit before you can attempt this quiz

Started on	Thursday, 21 November 2019, 12:35 PM
State	Finished
Completed on	Thursday, 21 November 2019, 12:35 PM
Time taken	21 secs
Marks	3.00/5.00
Grade	6.00 out of 10.00 (60%)
Feedback	<p>You have demonstrated a decent but incomplete understanding of the importance of academic integrity when studying programming. Please reflect carefully on the questions you answered incorrectly in this quiz, and the feedback you received for your incorrect answers.</p> <p>If you are still unsure or confused about the expectations of academic integrity in coding, please seek advice immediately from your tutors or lecturers. Failing to understand the rules of academic integrity could lead you to commit plagiarism or collusion. Breaching the rules of academic integrity carries heavy academic penalties. You could lose marks, fail a unit, and even be made to leave Monash University.</p> <p>You can build and check your understanding by exploring the Monash University's Academic Integrity online modules.</p>

Quiz navigation



[Show one page at a time](#)

[Finish review](#)

Outcomes

- Cases of academic integrity breach have decreased by one third in 2 of the 3 subjects we were involved in
- increased awareness of academic integrity issues and how to handle them among tutors
- Increased authority within IT faculty as experts
- Collaboration with faculty-based education designers on academic integrity tutor training and community of practice



Reflections and conclusions

Reflections on the collaborations

- Learning advisor initially a 'strange guest' invited into the discipline teaching space (Chahal, Rodriguez, & Schneider, 2019, p. 902)
- Advisor initiated collaboration with content specialist, with some institutional backing/precedent; negotiated trust and authority over time (Gurney & Grossi, 2019)
- Delivering the 'products' required development of people, relationships and understanding across distinct expertise (Aitchison, Harper, Mirriahi, & Guerin, 2019)



Conclusions

- Collaboration is more likely where there is a shared sense of problem, and clearly delineated expertise and roles
- Collaborating on/in curriculum can increase reach and impact for learning advisors, but also increases risks
- ‘Kicking goals’ in partnership with subject experts fosters further relationships and collaborations (word of mouth)
- Collaboration can recast the role: from advisor to negotiator/coordinator/diplomat/trainer?
(Aitchison, Harper, Mirriahi, & Guerin, 2019)



Questions



Reference list

- Aitchison, C., Harper, R., Mirriahi, N., & Guerin, C. (2019). Tensions for educational developers in the digital university: developing the person, developing the product. *Higher Education Research & Development*, 1-14. DOI: 10.1080/07294360.2019.1663155
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- Dybå, T., Maiden, N., & Glass, R. (2014). The Reflective Software Engineer: Reflective Practice. *IEEE Software*, 31(4), 32-36.
- Gurney, L., & Grossi, V. (2019). Performing support in higher education: negotiating conflicting agendas in academic language and learning advisory work. *Higher Education Research & Development*, 38(5), 940-953. DOI: 10.1080/07294360.2019.1609916
- Harris, A., & Ashton, J. (2011). Embedding and integrating language and academic skills: An innovative approach. *Journal of Academic Language & Learning*, 5(2), A73-A87.

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- Simon, Sheard, J., Morgan, M., Petersen, A., Settle, A. & Sinclair J. (2018). Informing students about academic integrity in programming, in *ACE 2018: 20th Australasian Computing Education Conference, January 30-February 2, Brisbane, Qld, Australia*, Raina Mason and Simon (eds.). ACM, New York, NY, USA, 113-122.
- Smith, L. (2011). Monash University library and learning: A new paradigm for a new age. *Australian Academic & Research Libraries* 42(3), 246-263.