
Staff, students, and academic integrity in computing assessments

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Prianit - an academic integrity project

- OLT-funded project
- Is academic integrity different for assessments that aren't written in prose text?
- If so, do university policies acknowledge this?
- Interviews, focus groups, an Australia-wide survey of students and academics

Findings

- Uncertainty
- Differences between essays and computing
- Practices that are plagiarism/collusion but acceptable
- Practices that are not plagiarism/collusion but not acceptable
- Practices that are acceptable in the workplace but not in academia
- Nothing is clearcut

ITiCSE 2016 working group

- Prior work: a new survey of academics and professionals following up on findings from Prianit
- Five days of intense research in a room at the conference
- Subsequent work – finishing the analysis and a paper

Using externally sourced code

- Is it ever legitimate to incorporate externally-sourced code or algorithms in an academic programming assessment?
- If so, is it obligatory to reference that code and those algorithms?
- Does the same referencing requirement apply to code previously developed by the same student?

How to reference code

- How is the referencing to be done?
- Can we develop referencing standards that will be applied by the whole computing education community?

Working group: citing a source

You have decided to use a heap sort and don't remember the exact implementation details, so you look up the algorithm on the web and then code that algorithm in your program. Do you add a comment giving credit to the website where you found it, or to some other source that the website gives credit to?

	Yes	No	It depends ...
Academic	53%	23%	24%
Professional	31%	43%	26%

Academic: “it depends on whether the purpose of the assignment is to code the heapsort or whether the heapsort is a small part of a larger project and this work was just relying on a standard algorithm. ... or if it were copied verbatim vs. coded from an algorithmic description.”

Professional: “I might add a link to a more specialized or obscure textbook algorithm. But heapsort is common knowledge among programmers.”

Collusion and help with debugging

- Is it ever legitimate for students doing assessments to seek debugging assistance from their peers or from message boards?
- What if it entails sending them the code?
- Is some sort of referencing required? What sort of referencing, and how would we expect students to quantify the assistance received?

Working group: help from a colleague

Would you send the code to a fellow student or colleague who is generally very helpful at debugging code, explain the problem, and ask for help in finding the cause of the error?

	Yes	No	It depends ...
Academic	21%	53%	26%
Professional	69%	14%	17%

Academic:

“If both parties are operating honestly, then this could be an acceptable allegory to the co-located ‘hey take a look at this’ situation above. I would caution students to be careful, and not let the file get out of their hands.”

Working group: acknowledging help

If your fellow student /colleague does help to resolve the problem, would you add a comment explaining and acknowledging the assistance?

	Yes	No	It depends ...
Academic	41%	29%	29%
Professional	9%	74%	18%

Academic: “... citations are for sources of content. If the other student is only helping me to produce my own content, then there's likely no need to cite anything.”

Professional: “Assistance could be acknowledged in other ways, e.g. email to manager or weekly project meeting”

Outsourcing

- Professional vs academic

Working group: commissioning a program

Would you pay somebody else to write part or all of the program for you?

	Yes	No	It depends ...
Academic	4%	90%	7%
Professional	11%	63%	26%

Academics

No: *“This is contract cheating, which is definitely not permitted.”*

No: *“This defeats the learning goals of the assignment.”*

Yes: *“It's allowed in my class. The purpose is learning, not assessment.”*

Professional

No: *“If I had to pay someone else to do it then I need to change professions “*

It depends: *“If I'm an employee, no. If I'm a contractor I may if it would provide a substantial cost/benefit ratio for my customer”*

Workplace practice and authenticity

- Workplace practice
 - Encouraged outside of assessment?
 - Not permitted within assessment?
- Exams – authenticated but inauthentic

Detection of academic misconduct

- Code similarity detection software
 - cf Turnitin
- For collusion?
- For plagiarism?
- Other approaches?
- Outsourcing
 - detected how?

Explaining vs writing

- Explaining as proxy for writing
- Think of parallels
- Is understanding enough?
- Can students write if they can't read?

Consensus and education

- High uncertainty
- Need for agreement and education
- Uniformity would be nice
- Exemplars, too
- Without them, really clear explanations per item

Policies and procedures

- What does it mean to act with academic integrity in computing?
- Do we need a new definition of academic integrity?
- Then how do we go about getting our institutions to revise their procedures and policies suitably?

Proposition for consideration

- Programming consists of assembling existing components, such as counting loops, search algorithms, file access algorithms, etc
- We expect our students to learn to assemble these existing components to produce solutions to new problems
- We **do not** expect our students to reference these components

Proposition for consideration

- It is standard practice to seek the help of others when developing and debugging code
- Therefore we should not bar this practice to students undertaking assessments
- This leaves us with no way of determining how much assistance a student had with any assessment item

Proposition for consideration

- Student interviews can possibly establish how well a student understands a program
- They cannot establish whether the student wrote the program, or how much of it the student wrote
- They should be used in assessment only when understanding of the program is a specified criterion of the assessment task

Proposition for consideration

- Our institutions' notions of academic integrity, plagiarism, and collusion simply do not apply to many of our assessment items
- We need to work with our institutions to get them to understand this and to revise their policies and procedures accordingly
- That's not much to ask, is it?