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?

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<td><strong>Academic</strong></td>
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<tr>
<td><strong>Professional</strong></td>
<td>31%</td>
<td>43%</td>
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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?

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<td>Academic</td>
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<tr>
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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?

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<td>29%</td>
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<tr>
<td>Professional</td>
<td>9%</td>
<td>74%</td>
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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?

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<tr>
<td>Professional</td>
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<td>63%</td>
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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?