

COMPSCI 289 Individual Seminar Handout

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Title of the paper presented: Cheat-resistant multiple-choice examinations using personalization [1]

Summary:

Cheating is an undesired yet prevalent behaviour in multiple-choice examinations (MC exams), especially for high-achieving students and high-stakes exams. As a flagship effort, the researcher S. Manoharan conducted trials at the University of Auckland (UoA), integrating personalisation with MC exams in several computer science (COMPSCI) papers by creating a framework, while addressing various challenges involved. The personalisation renders copying answers from other candidates as favourable as random guessing. After the first exam under personalisation, there was a survey collecting opinion from students and staffs concerned on personalised MC exams. There are subsequent similar trials in more COMPSCI papers at UoA, and responses from the administration, instructors and students from various surveys are generally positive. The results indicated that personalised MC exams not only reduced cheating but also encouraged understanding concepts involved in the exams.

Key Points of the Presentation:

1. The paper addressed administrative, pedagogical and technical difficulties of developing personalised MC exams. These included the inability of using digital exams for some papers, correcting marking mistakes post-exam and ensuring the exams are covering most or all desired learning outcomes.
2. There is an overview of the researcher's framework for generating personalised MC exams. The framework applies HTML with macro scripts while allowing instructors with less confidence in coding to include a list of true/false questions.
3. The researcher conducted several trials for personalised MC exams. For all trials, the responses are generally favourable to exam personalisation, addressing the ineffectiveness of collusion in personalised MC exams, while raising genuine concerns on the fairness of the exams.

Further Questions:

1. The presentation includes the fact that parameter randomisation renders directly copying answers from neighbours useless. However, since the questions generated by the macro usually have similar concepts involved, will cheaters develop other methods to collude in exams, including secret communication to indicate which formula to use in a question?
2. How can personalised tests apply in non-science subjects, where there may not have any mathematical parameters in any question?
3. Are there any possible mitigations to balance the disparity in exam difficulty by uniquely generated scripts?