Assessment Analytics of S217 Online Quizzes

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S217 "*Physics: from Classical to Quantum*" is a new, online, 60pt module covering the key Level 2 content required by the Institute of Physics' *Core of Physics*.

Assessment Strategy:
Students complete 5 formative TMAs and 1 summative TMA, plus an end-of-module exam.
Each TMA is preceded by an interactive Online Quiz (developed from OpenMark iCMAs in the forerunner module).
Each TMA includes a 10-mark question inviting students to *reflect* on their performance in the recent Online Quiz.

Interactive Online Quiz Question (e.g.)

S217 Quiz 1   Display options   Help

Question 5 (of 8) • You have 3 attempts.   Your answers   End test

A particle confined to the xy-plane is in uniform circular motion around the origin. The x- and y-coordinates of the particle vary with time as follows:

$x(t) = r \sin(\omega t)$

$y(t) = r \cos(\omega t)$.

where $r = 2.60$ m and $\omega = 2.15$ s^{-1}.

What are the x- and y-components of the particle's acceleration at an instant when $x = 1.00$ m and $y = 2.40$ m. Give your answers by entering numbers into the empty boxes below.

$a_x =$ [   ] m s^{-2}

$a_y =$ [   ] m s^{-2}.

(Hint: you can avoid finding t by deriving a relationship between the acceleration and the position components.)

[Check]

TMA reflective question (e.g.)

Question 6

This question is worth 10 marks, and is designed to assess your engagement with interactive Quiz 1, covering Units 1, 2 and 3.

(a) To demonstrate your engagement with Quiz 1, paste into your TMA answers a screenshot from your computer showing the marks you obtained on the Quiz. It does not matter what score you obtained, we are only interested in whether or not you tried the Quiz. Remember also that you may attempt the Quiz questions as often as you wish, and each question has multiple variants that will be presented to you in turn, each time you try it. (4 marks)

(b) In a few sentences, describe one thing that you learned from answering the questions in the Quiz that improved your understanding of some aspect of these Units. (If you scored full marks on the Quiz the first time you tried it, then it is acceptable to say that you had nothing further to learn, but in that case we would expect such a statement to be supported by the screenshot in part (a).) You should not need to write more than 100 words to answer this part. (6 marks)

Purpose of Quiz Questions: Practice with problem solving – staged feedback – multiple variants – revisit

Increase understanding & confidence in preparation for summative assessment

Analytics:
Analyse **when** students engage with each Quiz in relation to the subsequent TMA cut-off date.
Analyse **how** students engage with each Quiz (multiple attempts, random answers, etc).
Analyse student **performance** on each Quiz in relation to the subsequent TMA score.
Analyse student **reflections** on Quiz performance as conveyed in reflective TMA questions.

Telephone interviews:
Do Quizzes help prepare students for TMAs?   Do Quizzes improve understanding?
Are the reflective TMA questions sufficient / necessary as an incentive to engage with the Quizzes?
What could be done differently / better?

Aim:
Modify or adapt the Quiz questions themselves (if necessary), or their placement / usage within S217 (if necessary), in order to better serve student needs, and to seek to improve student performance on, and retention in, the module.

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