PEARSON
ALWAYS LEARNING

Pearson response to the Ofqual Consultation on GCSE Computer Science: Conditions and Guidance
March 2015

Organisation details

Name

Lesley Davies

Position

Vice President, Quality, Standards and Research

Organisation name (if applicable)

Pearson

Address

190 High Holborn

London WC1V 7BH

Email

lesley.davies@pearson.com

Telephone

020 7190 4292

Would you like us to treat your response as confidential?*

If you answer yes, we will not include your details in any list of people or

organisations that responded to the consultation.

( ) Yes (X) No

**Is this a personal response or an official response on behalf of your

organisation?***

( ) Personal response (Please answer the question 'If you ticked 'Personal views'…')

(X) Official response (Please answer the question 'Type of responding

organisation')

If you ticked 'Personal views' which of the following are you?

( ) Student

( ) Parent or carer

( ) Teacher (but responding in a personal capacity)

( ) Other, including general public (Please state below)

If you ticked "Official response from an organisation/group", please respond accordingly:

Type of responding organisation*

(X) Awarding organisation

( ) Local authority

( ) School or college (please answer the question below)

( ) Academy chain

( ) Private training provider

( ) University or other higher education institution

( ) Employer

( ) Other representative or interest group (please answer the question below)

School or college type

( ) Comprehensive or non-selective academy

( ) State selective or selective academy

( ) Independent

( ) Special school

( ) Further education college

( ) Sixth form college

( ) Other (please state below)

Type of representative group or interest group

( ) Group of awarding organizations

( ) Union

( ) Employer or business representative group

( ) Subject association or learned society

( ) Equality organisation or group

( ) School, college or teacher representative group

( ) Other (please state below)

Nation*

(X) England

( ) Wales

( ) Northern Ireland

( ) Scotland

( ) Other EU country

( ) Non-EU country

How did you find out about this consultation?

( ) Our newsletter or another one of our communications

(X) Our website

( ) Internet search

( ) Other

May we contact you for further information?

(X) Yes ( ) No

Question 1

Do you have any comments on the draft Conditions for new GCSEs in Computer Science?

() Yes (X) No

Question 2

Do you have any comments on the draft requirements in relation to assessments which are not Assessments by Examination for new GCSEs in Computer Science?

(X) Yes ( ) No

If yes, please provide them here:

In section 1.9 on page 9 the recommendation is for the teacher to set the project

We have concerns that teachers could set a similar project each year leading to the risk that learners who completed the project in a previous year could pass on details of the project to learners who are taking the assessment in the current year. Also, teachers could focus their teaching on the NEA project during the course. Therefore we recommend that awarding organisations set a context for projects, and that this is released to centres at an appropriate time.

Awarding organisations will provide clear guidance to teachers on how to prevent malpractice. These could include controls on collaboration, feedback to candidates, use of IT resources, the storage of project work and standardisation of marking where more than one teacher has marked project work.

Examiners will have to familiarise themselves with a range of different problems if the task is set by the centre and this will make it harder to assess the work reliably and it will be more problematic to recruit sufficient examiners with requisite experience. If a free range of tasks were to be permitted then we may have to restrict the range of programming languages that centres will be allowed to use.

The same section also states …'encourage students to solve real-world problems'. However, real-world problems are too complex for learners to solve at this level and recommend 'real-world' is removed.

Under the non-examination assessment section, c(i) on page 12, it states that "a program designed, written, tested and refined by the Learner, either to a specification or to solve a problem, using one or more high-level programming languages specified by the awarding organisation, accompanied by a textual program definition"

We are concerned that this would enable some programing packages to be used that have a textual programming definition, because they are included in the subject content, for example, Scratch and App Inventor. Scratch and App Inventor use a drag and drop interface which takes away the whole concept of having a text based language only. We therefore recommended that the conditions and guidance document excludes these types of packages for the NEA.

Question 3

Do you have any comments on our proposal to require awarding organisations to use statistical moderation to validate marks for the non-exam assessment?

(X) Yes () No

We would appreciate the opportunity to discuss 'statistical moderation' (statistical reviews of teacher marking) in greater depth with each awarding organisation and the regulator. Below, we have made some comments as to further safeguards that could be explored to ensure internal assessment and external moderation is as robust as it can be.

This is of vital importance as the project (non-exam assessment) is an important aspect of this qualification as it will enable learners to develop the skills that are required for progression into further study or employment. Therefore we support the inclusion of a project in this qualification.

The implementation of a process to identify malpractice in the project is essential. The process will need to be standardised across all awarding organisations that offer this qualification.

Issues with awarding organisations marking project work

Teachers will be able to observe the process of development and will be aware of even small issues that arise in the production of the program code whereas an examiner would have to study in detail each line of code in order to determine whether there are any subtle errors in the program developed by students. There is a risk that external markers will miss such errors and therefore award higher marks

than deserved. Also, this will be time consuming and costly. Only a person who has supervised the work as it progresses will be able to assess a project effectively and economically.

Improvements that could be made to internal assessment and external moderation

External moderation of teacher marks by the awarding organisation provides assurance on the reliability of teacher marking. Where there is evidence that teacher marking is not accurate the moderator then makes an adjustment to this marking to bring it in line with the agreed standards. Where there is evidence of systematic differences in marking standard an adjustment is applied to the whole of the centres marks. External moderation therefore makes teacher marking a reliable form of assessment.

Standardisation of moderators involves training, standardising and monitoring external moderations to ensure that there is a consistent approach to applying the marking criteria and to the scrutiny of teachers' marking. This will ensure that external moderation is reliable.

Teacher training will provide assurance that teacher marking is valid and reliable. Training events will ensure that teachers will understand the assessment standard and how to apply the mark scheme correctly.

Teacher annotation of student work demonstrates the mark scheme has been applied accurately and provides assurance on the reliability of marking. Teachers annotate the students work to show where marks have been allocated which enables the external moderation to judge whether the mark scheme has been used correctly.

In order to provide further assurances as to the validity of external moderation we are keen to explore further mechanisms that can be employed to ensure the authenticity of work submitted, to ensure that outcomes in NEA are consistent with outcomes in examination components and that NEA achieves an ideal relationship between its intended and actual weight when contributing to overall grades. Some additional controls are suggested below. We would like to discuss these with Ofqual and the other Awarding Organisations.

Standardisation training for teachers

Teacher training on marking non-examined assessment will be offered. We could explore the ways of facilitating compulsory attendance including the use of online platforms to ensure equal access by centres. In addition to explaining and demonstrating the application of marking criteria, this training would emphasise the need for appropriate task setting and the instructions for the level of teacher support

that is permissible.

Authentication of student work

An independent investigation proposal could be submitted prior to the student undertaking the investigation. This proposal could be reviewed by a Principal Moderator who would provide feedback on the suitability of the investigation proposal and any necessary amendments. This could be used as an opportunity for a teacher to outline what support the student would need for their planned investigation.

A report authentication form could confirm that the work is authentic, individual to the student and that the investigation relates to the specification. This form would be signed by both student and teacher.

Teacher Feedback

To ensure that teacher marking is reliable and student work is authentic, we suggest the following guidance is provided by Ofqual in relation to teacher feedback on the non-examined assessment in GCSE Computer Science.

- Teachers must give guidance on the assessment criteria to enable the student to take the initiative in planning their own project.
- Any additional support provided to a student by the teacher must be recorded on the student's non-examined assessment authentication form.
- Teachers must not give assistance to individual students to improve their work in order to meet the assessment criteria. This includes indicating errors or omissions and intervening to improve the presentation of work.
- Once work has been submitted and receives a mark teachers must not return it to the student to make changes.

Consistency of outcomes across NEA and examined components

A statistical review of teacher marking could be considered. This would be in addition to the statistical regression process. The proposed NEA component would target AO3. Elements of the examined papers – particularly any synoptic elements – will target AO3 also. After moderation has taken place, a review would be undertaken of relative performance on AO3 in the examined components and in the NEA investigation. In this way, a further check is performed to ensure that the marks achieved by a candidate in the NEA are plausible in relation to the marks achieved in an examination.

This check would further ensure the authenticity of the candidate's NEA submission in light of their performance on the examination component. Should performance on the NEA investigation be found to be at odds with that in the examination additional

or whole samples can be requested for further review by a Principal Moderator and marks adjusted accordingly.

We look forward to contributing to any technical discussions that Ofqual will be organising to address this issue.

Question 4

Do you have any views on which of the possible approaches to statistical moderation would be most appropriate for GCSEs in computer science?

(X) Yes () No

We are not in a position to comment on the different approaches to 'statistical moderation' at this stage. We look forward to contributing to any technical discussions with each board and Ofqual about further statistical safeguards that could be employed and other action that would strengthen internal assessment and external moderation, as discussed in answer to question 3.

Question 5

Do you have any comments on the draft Guidance on assessment objectives for new GCSEs in computer science?

(X) Yes ( ) No

If yes, please provide them here:

On page 15 under the final column 'Interpretations and definitions' there is a need to clarify that topics and questions are not necessarily restricted solely to the DfE subject content document as confirmed by Arian Cavendish from Ofqual in an email on 6/11/14.

On page 18 the final bullet point should be a sub-bullet point as it is part of 'Evaluating and refining solutions'.

Question 6

We have not identified any ways in which the proposed requirements for new GCSEs in computer science would impact (positively or negatively) on persons who share a protected characteristic. Are there any potential impacts we have not identified?

( ) Yes (X) No

Question 7

Are there any additional steps we could take to mitigate any negative impact resulting from these proposals on persons who share a protected characteristic? If so, please comment on the additional steps we could take to mitigate negative impacts?

( ) Yes (X) No

Question 8

Have you any other comments on the impacts of the proposals on persons who share a protected characteristic

( ) Yes (X) No