A comparison of assessment at school and university: More than just increasing demands.

Paper presented at the European Conference of Educational Research, Istanbul, Turkey, 2013.

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Introduction
In many countries high stakes assessments are used at the end of secondary school to select students for higher education. However, internationally there is concern from both students and lecturers that new undergraduates have not been adequately prepared for higher education, and that assessment is part of the problem (Suto, 2012; Jansen and Meer, 2012). Thus far, however, there has been no direct comparison of the form and style of the assessments used at school and in the first year of university. In this study such a comparison was made in three popular subjects: biology, English literature and mathematics. The study had three main aims:

1) To develop a coding framework for assessments which may be used to explore and compare assessment types at school and university internationally.
2) To compare the relative diversity of summative assessment types used at school and university within the UK.
3) To compare the extent to which student responses are structured and scaffolded in school and university assessments.

Methodology
A novel binary coding framework was developed which facilitated qualitative and quantitative analyses of the features of assessment relating to the diversity and structuring/scaffolding of assessment. (See Tables 1 and 2 overleaf for further details). The coding framework was used to analyse the assessment paths of students who progressed from secondary education to university in 2011 in England, Wales or Northern Ireland. Students preparing for university entry in England, Wales and Northern Ireland typically study for qualifications (GCE A levels) in three to five subjects. We obtained assessment materials for biology, English literature and mathematics GCE A-levels, as would typically have been used by students obtaining these qualifications in 2011. University departments in these countries which offered undergraduate degrees in biology, English Literature and mathematics were invited to participate. Materials (e.g. question papers, course handbooks, assessment criteria) for the assessments taken by first year undergraduates in 2011-2012 were obtained from 16 university courses. Of these 16 courses, three were biology, nine were English and four were mathematics.

Discussion and Conclusions
The coding framework was applied successfully, identifying a greater diversity of summative assessment types at university compared to at school. Considerable variation among universities and subjects was found. Several assessment types, for example oral assessments, were identified at university, but not school. Although this mismatch between assessment at school and university may indicate that differences in the structure of assessment are (at least partially) responsible for new university students' initial difficulties, Suto (2012) found that university lecturers reported student strengths in oral work, which was not assessed at school, indicating that a close match between school and university assessment structure may be unnecessary. Furthermore, compared to school assessments, university assessments contained similar or greater levels of guidance, particularly for assessments which were probably new to students.

The high levels of assessment diversity at university mean that it would be difficult to reform school assessment to prepare students for the diverse assessments which they may encounter at university. These challenges may not be confined to England, Wales and Northern Ireland. Furthermore, given the increasing globalisation of tertiary education, the use of a wide range of assessment types may facilitate the integration of students from different international and social backgrounds.

Coding Frameworks

Table 1: Binary codes for differing forms of assessment

Assessment code	Coding guide
Coursework	When the assignment is done at a time of the students' choosing before a set deadline.
Closed book exam	Students take the assessment at a specified time, with no notes or external resources (except a calculator).
Open book exam	Students take the assessment at a specified time, but may take notes or books into the exam.
Presentation	Students are assessed on their ability to disseminate their work orally.
Pre-release materials exam	Students take the exam at a specified time, but the questions or topics have been released prior to the exam to allow preparation.
Take away exam	Students take the exam paper away, and have a pre-defined period of several days (but shorter than coursework), which they are expected to mostly devote to the assessment. Differs from coursework by a more formal regulation of the start and finish time, and a shorter period in which to complete the assessment.
Extended writing	Extended piece of writing. Differs from short answer questions by accounting for a higher proportion of the assessment.
Short answer	A piece of writing or production of a diagram, (text or calculation) shorter than an essay, typically in sentences or coherent mathematical steps.
Objective	One word/digit answer, or matching, where one answer is unambiguously correct.
Multiple choice	Students select the correct answer from a list of possible options.
Student generated	Students generate their own title/topic. They may have the form of assessment outlined to them, e.g. essay specified.
Individual	Students perform the assessment task and are marked on an individual basis.
Interactive	The student is required to interact with others (e.g. on a message board discussion or in a seminar).
Written	The task response is provided in written form.
Oral	The task response is provided in oral form (e.g. a presentation).
Practical	The assessment has a practical component (e.g. lab work, fieldwork). The ability to do something practical is assessed, either implicitly or explicitly.
Multimedia	The task response is provided in some form of multimedia, such as a webpage, blog post, etc.
Graphic	The assessment requires the visual organisation of material, such as in a poster or PowerPoint slides.
Programming	Students produce a piece of code that may be used on a software program.
Creative	The product is the result of a creative process (e.g. students write a poem).

Table 2: Binary codes for structuring and scaffolding categories.

Assessment code	Coding guide
No question provided	Students are required to generate their own topics and titles, but will be told the form of the piece of writing (e.g. essay, sonnet).
Unstructured	Students are given a title/question, but no structure is provided explicitly. Only questions assigned two marks or more may be considered unstructured.
Structured questions	Questions are broken down into numbered sub-parts.
Multiple choice questions	Students select the correct answer from a list of possible options
Answer space manipulated	The space which students are given to answer their questions is manipulated, giving information about the appropriate length of response.
Guidance	Additional written support about content or structure is provided, but no further information about how much space/time should be devoted to each guidance point. For example, the guidance could include signposting (e.g. your answer should include…). There could also be some indication of the preferred structure of the

	answer (e.g. two paragraphs).
Emphasis of question focus by formatting	Important words are highlighted using bold or italics, to avoid confusion. In some mathematics assessments bolding of individual graphemes may be bold or italicised to distinguish them from the text. These are not counted as emphasis by formatting.