

Using assessment grids for formative, summative and self-assessment of student-based learning to support the learning of database modelling techniques in a mixed-language group of postgraduate computer science conversion students

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Introduction

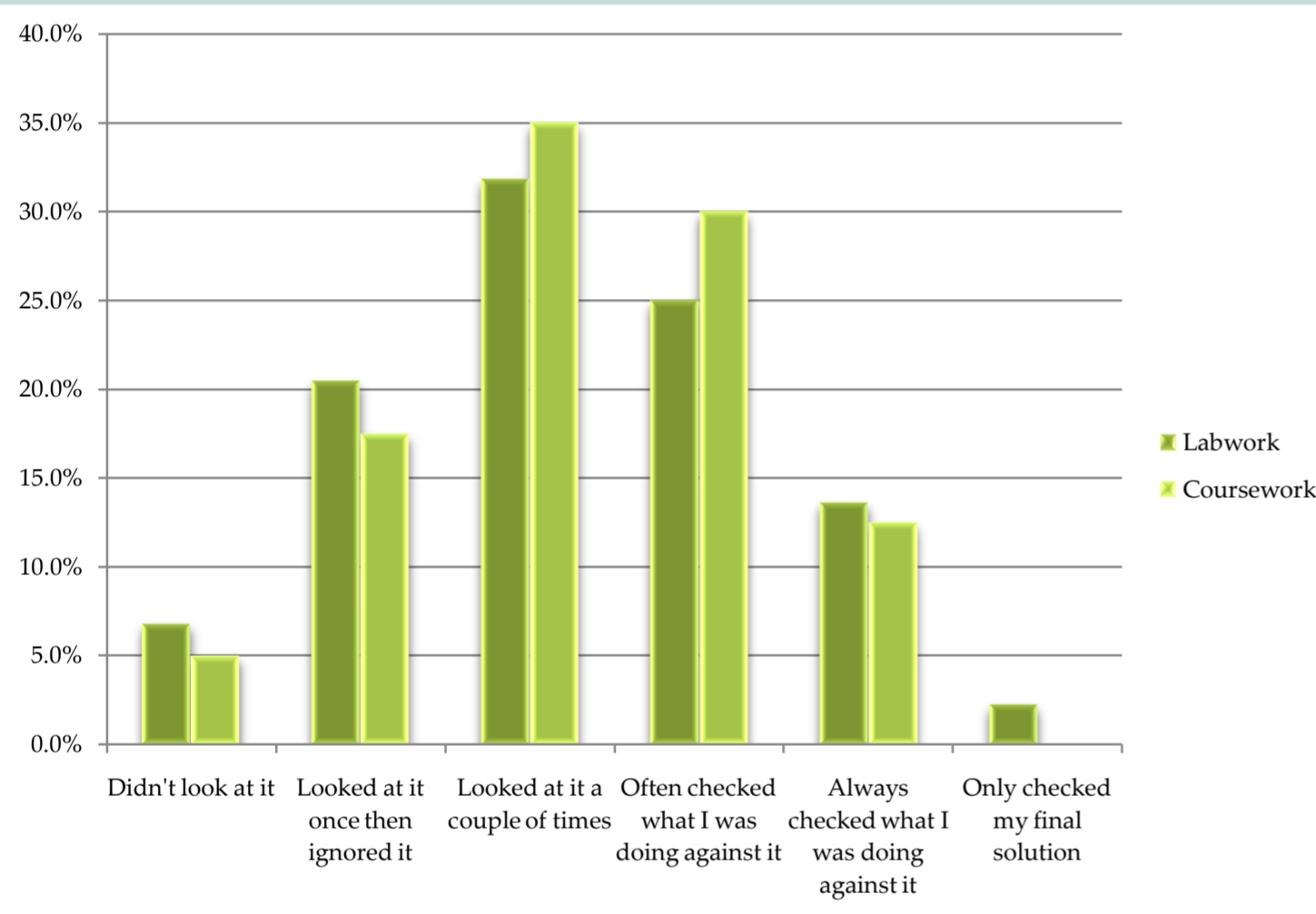
Assessment is a large and important part of any educational system, yet questions have been raised on the reliability of the assessment systems used within higher education [Baume *et al*, 2004]. With the increasing tendency for courses to be assessed relative to a set of learning objectives it is necessary to have some method of reliably assessing whether students have met these objectives in a practical manner.

Objective-based assessment is often implemented through criterion-referenced marking. This involves having explicit definitions of what is required to pass an assessment or, in more sophisticated forms, to gain a specific grade in an assessment. One approach that has been widely used for this is based upon the assessment grid developed at Oxford Brookes University [Price & Rust, 1999, Rust *et al*, 2000, O'Donovan *et al*, 2001].

The aims of this study were to investigate use of these grids by both staff and students for formative, summative and self-assessment and to identify improvements in practice that can be applied to the use of these grids in future.

Self-Assessment Grid – Information Systems Development – Lab 1

FEATURE	EXCEPTIONAL A	MERITORIOUS B	COMPETENT C	PASS D	BORDERLINE FAIL E	FAIL F
Identify tables	Adds tables in a way that avoids data duplication	Adds relationship tables	Adds three or more new data tables	All tables from example plus one or two new data tables	Only includes tables from example	Does not include all features discussed in the example
Identify attributes	Organises attributes in a way that avoids data duplication	Organises attributes in a logical manner	Identifies attributes involved in relationships	Adds obvious new attributes	Only includes attributes from example	Does not include all features discussed in the example
Identify constraints	Identifies complex key constraints	Identifies simple key constraints	Identifies data types for all new attributes	Identifies data types for all example attributes	Only identifies constraints from example	Does not include all features discussed in the example
Identify relationships	Adds relationships in a way that avoids data duplication	Adds relationship tables	Adds relationships between new tables	Adds simple relationships between original and new tables	Only includes relationships from example	Does not include all features discussed in the example
Create ER diagram	Shows 1:1, 1:many and many:many for all relationships	Shows relationships between new tables	Includes new simple relationships on diagram	Includes new tables on diagram	Only includes information from example	Does not include all features discussed in the example
Create schema	Shows all keys and relationships	Shows new relationships	Adds new relationship tables	Adds new tables/attributes	Only includes information from example	Does not include all features discussed in the example



Summary of student use of self-assessment grids

Results & Recommendations

The primary aim of investigating the use of the assessment grids by the students has been partially met. It is clear that at least some of the students report that they use the assessment grids for reference when working on both lab problems and courseworks. The lack of responses to the request for the students to provide their self-assessed grades when requesting feedback prevented a comparison of self-assessed and tutor-assessed grades in these cases.

The secondary aim of investigating tutor use of the assessment grids was met. It appears that most tutors are receptive to the advantages of using these to improve the consistency of marking and to aid in providing feedback to the students, particularly in highly technical but practical subjects. There is, however, some resistance to the idea of giving students too much information that it encourages them to limit the effort they put into a piece of work. In general tutors appear to be rather cynical about how much students actually use such information. This study found that students report using the assessment grids far more than tutors believe that they use them.

The final aim of providing recommendations for the improved use of such assessment grid was also met. It is clear from the student responses that students feel that to get the most out of the grids they need to be explained in depth before use. This is certainly something that the author intends to do in future. There are potential issues with the use of clear and simple English in these grids, particularly when working with international students, and care must be taken to provide guidance on criteria not on content.

Example of self-assessment grid

Usage

Students were given self-assessment grids to support three lab sessions and a marked coursework and were later asked to anonymously answer a questionnaire on how much they used these grids and how useful they thought the grids had been. 22 out of 28 students responded. There was no significant difference in their usage of the assessment grids in the labs compared to their usage in courseworks.

All students claimed that having the information provided by the grids was useful, with 75% of them saying that it was either 'fairly helpful' or 'very helpful':

"I think this assessment sheet really help students to an extent as one can mark oneself accordingly and moreover it gives lot of clues what to be done."

Tutor usage of the assessment grids varied greatly. 5 out of 6 tutors responded and of these 2 had never used the assessment grids before but the other 3 used them regularly. Opinion of their usefulness was also polarised:

"These are extremely effective in clear cut marking schemes such as for database/software (practical subjects)."

"It makes explicit information that will not be available in an explicit form later in life, so they should learn to work without it."

	I have never used grids such as these	I have used them occasionally in the past	I use them occasionally at present	I normally use them	I always use them	I used to use them regularly but gave up using them
For marking	2	1	1	1	1	0
For student guidance	2	1	1	2	0	0
For student self-assessment	3	0	0	2	0	0

Summary of tutor use of self-assessment grids

References

- O'Donovan, B., Price, M. and Rust, C. (2001) 'The student experience of the introduction of a common criteria assessment grid across an academic department', *Innovations in Education and Teaching International*, vol. 38, no. 1, pp. 74-85, January, ISSN 1470-3297.
- Price, M. and Rust, C. (1999) 'The experience of introducing a common criteria assessment grid across an academic department', *Quality in Higher Education*, vol. 5, no. 2, pp. 133-144, July, ISSN 1353-8322.
- Rust, C., Price, M. and O'Donovan, B. (2003) 'Improving students' learning by developing their understanding of assessment criteria and processes', *Assessment and Evaluation in Higher Education*, vol. 28, no. 2, pp. 147-164, March, ISSN 0260-2938.