Web Support for Student Peer Review

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What is student peer review

- Assessment of student work by other students
  - Formative review of draft or prototype
  - Summative (with tutor moderation)
- Reviews
  - Quantitative (%) or
  - Qualitative (text) or
  - Both

Potential benefits to students as authors

- Extra feedback a tutor cannot provide
  - Less expert feedback but
  - More useful feedback than
    e.g. computer based quizzes
- Authors receive multiple reviews
- Reviews use explicit criteria
- Here in a software development module where evaluation skills are a learning outcome

Potential benefits to students as reviewers

- Motivates, ownership of the assessment
- Encourages the self-assessment needed to manage own learning
- Encourages responsibility, autonomy, and 'deep' learning
- Better understand the assessment criteria
- Practise evaluation as a skill
- Gain academic values: we induct students into the scholarly community where anonymous peer review is a key process

Potential benefits to tutors

- Provide more feedback to students and improve their performance

- Demands greater clarity of assessment criteria

- Students understand assessment criteria better and perform better

- … as long as the administration is not a burden

Previous experience 1999/2000

- Formative and summative student review in MSc IT module on development of web sites

- Final coursework is 50% of assessment

- Coursework prototypes in web spaces

- I assigned author-reviewer pairs in 38 students

- I sent emails inviting authors to review 5 web sites

- A standard web form emailed each review to the author and to the tutor

Results of 1999/2000

- Administration was time-consuming and error-prone
- 35 of 38 students did the formative reviews of text and percentage grades
- But only 22 did the summative reviews, in the exam revision period
- Authors were not anonymous

16 student evaluations

Most said:

- Anonymity allowed criticisms to be 'ruthless', and more valuable

- Seeing other students' work was valuable

- Text criticisms of prototype were more valuable than marks

- Timing was difficult – they needed longer to use the criticisms before final submission

- Many anxieties about summative grading, so must be tutor moderated

Innovation project objectives

Develop software to administer anonymous peer review, notifying students by email and collecting reviews by web forms, allowing monitoring of the reviewing process, and archiving of reviews.

The tutor to provide

- Authors' and reviewers' emails
- The items to be reviewed (possibly as URLs)
- The number of reviews per author
- The criteria (form) to be used by reviewers
- The type of feedback required: text/grade
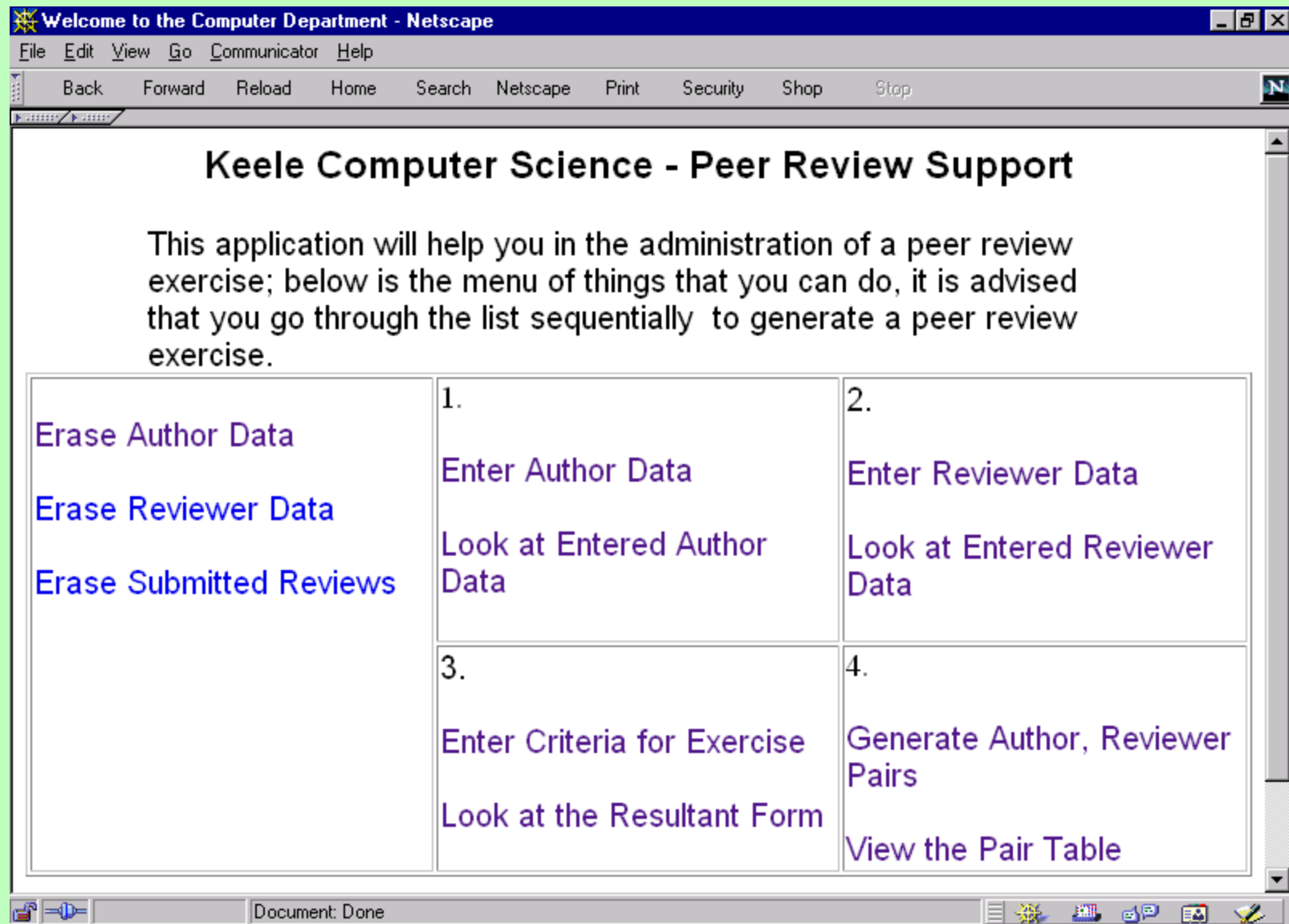
Constraints

- Anonymity needed for reviewers & authors
- Security – only correct reviews must be sent to authors, and only one review accepted
- Equal reviewing loads to reviewers
- Avoiding pairs of students who review each other's work
- Using a Keele server, therefore Perl scripts

Version 1, 2000/01
68 students

- Students did a practice review on previous student work

- 4 formative and moderated summative reviews per author

- Reviews submitted were identified by a code number *plus* reviewer's username

- Reviews emailed to authors plus turned into web pages for tutor

Version 1, 00/01

Welcome to the Computer Department - Netscape

File Edit View Go Communicator Help

Back Forward Reload Home Search Netscape Print Security Shop Stop

Keele Computer Science - Peer Review Support

This application will help you in the administration of a peer review exercise; below is the menu of things that you can do, it is advised that you go through the list sequentially to generate a peer review exercise.

Erase Author Data Erase Reviewer Data Erase Submitted Reviews	**1.** Enter Author Data Look at Entered Author Data	**2.** Enter Reviewer Data Look at Entered Reviewer Data
	3. Enter Criteria for Exercise Look at the Resultant Form	**4.** Generate Author, Reviewer Pairs View the Pair Table

Document: Done

2000/01 Results

- Most formative and summative reviews were done

- Some student errors in completing review form meant some students received few, or wrong, reviews

- Summative reviews 'moderated' by complete re-marking, partly to see the accuracy
  - Mean same as tutor, correlation = 0.59
  - SD 6.2% per author, range 13.5%

34 student evaluations

- Was practice marking useful? 88% Yes
- Was discussion of criteria useful? 87% Yes
- Reviews received were done professionally? 57% Yes, 21% No
- Reviews of prototypes:
  58% useful or very useful for improvements
- Happy with moderated summative peer assessment? 61% Yes, but cautiously
- Should we do it next year? 79% Yes

2001/02

- 60 UK students plus 55 in Sri Lanka
- Each given a unique assignment title
- Formative reviews only, four per author
- Policing of reviews:
  2 reviews at random marked by the tutor as 10% of module assessment

Version 2, 2001/02 software improvements

- Batch input of student lists
- Security improved
  a unique code was built into the URL of the review form sent to the reviewer, and then used to identify the review, check it was not yet submitted and email and store it.
- As a result, no reviews mis-filed and few not completed (except for 2 absentees)

2001/02 screens

1. List of assignments titles
2. List of author-reviewer pairs
3. Criteria for coursework assessment
4. Form for review submission
5. List of Keele reviews submitted
6. An example review

18 student evaluations

- Only 6 found *all* reviews done 'professionally', worse than in 00/01
- Most (13) found the reviews useful
- Split evenly on summative use
- 69% recommended using again
- Had similar likes and dislikes as 00/01...

Best and worst aspects, student views

Best

- Getting constructive comments
- Learning design by evaluating
- Seeing other student work
- Clarifying the assessment criteria

Worst

- Time taken assessing
- Not anonymous (they felt)
- Getting poor reviews
- Prototypes being incomplete
- Being kind to others

frequent

frequent

Conclusions

- Formative student reviews are valuable for students as authors and reviewers
    - Receiving constructive criticism
    - Reviewing is a valuable activity
    - Clarifies assessment criteria
- Summative review – not worth the costs?
    - Student anxiety
    - Staff time for moderation
- Need multiple assessors and double anonymity
- Review quality needs policing

Version 3 of software

Process was improved in 01/02, now it must be

- Capable of managing multiple review events
- Moved to a server allowing wider access
- With a Web interface and login for tutors to
  - Upload student lists, and edit them
  - Generate the web form from criteria, for formative and/or summative purpose
  - Generate and check author-reviewers
  - Generate emails
  - View reviews as they are submitted