

# Best Practice Turnitin Working Group

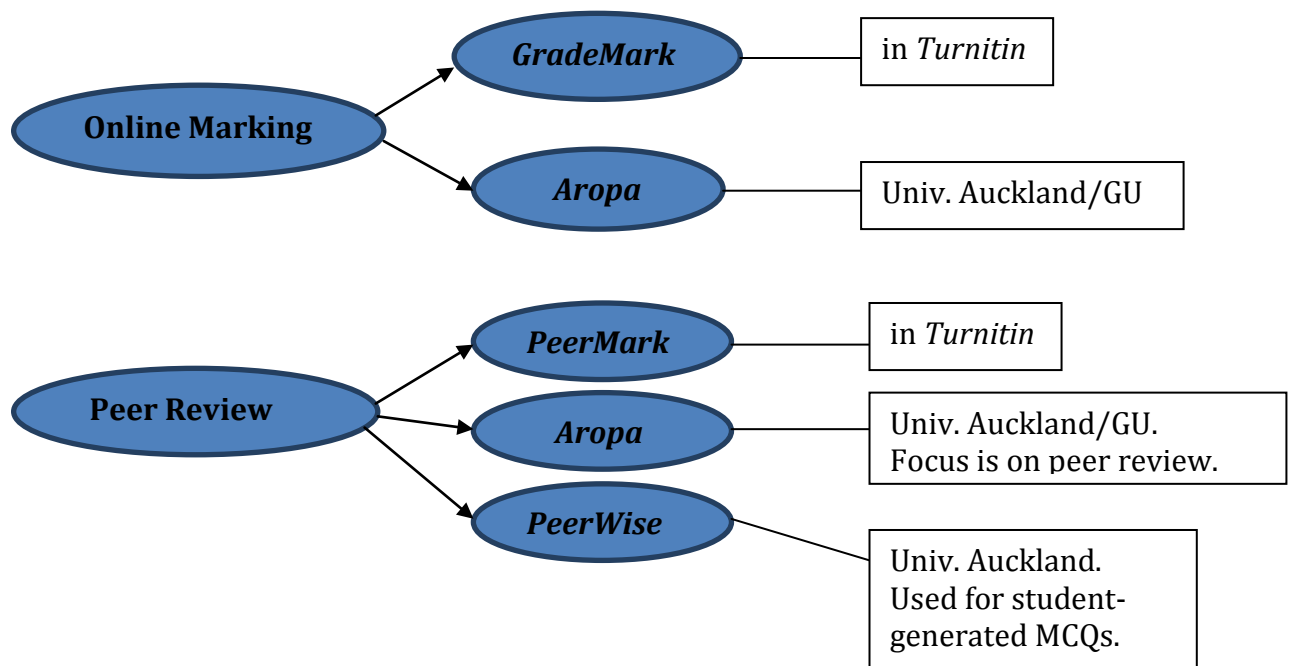
## Final Report

### Introduction

The *Turnitin* software package provides three integrated functions:

1. **OriginalityCheck.** This is fairly widely used in the University, providing a means of testing the originality of essays, encouraging good practice in citation and deterring plagiarism.
2. **GradeMark.** This provides a system for accepting online submission of students' work, for marking it online, then returning the marked work online.
3. **PeerMark.** This enables the online submission of students' work, distributing it to their peers for them to review and return comments.

The remit of the Working Group was to investigate the functions (2) and (3), to assess their functionality, to compare them with alternative software solutions and to make recommendations for adoption and support. The diagram below summarises the packages assessed.



### Turnitin Products

(see [www.submit.ac.uk](http://www.submit.ac.uk), further information at [www.turnitin.com](http://www.turnitin.com))

#### **GradeMark**

This is integrated with *Moodle*, making it easily accessible. There are many useful features facilitating providing good feedback (not least, legible feedback), including the ability to insert standard stored comments. It is simple to use and works effectively with students. One important benefit is the very much higher rate of

students picking up their marked work electronically, compared with traditional picking up of hard copy from School offices. Appendix 1 gives a summary of the positive experience of Kevin O'Dell and Joe Gray using *GradeMark* for the first time to mark around 400 Level-2 Essential Genetics short essays. One practical issue they identified was the choice of submission deadline. Choosing 4pm on a Friday resulted in a large number of students seeking to submit very close to the deadline with resulting system (probably the local network or *Moodle*) congestion. A 3am deadline is planned in future to hopefully stagger submission and so avoid this problem.

### ***PeerMark***

A key issue with *PeerMark* is that it is not currently integrated with *Moodle*. To make use of this functionality, it is necessary for students to submit their work directly through the *Turnitin* website ([www.submit.ac.uk](http://www.submit.ac.uk)). There has, so far, been no significant usage of *PeerMark* at Glasgow.

### ***Submission***

If *Turnitin* services are accessed via *Moodle*, it is possible to use *GradeMark* and *OriginalityCheck* simultaneously, with the students only having to submit the document to the system once.

If *Turnitin* services are accessed via [www.submit.ac.uk](http://www.submit.ac.uk), all three *Turnitin* services (*OriginalityCheck*, *GradeMark* and *PeerMark*) can be used simultaneously.

If students submit work to *OriginalityCheck* and/or *GradeMark* in *Moodle* then they have to be asked to submit it again via [www.submit.ac.uk](http://www.submit.ac.uk) if *PeerMark* is also to be used. It is therefore better to use either one system or the other from the outset, based on which of the three *Turnitin* services are required.

## **Alternative Products**

***Aropa*** (see: [www.dcs.gla.ac.uk/~hcp/aropa/index.html](http://www.dcs.gla.ac.uk/~hcp/aropa/index.html))

Originally, and still being developed at the University of Auckland, this is also being developed at the University of Glasgow by Dr John Hamer and Dr Helen Purchase in the School of Computing Science. This provides both online submission/online marking and peer-review functions. The focus of *Aropa* is peer review, with a straightforward process to distribute submitted work to those who are to mark it. The chosen markers could be one or more staff members, hence the ability of *Aropa* to service online marking. *Aropa* was successfully used in the School of Veterinary Medicine and the School of Computing Science last year, for example and is being rolled out to other areas, including Level-1 Biology this year.

***PeerWise*** (see: [peerwise.cs.auckland.ac.nz/](http://peerwise.cs.auckland.ac.nz/))

This is also from the University of Auckland. It provides a very specific peer-review functionality. It requires students to compose Multiple Choice Questions (MCQ) based on their course. Students then answer and comment on each others questions. In this way, a bank of questions is built up which have been student-rated on quality and difficulty. The process is very straightforward to set up and is then almost completely student driven. There is positive experience of using this in the School of Veterinary Medicine, the School of Medicine (Medics and Dentists) and the School of Life Sciences (for example, 1<sup>st</sup> year Biology with 650 students); the composition and review process enhances the students' learning since it forces them to look at the

course material in detail. It also produces the bank of questions which the students are very keen to have available for practice.

### ***Others***

Other, more *ad hoc* methods of online submission are in use, for example submission by email, with work returned, marked up, including the possibility of including audio files.

### **Usage Elsewhere**

Kerr Gardiner has conducted a survey of other HE institutions to assess the usage of *Turnitin* and other competing products. A summary of the responses is attached as Appendix 2. The general picture is that other institutions are at a similar stage to ourselves: significant usage of *OriginalityCheck*, some usage of *GradeMark* with increased usage anticipated, very little usage of *PeerMark*, and a variety of other approaches to online submission/marketing.

### **Costs**

The current *Turnitin* licence (covering institution-wide usage of *OriginalityCheck*) permits usage by up to 10% of students of the *GradeMark* and *PeerMark* functions. Usage beyond that level would incur additional annual licence costs of some £5500. *Aropa* and *Peerwise* are free.

### **Recommendations**

#### ***Online Marking***

There are clearly significant benefits to be gained from online marking. These include efficiency and improved quality of feedback to students. Marking can be done anywhere with internet access, and there are no hard copies to go missing or be stored. Some staff may be disinclined to work on screen rather than on paper. While, to some extent, adoption may be an individual preference, one individual should not provide the block to adoption for a large course if the rest of the course team and the students wish to adopt online marking.

Both *GradeMark* and *Aropa* provide similar functionality for online marking. A detailed comparison is provided in Appendix 3.

#### ***Peer Review***

*Peerwise* provides a very specific functionality, peer review with MCQs.

Both *PeerMark* and *Aropa* provide similar functionality for peer review of work submitted online. A detailed comparison is provided in Appendix 3.

#### **Recommendation 1**

It is recommended that both *Turnitin* (*GradeMark*, *PeerMark*) and *Aropa* are promoted and supported within the University, with Appendix 3 informing choice between the two. For example, if the *OriginalityCheck* function from *Turnitin* is already being used, then *GradeMark* may well be the natural choice for online marking. Alternatively, the features of *Aropa*, its local support, and zero cost may favour it for peer review. There will be modest cost implications if *GradeMark* and

*PeerMark* become more widely used, but these should be more than compensated for by more efficient use of staff time and improved feedback to students.

### **Recommendation 2**

It is recommended that *Peerwise* is supported and promoted within the University as a tool that may be useful to support learning on appropriate courses.

### ***Support***

The Learning & Teaching Centre are currently in the process of taking on the support of *Turnitin* from the Library and do already provide some support for *Aropa* and *Peerwise*. This is the natural location for unified and coordinated (pedagogical and technical) support for these software packages that aid learning, teaching and assessment.

David Fearn, Convener  
6 October 2011

## Appendix 1

### The use of Turnitin to Grade Essays in Level 2 Essential Genetics.

#### Background

Level 2 Essential Genetics is a 10 credit course running in semester 1 that comprises 22 lectures, 2x 2hour laboratories and an optional weekly tutorial. In the 2010-11 session the course was taken by c400 students, most of whom will ultimately complete a degree in some Biology discipline. Assessment comprises a 90 minute examination (70%: 50xMCQs & 5 from 7 short answer questions), three take-home 'problem' questions (15%) and a take-home essay (15%). The entire course is delivered by two members of staff (Kevin O'Dell & Joe Gray).

#### The Assessed Essay.

For the 2010-11 session we introduced an essay as part of the assessment. There were two primary reasons for this:

- 1, to encourage the students to write in an appropriate scientific fashion. Therefore the structure of the essay, especially the manner in which scientific source material is referenced, is a critical component of the exercise.
2. to reinforce the idea that Genetics is a thriving area of contemporary biology that is relevant to their everyday lives.

#### Essay Instructions.

The following instructions were posted on the Level 2 Essential Genetics Moodle site on Wednesday 29<sup>th</sup> September 2010. The fact that a 500-word essay would need to be submitted on Friday 22<sup>nd</sup> October as part of the course assessment was included in the Course Information Document. The other details were not.

*As part of the continual assessment for L2 Essential Genetics 2010, we would like you to write a 500 word essay of your choosing, based on the following criteria.*

- 1, The submission date is 4pm on Friday October 22nd 2010.*
- 2, Your essay should be based on a 2010 news article from the BBC Website.*
- 3, The original article should deal with some aspect of Genetics. Therefore it is very likely to have one of the following words in its title; gene(s), inherited/inheritance, genetics, DNA, RNA, evolution, etc.*
- 4, The essay should be 500 words long. By '500 words' we mean 500 words +/- 10% (ie 450 to 550 words). The 500 words limit does NOT include figures, their legends and the reference list.*
- 5, Prepare the essay electronically, and submit the essay via this Moodle site using Turnitin. Precise details of how to do this will be posted on this thread later.*
- 6, The objective of the essay is for you to tell us in more detail the science (specifically the genetics) behind the story. This may well include finding the original source article of the story.*
- 7, Any questions please post them to the student forum.*

#### Timescale

We managed to mark, grade and return the 400 essays within two weeks.

**Submission:** 4pm Friday 22<sup>nd</sup> October (extended to midnight Sunday 24<sup>th</sup> October when submission problems became apparent)

**Practice marking:** Monday-Wednesday 25<sup>th</sup>-27<sup>th</sup> October (to ensure the two markers became familiar with Turnitin and were marking and grading in a similar fashion)

**Marking:** Thursday 28<sup>th</sup> October to Thursday 4<sup>th</sup> November  
**Returned to Students:** 9am Friday 5<sup>th</sup> November

### Student Feedback from Class Questionnaires

At the end of the course examination in December 2010, all 400 students sitting the examination were given the opportunity to evaluate a variety of aspects of the course. They were also given the opportunity to comment on the course and whilst about half elected to do so, only one commented directly on using Turnitin:

*Good module. Essays were weak point (Turnitin etc).*

### Student Feedback on Moodle.

We use Moodle extensively (especially the forum facility) and chose to manage the submission of the Essay using Turnitin within the Moodle site. Two threads in our Moodle forum covered issues linked to submitting the essay via Turnitin.

Class representative		Kevin O'Dell	52	Tue, 26 Oct 2010, 07:23 PM
Questions about submitting the Essay via Turnitin		Kevin O'Dell	171	Tue, 26 Oct 2010, 07:04 PM
Take Home Essay Thread		WILLIAM MARTIN ROONEY	5	Mon, 25 Oct 2010, 02:23 PM

The main discussion points were:

- Practical issues regarding submission of the essays
- The significance (or otherwise) of the similarity score
- Plagiarism
- General questions about what was expected from the exercise
- How to get access to marked essays
- How they should approach the exercise (especially finding the source article)
- Whether a specific chosen topic was appropriate

### Positive Experiences.

i: Benefits from the staff perspective:

- We graded, marked and returned 400 essays on-line within two working weeks with no prior knowledge of Turnitin.
- Turnitin is very easy to learn and intuitive to use, even for two technophobes like us. Once you are familiar with Turnitin it will definitely save you time.
- We had no difficulty in adapting to reading and marking on screen.
- It was quick and easy to write embedded feedback.
- As these were short, 500 word essays we chose to write a single short paragraph (usually about five sentences) of personal feedback integrated into a text box embedded into the essay. After the essays were returned we left some generic feedback on how we felt the class had performed in the exercise on the Moodle site.
- We could grade essays at any location on campus or at home, provided we had internet access. The speed of the system was acceptable.
- There were no paper copies of scripts to be tracked or go missing.

ii, Benefits from the student perspective:

- Probably the most important benefit from the use of Turnitin came in improving the delivery of feedback. Three days after allowing the students access to their marked essays, a show of hands at the 9am lecture suggested

that c90% of students had already accessed their essays and read our feedback comments. This is a dramatic improvement on previous years when fewer than 25% of the paper-based, hand-marked scripts were ever collected from the School Office.

- Our on-screen comments were more legible than written ones would have been.
- The Moodle threads on plagiarism and similarity scores allowed us to discuss these issues with the students in a depth that wouldn't have otherwise been possible.

### **Negative Experiences.**

Moodle could not cope with the sheer volume of traffic around the 4pm submission deadline and this caused a bit of panic, anxiety and some resentment among those students who missed the deadline. As a result we extended the submission deadline. Most students who posted negative comments on Turnitin did so because of this issue.

We allowed students to submit a draft version to Turnitin prior to the original 4pm submission deadline (hence the discussion of the significance of 'similarity' scores). Eleven students who submitted a draft then failed to submit a final version (possibly due to the system freezing around the submission deadline or for other idiosyncratic reasons). Whilst it was fairly easy to find out who these eleven students were, we could find no simple way of identifying which of the 393 draft essays were theirs.

### **Improvements to Turnitin.**

- To facilitate marking by different members of staff it would be helpful if essays could easily be sorted into different bins post-submission. In this case the two staff involved marked even and odd numbered scripts, but this would get progressively more confusing and complicated with multiple markers.
- It would be helpful to have some way of sorting the essays to allow us to check whether the two markers produced a similar spread of grades.
- The capacity of the system to cope with peak traffic needs to be dramatically improved.

**Kevin O'Dell & Joe Gray: Tuesday 29<sup>th</sup> March 2011**

## Appendix 2

University	Q1-VLE	Q2-Plagiarism	Q3-Grademark	Q4-Peermark	Q5-Others	Comments
UCL	Moodle	~2100 Turnitin assignments across all our Moodle courses – covering ~4200 modules. Usage increasing rapidly.	The usage of Grademark is difficult to quantify, but based on conversations with staff and the support queries we receive, a small proportion of our academics appear to be using it, although the numbers are slowly increasing as Turnitin becomes more widely adopted. Some staff use Grademark purely to give a grade back to students – without any of the commenting functionality – unless they have heavily plagiarised and then a comment may be added in to explain the low grade.	We don't have access to Peermark.	Some staff use Word and others use PDF readers with annotation capabilities to comment upon student assignments. I would say the majority however, still prefer to mark assignments on paper.	Next session we are going to release a Moodle course on academic writing for all students which gives them the opportunity to submit their work to Turnitin and view – and learn from – the originality reports. We think it will be quite popular...
Loughborough	Moodle v1.9.11	Depends on department and individual tutors. Some depts. have a policy, and have a sub-administrator to handle all the submissions. Many depts. use it for first year work and final year dissertations, and only when suspicious in between. We do not allow students direct access to Turnitin because we don't think they would magically become plagiarism-aware and mend their ways to eliminate copying – they would just find ways round the system.	Very little – say less than a dozen tutors (out of 800). There may be some interest in our Teaching Centre sponsoring projects to develop custom comment banks, and this may promote its use.	Not at all. We avoid this because we have an in-house tool (Web-PA) which is the preferred peer assessment tool.	Yes, our coursework-only English dept use the online marking tools in Moodle 's Assignment activity. However this isn't perfect and no tool has been found that will allow double-blind anonymous marking, which some departments require.	



Solent	Moodle (with Moodle Direct Tii Plugin)	Launched university wide this semester (Jan 11) as mandatory submission point for ALL text based assignments. So far approx 10,000 students and 20,000 submissions - more to come after Easter. This follows 3 years of tests and pilots.	Some tutors using Grademark (not gradebook!) - Online marking to be rolled out from September.	We don't at the moment.	Some use of Mahara feedback, Moodle gradebook/assignment upload comments area also being used for binary files (mp3s, spreadsheets etc)	The biggest investment was in awareness and support which has proved itself to be worth every penny as the roll-out has been very positively received by students. <a href="http://mycourse.solent.ac.uk/turnitin">http://mycourse.solent.ac.uk/turnitin</a>
Edinburgh	WebCT Vista is our centrally supported VLE.	Used by over half our students, with 40-50,000 originality reports per annum	(I assume this question is about Grademark not Gradebook.) The Turnitin stats show virtually no usage this year, but we know this is not the case, but expect it to be only a few thousand per annum. We do, however, expect this to continue growing over the coming years.	We have some issues with this system, but it has been used by a few groups (even though the Turnitin stats show no usage).	We have some staff who prefer off-line (developed in-house) marking solutions, but I am not aware of any other on-line tools being used.	We make significant use of Turnitin, though we have some concerns about the stats generated by the system so it is hard to tell exactly how much use (the latest we have heard from Turnitin is that they expect their stats to be fixed by 19 April)
Huddersfield	Blackboard 8 – moving to Bb9.1 over the summer	All student coursework that can be submitted to Turnitin is run through it – it is the academic staff member's responsibility to check it.	I assume you mean Grademark not Gradebook? It is used increasingly across the school. Academics have the option of using it for marking and there is a steady uptake of it each year. We have developed a system whereby marks can be exported from Grademark directly into the student management system to alleviate the need for transcription. We also have a system whereby double marking and external examination occurs through grademark.	It is used very little – but there is some use of it in the school.	Some colleagues are using track changes in word.	This varies across the institution – the answers are in the case of the school which uses it most extensively:
Lancaster	LUVLE, a home grown VLE authored in IBM Lotus Notes	Embedded in 27% of modules in May 2010	Experimental	Experimental	Marking in VLE, no other anti-plagiarism tools	

Exeter	Moodle - externally hosted with ULCC	last academic year approx 15,000 submissions, so far this year 14,000+ submission, expecting to increase significantly this year and subsequent years	very small scale use by innovative academics. We have just conducted a full evaluation of the functionality of Gradebook to see how it could be used on a wider scale	not currently used	Currently developing new module for Moodle to handle full online submission, marking and feedback which will be fully integrated into Turnitin allowing all submissions to generate an originality report and use of Grademark as a marking option
Bradford	Blackboard	Extensive use. From academic year 2011-12, all coursework must be submitted electronically where possible/practical; where electronic submission possible, TurnitinUK should be used	One successful pilot project in one school with an interdisciplinary team marking approx 150 students' work. Second school has requested training using GradeMark. Some individual lecturers. Would like to use Rubrics feature but at the moment, it doesn't do what we want it do and the interface is not suitable for use with a 5 column marking grid.	Not aware of it being used. Peermark has only just become available to University of Bradford so not promoted.	Two schools have developed in-house solutions using web-based marking grids with space for comments. These can be emailed to students when marking has been completed.
Cambridge	Sakai	Occasionally, a few courses have all key resources known to be in the Turnitin database and those courses use it more. Economics is an example. In general it is regarded as a low level deterrent rather than an effective academic tool	We don't AFAIK	We don't	No. At present there is relatively little online submission.
Glamorgan	Blackboard v9.1	It is embedded within the VLE – all assessment submissions which are text based are submitted this way (around 7,000 per month)	About 20% of staff are using Gradebook – from September one of our four faculties will be using it for all marking of Turnitin submitted content. We expect to roll out the experience of that one faculty in future years.	Peermark is being used as a pilot in all of our faculties, but take up is currently no more than one or two staff per faculty. On the outcome of the pilot we intend to take it further.	The psychologists have developed a tool of their own as part of an innovation grant, but as Grademark does all they were looking for they are now migrating to that.

SHU	Blackboard 9.0	We use the text-matching part of Turnitin a fair amount. Everyone has access to it at the university. Used summatively and formatively	not used	not used	We have other on screen marking techniques like audio feedback, in context word commenting, and spreadsheet templates
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## Appendix 3

### Functional comparison of Turnitin and Aropä

The following group of staff met to compare the two pieces of software: Kerr Gardiner; John Hamer; Helen Purchase; Amanda Sykes; Heather Worlledge-Andrew. The group emphasised that deciding what to use was not purely about the technology but about issues such as choosing between a product developed by staff of the University or one purchased from a commercial source, whether the product was integrated with Moodle or not, and what support was available for functional as well as pedagogical best practise.

#### Marking Online

##### Turnitin WriteCycle

**Grademark** is fully integrated with the version of WriteCycle/Turnitin that is accessible via Moodle. Moodle is not simply an overlay interface for logging into the native Turnitin but a fully integrated resource. If students are already making use of the academic writing development section of Turnitin, known as Originality Check, then Grademark could be used without the students needing to submit their work anywhere else. The system could also be used to give feedback on the originality report results. Grademark is designed to be used by staff who wish to give feedback, both short and detailed, to students and can be used to simply give feedback or to allocate a grade as well. Grades can be shown as numbers or as an alphanumeric, for example A1, B3

Within Grademark instructors can:

- use generic rubrics for marking making use of scales and criterion set by the instructors
- add customised rubrics to each assignment
- create new rubrics based on existing ones
- export and import rubrics between assignments in order to share them with other staff
- highlight sections of text within the students work
- add comments within 'speech bubbles' embedded, in context, within the student's assignment
- add comments directly within the body of text of the student's assignment
- build up a bank of commonly used comments in order to save typing
- share these banks within a team of markers to ensure consistency of feedback
- import and export sets of your own, subject dependent, comments between different assignments

- utilise many preset feedback comments based on the following areas: composition, composition marks, format, punctuation, usage
- download spreadsheets detailing students grades
- Anonymous marking and feedback is fully supported. Double marking is possible but double blind marking is not.
- Students can see their own feedback but not that of other students
- New GradeMark with ETS [e-rater](#) Technology has just been added to Turnitin which will automatically give students detailed feedback on the grammar. The upgrade press release states, 'The *e-rater* technology automatically flags grammar, style, usage, mechanics and spelling errors so instructors can spend less time correcting and more time teaching. Students can view their marks and access grade-appropriate grammar handbooks that offer feedback in ten languages. Instructors can easily edit or remove individual marks on the student paper or choose to expose or hide entire categories of feedback. The ETS *e-rater* marks can be layered with Turnitin's other integrated writing tools, OriginalityCheck for plagiarism prevention and PeerMark for online peer reviewing.' This will be available via the Moodle plug-in in the near future.

## Aropä

Aropä allows reviews to be allocated to markers and/or students. There is no separate 'grading' module. A pure peer-review activity involves no markers, and a pure grading activity involves no student reviewers. A combination of the two is also supported. When using markers, the reviews can either be shared equally between the marking team, or each member of the marking team can mark every submission. In all cases, a single common rubric (as defined by the instructor) is used.

When receiving feedback in a mixed activity, students are not automatically told which reviews were written by peers and which were written by markers. However, a rubric can always be designed to record this information (although it would be up to peers and markers to fill this in correctly).

Aropä does not support embedding annotations ("speech bubbles", etc.) within a student's assignment.

Grades are entered as Likert-scale radio buttons. Numeric grades can be represented using radio buttons.

Banks of feedback comments are not supported.

## Peer Review

### Turnitin WriteCycle

#### Peermark

- Both free response and scale questions can be posed

- Questions are written using a WYSIWYG editor interface so are easy to produce
- Questions can be added to Libraries for sharing between tutors to save time writing questions for other assignments or for re-use on the same topic in the future
- Question order can be set and reordered until students have started writing reviews
- Basic instructions on the function of the review and how to complete it can be shown to students when they log into the review assignment
- Various dates can be set:
  - Start date – the date on which students can start reviewing each others work
  - Due date – no more reviews can be written after this date
  - Post date – reviews become available for papers' authors to read
  - Late Submissions can be allowed and are still submitted for review
- Students can be assigned to review papers a number of ways:
  - The TurnitinUK system automatically allocates the number of papers specified by the tutor to each student
  - The instructor manually matches papers to students
  - The student self selects which papers they are to review up to an amount set by the tutor
  - Students can be asked to review their own work
- It is possible to mix and match these allocation options, that is the tutor can ask students to select one paper to review themselves and ask Turnitin to randomly allocate them two further papers
- Once papers have been submitted and allocated and reviews have started no more papers can be submitted to the assignment
- Points can be awarded to students simply for completing reviews
- Students can be manually excluded from being able to write reviews
- Those students who have not submitted a document to the assignment can either be allowed to write reviews of others student's work or excluded from doing so
- Reviews can be set to be anonymous or so that those being reviewed can see the names of their reviewers
- Students can either be allowed to read all the papers submitted by their fellow students or only those they are reviewing. Anonymity is maintained if required.
- Students can either be allowed to read all the reviews written by their fellow students for all papers in the assignment or only those for their own paper. Anonymity is maintained if required.
- Tutors can see how many reviews have been written and by whom whilst the process is on-going and intervene if necessary to ensure all students are able to carry out the required work
- Tutors can write reviews of the students reviews, providing feedback on both the actual review process and the review itself
- Tutors can write free comments, outwith the review set of questions, on the students paper itself using all the feedback functionality previously listed in the Grademark section

## Aropä

- A flexible WYSIWYG rubric editor allows radio button and text entry elements to be interspersed with formatted written instructions.
- Instructors can re-use any of their own rubrics, or any rubrics marked as “sharable”. Sharing can be restricted to within or across institutions.
- Rubrics can be revised at any time, although the question order cannot be changed after reviewing for an assignment has started.
- Two dates are used: the date submissions are due, and the date for reviews to be completed.
- Individual extensions can be given for late submissions and reviews. Late submissions after the reviewing has started are supported by inserting a placeholder submission that tells the reviewer when the actual submission is expected.
- Those students who have not submitted a document to the assignment can either be allowed to write reviews of other students’ work or be excluded from doing so.
- Reviewers can be allocated to submissions in a number of ways:
  - Randomly, to one or more submissions
  - By tags. Tags are activity variations, such as essay topics, and are specified by the instructor. When a student uploads a submission, she selects the appropriate tag. Allocations can then be made randomly to reviewers who submitted with the same tag, or to reviewers who submitted with a different tag.
  - By group. Group membership is specified in advance of submission by the instructor. Any student in a group can submit material on behalf of the group. Allocations can then be made for individuals to review group submissions, or for other groups to review. It is also possible to have individuals submit material to be reviewed by one or more groups.
  - By stream. Instructors can partition the students into two or more streams. Allocations for each submission are then made using one reviewer from each stream.
  - Manually.
  - Self-review can be added to any of the allocation options.
  - In all cases, the random allocations generated by the system can be adjusted by the instructor at any time.
  - If submission extensions are given after reviewing has started, new review allocations are created, taking in account previous review activity.
- Instructors can monitor submissions and reviewing. Review allocations can be displayed by reviewer or by author.
- Reviewing can be double-blind (the default), or author identity can be revealed to the reviewer.
- Feedback is given in a consolidated format using the reviewing rubric. Authors can be shown just the written feedback comments, or both marks and comments. Marks do not identify which reviewer gave which mark.
- Students are able to read reviews written on the same submissions they reviewed.
- The quality of the reviewing can be assessed using a method of “automatic grade calibration”. Automatic reviewing uses a statistical measure (mean absolute deviation) of the variance of a reviewer’s marks with the weighted average from all reviewers. A high variance results in lowering the weight attached to that reviewer, and a low variance increases the reviewer’s weighting.

- Alternatively, the quality of reviewing can be assessed using a review-of-reviews. A review-of-reviews uses the reviews written in one activity as the submissions to another review activity. This second level of reviewing can be undertaken by the instructor (or a marking team), or can be used as part of a reflective peer review process.
- A “grade browser” displays sortable lists of weighted average grades for each author, and reviewer weighting for each reviewer. A breakdown of marks per question can be displayed. A discrepancy (mean absolute deviation) for each reviewer is displayed, allowing any rogue reviews to be identified. Individual reviews or reviewers can be removed from the mark calculation. Averages can be computed using mean, median or mode. If markers are used, grades can be calculated using only the markers’ reviews. The number of marks associated with each question can be changed at any time, and the grades recalculated. Grades can be exported to a spreadsheet.

Function	Aropä	Turnitin
Access: independent website and Moodle	<p>Hosting for the Aropä server and database is provided by the School of Computing Science. Students typically login using their GUID and a Moodle-type access code. They then set their own password. Support exists for institutional (LDAP or IMAP) authentication, but this is not currently configured for Glasgow.</p> <p>Potential exists for future single sign-on access shared with Moodle.</p>	<p>Can be accessed via 3<sup>rd</sup> party website using university e-mail address. Approximately 10-15% do not read the instructions and experience difficulties with their initial registration.</p> <p>Peermark and Grademark are both available via the Moodle Basic plug-in (stands alone as Aropä will), this does not work with the University’s current Moodle installation but should be monitored as this would allow the full functionality of the system to be exploited.</p> <p>No integration yet via Moodle Direct for Peermark but fully integrated for Grademark and Originality Check.</p>
File upload type	Documents of any type can be uploaded (PDF, MS Word, OpenDoc, Excel, Powerpoint, Zip archive, etc.); Aropä also allows formatted text to be entered (or cut-and-pasted) into an internal WYSIWYG editor.	MS Word, WordPerfect, PostScript, PDF, HTML, RTF and plain text.
Multiple submissions	Yes. Common options are for a single document from the most common formats (Word and PDF), with the option of entering text using the internal editor. Any number of file types can be specified. The instructor can also provide submission instructions.	<p>Various options:</p> <ul style="list-style-type: none"> <li>• One submission only</li> <li>• A limit of one to five submission options can be set for any one assignment.</li> <li>• Multiple and unlimited submissions allowed.</li> </ul>
Rubric set up	Drag-and-drop using a WYSIWYG editor. Can cut-and-paste from a word processor or other rubric. Any previous or shared rubric can be selected and reused	Form filling format using WYSIWYG editor. Can base a new one on existing ones saved in the system. Available for both peer review and online feedback systems.



	or modified.	
Custom rubric per assignment	Yes	Yes
Both free response and scale questions possible within rubric	Yes	Yes. Reviewers may also take advantage of all the Gradermark feedback drag and drop functionality for preset comments and can also highlight sections of text and comment inline within the assignment as well as answering the free response and scale presets.
Anonymity of who is reviewing work	Yes but can also be switched off and names of reviewers seen by each other	Yes but can also be switched off and names of reviewers seen by each other
Comments and marks on all assignments viewable by all students	Students can view reviews of their own work, and reviews written on the same submissions they reviewed.	Both yes and no according to how options set
Control over when comments become viewable	Reviews are viewable immediately reviewing ends.	Yes
Author of review viewable	Both yes and no according to how options set	Both yes and no according to how options set
Authors can review own work	Both yes and no according to how options set	Both yes and no according to how options set
Reviews themselves can be evaluated	Yes	Yes
Reviewers can see other reviews of the same document	Yes	It is possible to set the system so all reviews of all documents can be seen after a set date.
Tutors can add reviews to students reviews	Yes	Yes
Reviewer allocation	<p>Papers can be:</p> <ul style="list-style-type: none"> <li>• automatically distributed and allocated by the system</li> <li>• Authors tag their submissions, and reviewers are allocated submissions with either the same or a different tag as their own</li> <li>• Groups. Students are arranged into groups, and each group either submits a single assignment or writes a consensus review (or they do both)</li> <li>• Manually. The instructor has complete control over the allocations, and enters author-reviewer pairs by hand</li> </ul>	<p>Papers can be:</p> <ul style="list-style-type: none"> <li>• automatically distributed and allocated by the system</li> <li>• selected from the whole list of submitted assignments by reviewing students. Students could use tags within the assignment title to inform review choice.</li> <li>• Manually. The instructor has complete control over the allocations, and enters author-reviewer pairs by hand</li> <li>• Tutor can allocate a group of students to all review one other students assignment submission</li> </ul>

Support available	<p>Individual support for instructors is currently provided by Dr Helen Purchase and Dr John Hamer.</p> <p>The interface has been deliberately designed so that users do not need to consult extensive documentation.</p> <p>A “getting started” document is available online, along with a five-minute video on peer review using Aropä.</p> <p>Community support in the form of an Aropä user group is planned for University of Glasgow staff.</p>	<p>Full support team, help ticket function, extensive set of web pages, videos, support documentation.</p> <p>Online seminars and live web presentations on a weekly basis, discussing educational theory, assignment design and employability skills development as well as practical usage matters.</p> <p>Annual UK User Group meeting.</p> <p>Regular news releases and upgrade training available.</p> <p>Community support in the form of a Turnitin user group is planned for University of Glasgow staff. Two Moodles to support this are currently being built.</p>
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Tuesday, 06 September 2011