

## **A Brief Summary of Aropä – May 2018**

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Aropä is a freely available web-based online peer-review system developed and maintained by two University of Glasgow Computing Science academics. It is used by over 30 institutions worldwide and has been running continuously for over nine years. Dr Purchase and Dr Hamer created the system, and have administered, maintained and enhanced it throughout this time.

Aropä facilitates peer-review class activities. A plethora of educational literature extol the benefits of peer-review on students' learning — for example, the development of affective, critical, self-reflection and communication skills, norm-referencing, copious and timely feedback, and demystifying the marking process (Topping, 1998). With larger class sizes, an increased emphasis on providing students with timely feedback on their work, and heightened awareness of the importance of the development of graduate attribute skills, peer-review is increasingly popular as an integral part of assessment design.

Aropä provides an efficient and effective platform for students to upload their work and to review their peers' work, with reference to a flexible rubric defined by the instructor. Submissions are distributed randomly, or by group/tag (as indicated by the instructor). Features include reviews being marked, marks and reviews being downloaded, extensions given, and the student view seen through impersonation.

The Aropä project is highly innovative – there are no other comparable free online peer review systems available worldwide – and thanks to its responsiveness to user feedback, it is inspiring staff and students alike with the learning benefits of reflective practices (see user testimonies in appendix).

### **Project development**

Aropä was originally conceived for the purposes of peer-review within the Department of Computer Science at the University of Auckland. At the start of 2010, it moved to Glasgow, when a new more user-friendly user interface provided support for use in subjects other than Computing Science. Although some initial funding was obtained from the HEA (£3,450, 2010–2011), and internal University of Glasgow funds (£5,000, 2012), the project is unfunded, and is sustained by the continued commitment of Drs Purchase and Hamer.

As an ongoing project, Aropä continues to evolve; the system is continuously adapted and improved, typically as a result of user requests, many of whom have particular requirements for their own peer-review model. The interface was overhauled significantly in 2010 and in 2015 (when it was adapted for use on mobile devices).

Enhancements made at the request of instructors include: enabling students to provide a response to their reviewers, file upload as part of the reviewing rubric, monitoring student activity, group submissions and reviewing, submission upload, restricting access to reviews for students who do not engage, and non-linear mark assignment.

We expect to continue offering this service for the foreseeable future, and are aware of a significant number of instructors over several institutions who have come to rely on the system for annual use, including Mathieson (University of Auckland), Whittaker (Franklin University), Hau (University of Glasgow), Cumming (Washington & Lee University) and Fall (Cyberjaya University). Proposed enhancements include: excel downloads, flexible extensions, email alerts, social media interactions.

Our regular operations entail setting up user accounts (approximately 75 in the calendar year 2017), responding to user queries (two or three a day in busy periods of the academic year), advising on peer-review assessment models, providing up-to-date user documentation, discussing enhancements with users, and designing, implementing and testing changes.

## Outcomes

*Aropä is not just innovative; it is transformative.* – Todd Whittaker, Franklin University

Substantial evidence in the literature shows that the main learning benefit in peer-review is when students write reviews (Nicol et al., 2014). Our primary KPI is the number of students who have commented on peers' work. So far in 2017/8, over 11% of students at the University of Glasgow have used Aropä to write a peer-review.

## Since 2009:

- Successful peer-review assignments: 1,636
- Unique students who have written a peer-review: 45,846
- Number of institutions: 32
- Largest class: 948 submissions, 2,716 reviews (Commercial Law)
- Largest number of reviews in one assignment: 701 submissions, 3,284 reviews (Software Engineering)

Instructors appreciate our '*by academics, for academics*' model. Unsolicited comments include:

- *An invaluable asset for the teaching community.... functional and easy to use, two things I know are difficult to implement in a web-based service.* (Sup'Biotech Biotechnology Institute, France)
- *I admire your motivations for providing Aropä, and associated support for free, and believe it's a great thing to do.* (University of Glasgow)
- *Thank you very much for your prompt action! (Much faster than a lot of companies that have paid services).* (EDHEC Business School, France)
- *...highly flexible, and you can set up the peer review activity in many, many different ways depending upon your own aims.* (University of Glasgow)
- *The one thing that really makes my day is that without your system, I would not be able to show and teach [students] how to write good quality essays ... without the weekly regularity there will be no real progress.* (University of Economics in Bratislava)

- *You probably don't hear it often enough, but I'll say it as often as I remember when I write to you: thank you so very much for the service you're providing to the community through Aropä. (Franklin University, USA)*

**Table 1:** Institutions using Aropä, with number of assignments (01/01/09 to 19/04/18)

Australia	Charles Sturt University	1
	St Paul's Anglican Grammar School	1
	Curtin University	3
	University of Melbourne	3
	The University of Tasmania	9
Canada	Queen's University	93
France	Institut Sup'Biotech de Paris	2
	Ecole des Hautes Etudes Commerciales du Nord	11
Malaysia	Cyberjaya University College of Medical Sciences	247
Maldives	Villa College	4
New Zealand	Wellington Institute of Technology	6
	The University of Auckland	574
Singapore	Singapore Institute of Technology	7
Slovakia	Matej Bel University	4
	University of Economics in Bratislava	22
Spain	Universidad Nacional de Educación a Distancia	1
	Universidad Complutense Madrid	70
UK	The University of Manchester	1
	South Devon College	2
	Glasgow Caledonian University	3
	The University of Sheffield	4
	University of the West of England	4
	University of Strathclyde	5
	Robert Gordon University	43
	The University of Glasgow	382
USA	The University of Texas at Arlington	1
	West Virginia University	3
	The University of Arizona	4
	Virginia Tech	4
	University of New Brunswick	6
	Washington and Lee University	20
	Franklin University	96

**Table 2:** Subjects served by Aropä, with number of assignments (01/01/09 to 19/04/18)

Mathematics	2	Social Science	11	Anthropology	35
Modern Languages	2	Economics	11	Management	36
History	3	Pharmacology	12	Finance	41
Geology	3	Psychology	14	Allied Health	41
Chemistry	3	Nursing	14	Engineering	59
Geography	4	Veterinary Science	15	Biology	82
Music	5	Public Policy	17	Sociology	98
Education	7	Physics	20	Law	118
Health Science	7	Research Skills	21	Computing Science	218
Film Studies	9	Classics	22	Medicine	273
Dentistry	10	Public Health	33	English Language	275
English Literature	10	Politics	34		
Academic Practice	11	Pharmacy	35		

**Solicited Testimonials:**

- *I have been using Aropä every year since 2010, and it has changed the way I teach. The course I use it for is now more student-centred and focused not just on subject-specific skills, but also on transferable skills which will stand the students in good stead in any workplace. John and Helen have been fantastically supportive throughout. They taught me in person how to use the programme, and whenever I have encountered a problem with it, they have always jumped in to solve it, sometimes at very short notice and outside normal working hours. Moreover, twice they have created new features in the programme just for me, and several times they have tweaked existing features to suit my needs better. (Lisa Hau, Lecturer in Classics, University of Glasgow, Scotland)*
- *Aropä allows for both individual and group based peer review activities, something most paid services can't offer. With an intuitive interface, both instructors and students can easily navigate through each phase of the peer review activities. Since statistics on each phase can easily be retrieved, we were able to send follow-up emails to students who had yet to participate, increasing the participation rate significantly compared to our previous peer review tool. One of our TAs commented that the TA grading is much easier and intuitive than other peer review software she used. The Aropä team has been extremely helpful with any issue or inquiry we had. We highly recommend Aropä! (Julian Enright, Instructional Design Multimedia Support Analyst, Queens University, Canada)*
- *With Aropä, John Hamer and Helen Purchase have for a number of years provided an excellent peer review tool for an academic writing course I teach at the University of Auckland. Based on my request, they adapted Aropä to include a peer review training phase, providing learners with opportunities to write practice peer reviews and then view expert reviews of the same texts. This allows learners to compare their own review with the expert reviews, increasing their understanding of qualities contributing to a well-written (or poorly-written) text. Subsequent peer reviews on assignment work using Aropä have been shown to be significantly more detailed and focused on more appropriate issues, indicating this Aropä adaptation helps produce more competent reviewers of writing. John and Helen have provided immediate support for any*

*technical issues that have arisen, which were mainly in the initial phase of the adaptations, giving me the confidence to continue to use Aropä in assessed tasks for the last 9 years. (Neil Matheson, Lecturer in Academic Writing, Auckland University, New Zealand)*

- *I have used Aropä continuously since January 2015 in my Information Technology Capstone course. Prior to using Aropä, student work quality was highly variable. I knew that peer review was a demonstrated way of reducing variance while improving quality, but managing the process was prohibitively time consuming. Aropä lets me easily manage the complex workflow of student peer review – an activity that has not only improved the quality of student work but also provides substantive data demonstrating the achievement of learning outcomes. Aropä is not just innovative; it is transformative. (Todd Whittaker, Department Chair, Computer and Information Science, Franklin University, USA)*

#### **Unsolicited Feedback:**

- *Thanks again for your help and for making this fantastic system available. (Mechanical Engineering, Wellington Institute of Technology, New Zealand)*
- *In terms of usability [Aropä] puts some of our corporate systems to shame! (Computing Science, University of Glasgow)*
- *You and John will be fed up with me saying this - but once again, many thanks for your work. (Engineering, University of Glasgow)*
- *We're really pleased with the system and how it's going with the students - thanks again for everything, and for the handy tips on the course! (English Literature, University of Glasgow)*
- *Looks like Aropä can do it all! I will share this with my colleagues ....so they know Aropä is the way forward. (Engineering, University of Auckland)*
- *I am actually also amazed at how quickly my students got used to the system. (Public Policy, University of Economics in Bratislava)*

The screenshot shows the Aropä interface for an assignment titled 'Fast Eddie' (#1112). At the top left is the Aropä logo with the tagline 'Peer review made easy'. To the right, it indicates the user is logged in as 'helen.purchase' with a 'LOGOUT' link. Below the header is a breadcrumb trail: 'Home / Comlaw 101 2017SC / Fast Eddie'. On the left side, there is a vertical menu with the following options: Deactivate, Edit assignment, Edit rubric, Label rubric, Change allocations, Manage extensions, Monitor submissions, Monitor reviewing, View all reviews, Download all submissions, View marks, and Impersonate other user. The main content area displays the assignment title 'Fast Eddie (#1112)' and provides the following information: 'The assignment was activated at 1:50pm 22 Sep 2017', 'Submissions end at 6pm 6 Oct 2017', and 'Reviews end at 6pm 27 Oct 2017'. It lists submission requirements as 'a file of type PDF/Word'. Reviewing rules state: 'Authors should see comments and marks in the feedback from the reviewers', 'Authors will not review their own work', 'Author identity will not be revealed to reviewers', and 'Reviewing will use the rubric from Comlaw 101 2016SC, Carl v Lennie'. Allocation rules include: 'Allocations are random', 'Authors are everyone in the class', 'Reviewers are everyone in the class', and 'Each reviewer should mark 3 submissions'. Summary statistics at the bottom show: '830 files were uploaded (expected 1029)', 'One student missed their submission extension deadline', '3087 allocation records were created on 11:17am 7 Oct 2017', and '2436 reviews were written'.

**Screenshot:** Home page for a Commercial Law assignment (University of Auckland).

**References and links:**

- Nicol, D., Thomson, A. Breslin, C. (2014) Rethinking feedback practices in higher education: a peer review perspective. *Assessment & Evaluation in Higher Education*, 39:1, 102-122.
- Topping, K. (2009) Peer Assessment, *Theory Into Practice*, 48:1, 20-27.
- Aropä: <https://aropa2.gla.ac.uk>
- Aropä documentation: <https://aropa2.gla.ac.uk/docs>