PeerJ – more than just a publisher

PeerJ Inc (the open access publisher of both *PeerJ* and *PeerJ PrePrints*) announced itself in mid-2012, and started publishing articles in February 2013. Although to the casual observer, PeerJ might be thought of as 'just another open access (OA) publisher', in fact (as evidenced by several industry awards) it is building an environment which has publishing at its core, but which also addresses the needs of the academic community in several additional ways. In this article, one of the co-founders of PeerJ describes innovations such as their 'individual-centric' business model; their 'optional open peer-review' system; the PeerJ contribution points; the visual design; and several important aspects of their philosophy which together are creating a publishing system suitable for the needs of the 21st-century academic.

Background

PeerJ Inc is the open access (OA) publisher of *PeerJ* (a peer-reviewed, scholarly journal) and *PeerJ PrePrints* (an un-peer-reviewed preprint server), both serving the biological, medical and health sciences. PeerJ is based in San Francisco and London, and was launched in 2012 by co-founders Jason Hoyt (previously of Mendeley) and Peter Binfield (previously of *PLOS ONE*).

PeerJ is a full member of CrossRef, OASPA (the Open Access Scholarly Publishers Association) and COPE (the Committee on Publication Ethics). Content is formally archived by CLOCKSS, LOCKSS and PubMed Central. The journal *PeerJ* is indexed in PubMed, PubMed Central, Scopus, Google Scholar and the DOAJ (among others). Furthermore, PeerJ is a signatory to such things as the Budapest Declaration, SF DORA (The San Francisco Declaration on Research Assessment) and ICORE (The International Council for Open Research and Education).

The editorial criteria of *PeerJ* are similar to those of *PLOS ONE* in that all submissions are peer reviewed only for their scientific and methodological soundness (not on any subjective determinations of impact or degree of advance, for example). *PeerJ's* peer-review process is managed by an Editorial Board of over 800 and an Advisory Board of 20 (including five Nobel Laureates).

With this background, the casual observer might be mistaken for thinking that PeerJ is 'just another large open access publisher' but in this respect they would be missing the bigger picture. An indication of this can be seen, for example, in the fact that in May 2013, PeerJ was named one of the 'Top 10 Tech Innovators in the Education Sector' by *the Chronicle of Higher Education*[1] and in September 2013, ALPSP named[2] PeerJ as the 'Publishing Innovation of 2013'.

Although clearly publishing is at our core, PeerJ is building a company which does much more than the simple act of publishing journal articles. In fact, we are building an environment which publishes (of course) but which does so in a way that more fully addresses the needs of a modern academic as they move from the bench to the dissemination of their research.

In this article we highlight some of the ways in which PeerJ is going about academic publishing in the 21st century.

PETER BINFIELD
Publisher and
Co-Founder
PeerJ

"... PeerJ is building a company which does much more than the simple act of publishing journal articles."

Beliefs

Our number one belief is to 'keep innovating'. One of the reasons that my co-founder and I both moved on from our prior companies was because those companies had become too big, or too hard to change, to the extent that their ability to innovate and push boundaries had become quite limited. Therefore, 'innovation' is our number one belief and this can be seen in the steady rollout of new features and functionality and the awards we have won, specifically for our innovations.

Our second belief is that we should be mindful of whom we serve (academics), and we will provide tools and services which meet the needs of those stakeholders. Both founders have decades of experience in this industry as well as science PhDs – we have experienced the process as authors, reviewers, publishers and service providers and so we approach the academic market from the point of view of a user, as well as a provider.

> "... 'innovation' is our number one belief ..."

Finally, PeerJ aims to build a publication environment which not only makes its content freely available (i.e. open access) but which is ultimately able to support free publication for all authors. Already, publication in *PeerJ PrePrints* is free for all users, and authors can publish in *PeerJ* for as little as US$99 for life, however there is still room to drive this price lower. Ultimately, we want to get to a point where any author should have the ability to disseminate their work as widely and as professionally as possible at no cost to themselves. (See Figure 1.)
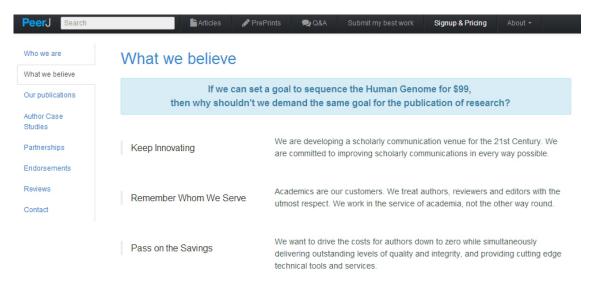

Figure 1. The PeerJ philosophy and beliefs (screenshot from PeerJ[3])

The PeerJ business model

The majority of OA journals are either free, or charge an article processing charge (APC) per publication. PeerJ, by contrast, has created an entirely new and innovative business model based around individual publication plans. Authors pay a single low price for a lifetime publication plan, giving them the rights to freely publish a certain number of articles with us per year, for life. Each co-author on a paper must have a plan, however if an article has more than 12 authors then only the first 12 need have publication plans.

The plan levels are described on PeerJ's pricing page (see Figure 2). To summarize:

- 'Free' account holders can fully interact in the system and publish unlimited *preprints* for free

- 'Basic Plan' account holders can publish one *PeerJ* article per year, for free, for life

- 'Enhanced Plan' account holders can publish two *PeerJ* articles per year, for free, for life

- 'Investigator Plan' account holders can publish unlimited *PeerJ* articles per year, for free, for life.
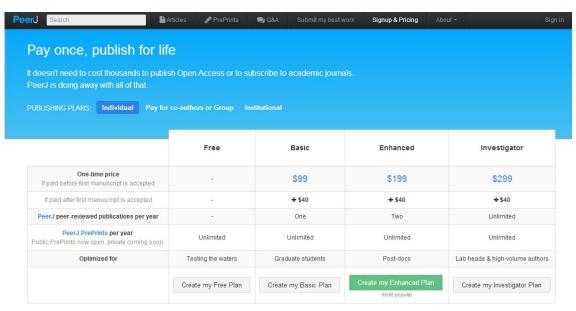
Figure 2. The PeerJ pricing grid (screenshot from PeerJ[4])

Authors can take out PeerJ plans before or after their article is accepted. For example, they might choose to submit for free and pay only when their article is editorially accepted (in which case there is a small price differential: US$139 vs US$99 for the Basic Plan, for example).

Institutions are also able to centrally purchase publication plans for their faculty. They can either purchase these plans in bulk (which they then hand out to their faculty as they see fit), or they can pay into a 'deposit account' (which is then used as and when their faculty publish with PeerJ and need to take out a publication plan). PeerJ is listed as an available open access option via Jisc[5], and in the UK, the universities of Cambridge, UCL, Glasgow, Birmingham and Nottingham, for example, have all entered into an arrangement of this sort[6] (and worldwide, we have over 20 such arrangements with the likes of Stanford, Berkeley, Texas A&M, etc.)

By creating a business model around lifetime publication plans tied to an individual, rather than an APC payment tied to the act of publication, much of our functionality and thinking has, by a natural consequence, become very 'individual-centric'. This is a major strength, and also a significant driver of innovation for PeerJ. Some of the ways in which this mindset has given rise to new and interesting functionality are highlighted in this article.

Understanding the academic workflow

The traditional act of journal publication is just a single, frozen moment in time for any piece of research. In fact, there are many steps both before and after that moment which are relevant to the work that is being reported, and about which the academic community might be interested.

At the most basic level, it is clear that a journal article will have been through several drafts before formal publication and, once published, the work will not be forgotten by the authors or readers, but will continue to be commented about or built upon. We believe that if a publisher is going to fully support the needs of an academic author then it needs to provide more options for those people to develop drafts, establish precedence, gain feedback, iterate versions, answer queries, facilitate and develop collaborations with readers, and so on.

"…much of our functionality and thinking has … become very 'individual-centric'."

A single environment for all interactions

As mentioned in the introduction, PeerJ has two publications: *PeerJ* (a formal, peer-reviewed journal) and *PeerJ PrePrints* (a non-peer-reviewed preprint server). Although authors and

readers can use either publication independently, the system comes into its own when they make use of both publications as if they were one.

Both publications operate on the same submission and publication platform (which we have built ourselves, to support our own needs). This means that authors use a single logon which accommodates all interactions they will have on our system – for example as a reviewer, author, editor, or commenter.

By way of example, at PeerJ, with a single logon, users can start their submission as a preprint; that preprint can receive feedback via our commenting system (to which the author can choose to respond); they can version the preprint with multiple iterations; they can move that same submission into the PeerJ peer-review track (or vice versa) with a single click; and once it is peer-reviewed and published, then the final article is linked back to the original preprint; new feedback can be received and the cycle can repeat.

This is in stark contrast to the majority of publishers who, because they have outsourced most of their publishing processes and systems, have ended up with entirely separate peer review, publication, production and commenting systems. For example, a typical publisher might use Aries or Scholar One for their peer-review needs; they might host their publications on HighWire Press; they might use Disqus for commenting, and so on. The end result is that their user experience is badly fragmented, systems do not talk to each other, user accounts are duplicated in multiple places and publishers are unable to control their own functionality or their own upgrade needs.

Complete profiles – giving credit where credit is due

Any individual is able to interact with our environment in a number of ways – they could be a reader, they might have questions (or they might have the answers to questions), they could be an author, a peer reviewer, or an academic editor. Each of these roles requires a different interaction and requires a different level of effort.

Traditionally, it is only the act of 'authorship' which is credited back to an individual. However, at PeerJ, because of our 'individual-centric' approach, and because of our single system for submission, peer review, publication and commenting, we know (and care) about all of their interactions in our system and we can provide appropriate credit for each interaction.

At every step, users who interact in the system (for example, as reviewer, academic editor or commenter) gain credit for their interactions and a detailed profile page is built up showcasing their involvement. An example of this happening in practice can be seen with the profile for Dr Andrew Farke[7]. Each interaction by this individual can be reported and assigned a certain number of 'contribution points'. With this system, for example, if Dr Farke were up for promotion he might be able to tell his promotion committee that he has authored two papers in *PeerJ*, he has acted as the academic editor on three papers, provided feedback on one paper, and answered seven questions in the system. If he became a peer reviewer, this fact would also appear on his profile, with links to those reviews).

"… the (often invisible) effort that academics contribute to the overall system of reviewing, publication and evaluation can finally be credited …"

With this system in place, the (often invisible) effort that academics contribute to the overall system of reviewing, publication and evaluation can finally be credited back to them in an appropriate way[8].

Optional open peer review

PeerJ operates 'optional open peer review', meaning that it is optional (but encouraged) for reviewers to provide their name when reviewing. Authors are also given the option of reproducing their peer-review history on their published article.

This open peer-review process has been extremely well received, and at the moment almost 45% of reviewers are providing their name, and over 80% of authors have chosen to reproduce their peer-review history. Where the peer-review history has been made available, we have seen as much as 15% of the usage of an article being on that history page.

By opening up the peer-review process to transparent scrutiny, we believe that the overall system of peer review and feedback is improved. Already, we have heard of people using the back and forth that goes on as part of peer review to teach their students how science operates in the real world.

> "… opening up the peer-review process to transparent scrutiny …"

Built-in incentives

To incentivize participation in the environment, and to encourage greater collaboration, all plan holders are asked to perform one 'interaction' in the system each year. This can be as simple as a comment on an article in *PeerJ* or *PeerJ PrePrints*, or as involved as a formal pre-publication review for *PeerJ*. By requiring this minimal level of interaction we hope to encourage an engaged user base and to start to share out some of the 'review burden' which often causes academics to feel overwhelmed with review requests.

Another incentive for proactive participation is via the accrual of contribution points[9], as noted above. With this system, academics are able to publicly demonstrate their expertise; the fact that they have been recognized by their community; the fact that they have been a 'good actor' in the system, and so on. Each interaction is tracked and so we expect people to interact positively, in order to build their reputation metrics in this public system.

Design and aesthetics are also important

Perhaps one of the most visible attributes of the PeerJ environment is the care that has been taken with the visual design and layout of our complete system. The homepage (see Figure 3) features prominent attractive images, the submission and peer review process has a clear and clean layout, the PDF design is single column (suitable for reading on screen) with plenty of white space and article pages are not cluttered with irrelevant widgets.
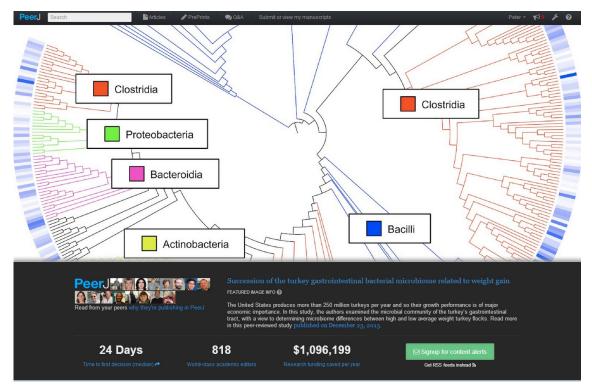
In each of these situations, and many more besides, conscious design decisions have been taken to provide a beautiful, clean, functional experience. For too long, academics have put up with outdated user interfaces, ugly designs and cluttered journal pages! At PeerJ we have taken a fresh look at all aspects of the publication process and we have applied modern design principles to create a pleasing and welcoming environment. You may not think this is important in a dry, academic publication, but academics are people too, and they appreciate good design[11]. After all, if you have invested years of effort in a research project and months of time writing it up, how do you want it to look when it is published?

> "… academics are people too, and they appreciate good design …"

Summary

In summary, PeerJ has put together an integrated publishing environment which supports academics at many more touch-points than a traditional journal publication. By providing this integrated environment, and combining it with a business model which focuses our attention on the contributions of each individual, we are building a system which we believe addresses the publishing needs of modern academics.

Figure 3. The *PeerJ* homepage (screenshot from PeerJ[10])

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