New Avenues for Electronic Publishing in the Age of Infinite Collections and Citizen Science
B. Schmidt and M. Dobreva (Eds.)
© 2015 The authors and IOS Press.
This article is published online with Open Access by IOS Press and distributed under the terms of the Creative Commons Attribution Non-Commercial License.
doi:10.3233/978-1-61499-562-3-178

Exploration of Professional Social Networks and Opinions about Scholarly Communication Tools among Italian Astrophysicists

Monica MARRA[a,1]
[a] *Italian National Institute for Astrophysics (INAF) - Bologna Astronomical Observatory*

Abstract. The poster conveys the first results of a survey conducted among astrophysicists working at INAF. Just under 120 respondents made it possible to investigate their behaviour and opinions with regard to use of some major professional social networks and preferences about some aspects of scholarly communication and evaluation.

Keywords. Survey, astrophysics, social networks, scholarly communication

1. Introduction

In recent years, studies have started examining the relationship between scholars and the social media also by means of dedicated surveys. Most of the authors have timely aimed at enlightening whether researchers' involvement in Web 2.0 practices could already be changing some modes of the scholarly communication pathway.

2. Main Results

Basically the same hypothesis led to the drawing up of a questionnaire which was submitted to the personnel working at INAF (Italian National Institute for Astrophysics) through one of the institute's mailing lists in October 2014. The questionnaire was made up of nine questions (plus a question for respondents' age tier and profile self-classification) concerning opinions about the peer-review system, some mainstream scholarly communication practices within the discipline and respondents' use of some major professional social networks for research purposes. The questionnaire was kindly filled in by 122 among researchers and technologists (in fact, almost entirely researchers, technologists being 3,84% of the total respondents), on a total of 577 open-ended contract researchers and technologists included in INAF's most recent available statistics [1]. After elaborating the age data available on INAF's website cited above for the institute's personnel on one side, and respondents' self-classification in the three age tiers provided (25-44; 45-55; >55) on the other side, the 117 researchers who answered the questionnaire proved to be a representative sample of INAF researchers' age tiers due to a sufficiently satisfying correspondence between

[1] Corresponding Author. E-Mail: monica.marra@oabo.inaf.it.

the three couples of values. In particular, the widest age group both according to INAF's data and among the present questionnaire's respondents is the one between 46 and 55 years (44,75% and 47,86% respectively). Following in quantitative order, we find the 25-45 years-old age tier and the >55 age group.

Such a sample (117 researchers) is precious in order to aim at an adequate view of the opinions and behaviour of the institution's personnel, and to check the correspondence of the present questionnaire's results to those of the previous surveys.

According to [2], researchers in physics are the third disciplinary group by intensity of use of the social media in general, with their 88,6% of researchers using these tools. The CIBER study identifies a trend with researchers in the natural sciences being more active than scholars in other disciplines with the social media. Although other studies have shown the low use of single social media tools such as Twitter among astrophysicists [3], the results of the present questionnaire, which was targeted at "proper" social networks' use only, show the inclination towards these specific tools by researchers in astrophysics. The present survey has considered the following social networks (hence also: SN): LinkedIn, ResearchGate, Academia. Now, our questionnaire's respondents who declare they do not have a profile at all on a social network for professional use are less than 35%: more than 65% result to be owners of at least one profile on the professional social networks mentioned above (both percentages are the average among the three different age tiers). Again, the average percentage of astrophysicists with a profile on one or more of these professional SN is much higher than it had been verified by some of the previous surveys addressed at a multi-disciplinary audience (e.g. [4] ; the detail would require a more extended exposition).

Predictably, and in line with the previous literature, respondents who say they don't have a professional SN profile are more numerous among researchers >55 years old; surprisingly, instead, among the remaining researchers it's the youngest age tier that scores second among non-users (32,43%), whereas astrophysicists aged between 45 and 55 appear to be more inclined to testing the three SN here considered (more than 70% have a profile).

Overall, the most popular SN among the ones taken into account is ResearchGate, alone or combined; this confirms the results of a recent study. Less than 10% lower than RG's percentage comes LinkedIn, alone or combined; Academia occupies a very small niche made up exclusively by researchers between 45 and 55 years of age.

When considering researchers with a single SN profile, the most popular, again, results to be RG, which has the highest number of single-profile subscribers among the youngest age group (32%). LinkedIn has the highest percentage of single-profile owners among 45-55 agers. Interestingly, researchers older than 55 years have by far the highest percentage of profiles both on LinkedIn and on ResearchGate: almost 65%.

The widely shared view about ArXiv being astrophysicists' mainstream channel for opinions exchange about (mostly preprint) publications, seems to need reconsideration to some extent. For almost 65% of respondents, and on average among age tiers, papers self-archived by researchers on the invaluable USA-based database receive comments in only 0-20% of cases (n.b.: the percentage varies considerably, and interestingly, according to age groups). And, for the majority of respondents, comments on single aspects of their papers have a noteworthy importance (on average: they are "very important" for 31,4%; "rather important" for ~ 50%. In fact, anyway, it's still complete peer-review that holds the first place in researchers' appraisal of how their production should ideally be assessed: it's "very important" for > 70% of the

astrophysicists in our sample (average of age tiers), although here again age tiers play a role. Rather consistently, "'likes', tweets or other expressions of interest on social networks" are "very" or "rather important" only for a very low percentage of the respondents and "not important at all" for the greatest majority.

When requested what they expect from their professional social network profile, the great majority of answers reports "better visibility of my research activity", followed by "better availability of my research papers" (37,09%; average among the different age tiers' results). The prevalent goal among respondents seems thus to consist in seizing the opportunity to be more easily reached and read throughout the global scholarly community, rather than being actively engaged in professional social networking. This is in line with the previous studies according to which the traditional scholarly communication model is not undergoing a final stage of its crisis (e.g.: [5, 2]).

At the same time, traditional peer-review with reviewer's identity unknown is perceived as "ideal" by a very restricted percentage of respondents, whereas different models as for reviewer and reviewed author's mutual awareness result to be considered desirable options by most researchers (which is in line with [6] and others).

The data seem to reveal that fissures as for satisfaction with the traditional evaluation and dissemination models might be emerging among astrophysicists, but at the moment it doesn't seem that the use of the social networks is the key for exploring new models. Astrophysicists seem anyway to be rather keen on experimenting new internet tools and the situation might evolve unpredictably in the future.

References

[1] http://www.ced.inaf.it/anagrafica/zz-eta.php, concerning open-ended contracts.
[2] CIBER & Emerald Group Publishing, *Social media and research workflow*, 2010.
[3] S. Haustein et al., Astrophysicists on Twitter: an in-depth analysis of tweeting and scientific publication behavior, *Aslib Journal of Information Management* **66** (2014), 279–296.
[4] D. Ponte, J. Simon, Scholarly Communication 2.0: Exploring Researchers' Opinions on Web 2.0 for Scientific Knowledge Creation, Evaluation and Dissemination, *Serials review* **37** (2011), 149–156.
[5] D. Harley et al., Astrophysics case study, in id., *Assessing the future landscape of scholarly communication. An exploration of faculty values and needs in seven disciplines,* Berkeley, Center for Studies in Higher Education, 2010.
[6] L. Calvi, M. Cassella, Scholarship 2.0: analyzing scholars' use of Web 2.0 tools in research and teaching activity, *Liber Quarterly* **23** (2013), 110–133.