

Social media and the scholar role: Helping anaesthetists to find substance in the FOAM

Adam Mahoney BSc(Med)(Hons) MBBS (Hons) MCLinUS MMEd FANZCA

Anaesthetist, Department of Anaesthesia and Perioperative Medicine, Royal Hobart Hospital, Tasmania, Australia.

Clinical Senior Lecturer, University of Tasmania.

Dr Adam Mahoney is an anaesthetist and trauma specialist at Royal Hobart Hospital. He has research interests in medical education and has previously been the Workplace Based Assessment lead for Tasmania.

🐦 @ATraumaTick.

Tanya Selak BHB MBChB FANZCA MHA GAICD

Anaesthetist, Department of Anaesthesia, Wollongong Hospital, New South Wales, Australia.

Dr Tanya Selak is an anaesthetist from Wollongong and a member of ANZCA Council. She has a strong interest in communication, in particular the dissemination, promotion and discussion of medical and scientific information using traditional and new media. She is an author of the ANZCA Social Media Policy.

🐦 @GongGasGirl.

Navdeep S Sidhu MBChB PGCertHealSc(Resus) FANZCA MCLinEd FAcadMED

Consultant Anaesthetist, Department of Anaesthesia and Perioperative Medicine, North Shore Hospital, Te Whatu Ora (Waitemata), Auckland, New Zealand.

Senior Clinical Lecturer, Department of Anaesthesiology, University of Auckland, Auckland, New Zealand.

Dr Nav Sidhu is an anaesthetist at North Shore Hospital, Auckland and the director of medical admissions at the University of Auckland. He has a special interest in teaching, completing a Master of Clinical Education and is a Fellow of the Academy of Medical Educators (UK). He is Chair of the ANZCA Educators Sub-Committee.

🐦 @DrNavSidhu.

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INTRODUCTION

Widespread social media is a defining characteristic of our times. Platforms such as Twitter, Facebook, Instagram, Reddit and YouTube influence everything from presidential elections to the practice of regional anaesthesia.^{1,2} Many professional organisations, including the Australian and New Zealand College of Anaesthetists (ANZCA), use social media to raise their institutional profile and to undertake advocacy in policy domains relevant to their strategic plan. Indeed, recognising that social media is a credible and acceptable tool for communication and collaboration, ANZCA recently released a new social media policy to support appropriate use of this technology by trainees and fellows.³ However, attention has not yet been given to the relevance of social media and free open access medical education (FOAM) to the scholar role in anaesthesia training.

ANZCA trainees are expected to be self-directed learners who critically evaluate information and its sources. Traditionally, anaesthetists have been able to develop these skills through face-to-face study groups, journal clubs, grand rounds and conferences. However, changing work patterns, the impacts of Covid 19 and the ubiquity of smart devices in their pockets have motivated many trainees to engage with online communities of learning. Thoughtfully used, social media can allow trainees to identify key bodies of anaesthesia research and evaluate supporting literature, in the company of like minds from diverse practice settings all around the world. In doing so, trainees can emerge from their silos and interact with others in and beyond their in-person life, creating and disseminating knowledge to professionals and lay audiences in the fullest expression of the ANZCA scholar role.

In this paper, we will describe the utility of social media and digital scholarship in anaesthesia training and continuing professional development (CPD). We will summarise the literature examining the impact of social media on postgraduate learning and explore how specialty training programs might evolve to incorporate digital scholarship in the scholar role and CPD activities.

A SHORT HISTORY OF SOCIAL MEDIA AND MEDICAL EDUCATION

A simple definition of social media is any platform that allows users to create and share content through virtual communities. The concept of social media is nearly three decades old, with the earliest definitions emphasising social media's role as a conduit for users who were linked by existing friendships or common interests to 'upload' or 'exchange' material online. Contemporary understanding places greater emphasis on user-generated content that may be shared broadly.⁴

In the second decade of the 21st century, expansion of social media, combined with widespread availability of broadband internet and smart devices, served as important enablers of the nascent Free Open Access Medical Education (FOAM or #FOAMed) movement.⁵ As described by one of its early proponents, FOAM is a 'globally accessed crowd-sourced educational adjunct providing inline (contextual) and offline (asynchronous) content to augment traditional educational principles'.^{6,7} Characterised thus, it can be seen that FOAM is a broad church, spanning the continuum of scholarship from 'corridor conversation' to post-publication peer review.⁸

Initially, the FOAM paradigm was championed by a handful of enthusiasts and in the eyes of some educators and clinicians, early resources such as *Life in the Fast Lane* and *Academic Life in Emergency Medicine (ALiEM)* were not at first considered worthy of scholarly credit. However, in the succeeding decade, there has been a proliferation of FOAM providers who now constitute a diverse community of practice. Within this community, it has become possible for clinicians to interact directly with investigators, as well as with translational educators whose aim is to bridge the gap between research and practice. The massive increase in FOAM content has necessarily created an 'attention economy' in which social media educators are incentivised to find more sophisticated means of presenting information and more effective mechanisms for dissemination.⁸

Today, social media platforms are the primary medium for many specialists and specialists-in-training to share ideas and experiences, translating knowledge into practice.⁹ Recognising this reality, medical educators have turned their attention from *whether* our andragogy should make use of social media, to *how* we should best do so. Similarly, academic institutions are working to characterise the discipline of digital scholarship to support practitioners becoming intelligent consumers of FOAM and for academics to claim appropriate credit for their activities on social media. Guidelines on citing social media posts in traditional academic publications are now routine.¹⁰⁻¹²

SOCIAL MEDIA AND THE COLLEGE

Until recently, medical colleges and healthcare organisations have advocated an abstinence approach around social media due to concerns that inadvertent ill-considered engagement could threaten the professional standing of both the individual and their affiliated organisations. However, there has been a paradigm shift where it is now acknowledged that social media is mainstream, that its use will continue to increase and that it has many potential benefits. Not engaging carries greater risk, including a limitation on the impact of institutions' ability to influence consumers, professionals, and decision makers. Most large organisations now have social media policies which allow responsible engagement, but caution against the dangers. ANZCA launched its first social media policy in 2022,³ approving of engagement by members and explicitly acknowledging the value of social media in 'advocacy and awareness raising'. The document addresses several roles in practice – communicator, leader, health advocate and professional, but its scope does not extend to consideration of social media and the scholarship role.

The ANZCA social media policy is an important first step in promoting effective engagement of members in the digital domain. In this paper, we consider how other medical institutions have addressed the challenge of applying traditional principles of scholarship and professional development in the age of FOAM and how these lessons could inform ANZCA's future efforts to support best practice engagement with social media.

TRADITIONAL MODELS OF SCHOLARSHIP

Academics have traditionally built their reputation through publications in peer-reviewed journals, invited presentations at national or international conferences, or through acceptance of academic appointments at prestigious educational institutions. These scholarly achievements are readily appreciated and can be supported by established metrics such as an individual's h- or G-index. In recent years though, there has been substantial discourse relating to evaluation of scholarly activities that previously went unrecognised, including digital scholarship. This debate is particularly prominent in the United States, where promotion and tenure (P&T) has traditionally been highly structured.

Theoretical models of scholarship have been developed to appraise traditional academic activities for faculty development and promotion. Boyer's Scholarly Domains outline four broad fields of scholarship: discovery,

the search for new knowledge; integration, bringing findings together from different disciplines or sources; application, discovering new ways that knowledge can be used to solve real world problems; and teaching, applying best practices to develop skills and disseminate knowledge.¹³ Subsequent authors have suggested that effective educational scholarship is that which is peer-reviewed, publicly disseminated, and capable of being built upon by others.¹⁴ On this basis, educational innovation and educational research has become more widely recognised within the P&T system.¹⁵

Some models have moved beyond classification of scholarship to its evaluation. According to Glassick's Criteria, high quality scholarship has six characteristics: clear goals, adequate preparation, appropriate methods, significant results, effective presentation and reflective critique.^{16,17} These features, or similar markers of quality, would be familiar to anyone who has submitted a manuscript for pre-publication peer review. Taken together with author- and publication-level metrics, these qualitative measures of academic output form the basis for academic appointments in many countries. However, this process may not be well suited to evaluation of digital scholarship.

EMERGING CONCEPTS OF DIGITAL SCHOLARSHIP

Digital scholarship is variously defined, but at its simplest, the term refers to digital dissemination of original content, including research findings, teaching materials, enduring resources, commentaries, or other academic products.¹⁶ Products of digital scholarship may be very similar to traditional media, such as online-only journal publications; however, the digital landscape includes many new scholarly contributions, such as post-production peer review journals,¹⁸ blogs,¹⁹ self-published online textbooks,²⁰ 'tweetorials'^{21,22} and even virtual hospitals.²³ Digital scholarship has been embraced by academics, clinicians, and trainees alike, immensely accelerating and broadening the dissemination of scientific information over the past 10 years. Ongoing growth is facilitated by the ease of use and low cost of many online content sharing platforms.

In 2015, Sherbino and colleagues undertook a consensus conference to identify criteria for social media-based scholarship in health professions education.²⁴ Appositely, this hybrid meeting was partially hosted on Twitter. The expert panel identified four key features that define social media scholarship (digital scholarship). It must be original; advance the field of health professions education by building on theory, research or best practice; be archived and disseminated; and provide the health professions education community with the ability to comment on and provide feedback in a transparent fashion that informs wider discussion.

Building upon this theoretical foundation, Husain and colleagues developed consensus guidelines for digital scholarship in academic promotion.¹⁶ They propose that academics begin by ensuring that the body of work being considered meets the criteria of scholarship outlined by Glassick and Sherbino et al. Subsequently, they suggest that content is evaluated with respect to its impact, reflecting the extent to which a person's work reaches its intended audience. They recommend that academics explain their role or 'brand' in the social media landscape; helping to establish recognition by others of a scholar's areas of expertise. Finally, their guidelines put forward various metrics particular to social media that can help reviewers gauge the overall scientific rigour and quality of a digital scholar's work. In applying this framework, academics would demonstrate their role within virtual communities of practice, citing the impact and quality of selected digital outputs.²⁴

Various methods have been proposed for measuring digital scholarship impact. These 'altmetrics' (alternative metrics) are based upon the premise that scientific impact cannot be solely measured in terms of scholarly citations, but that it should also consider the extent to which a work is seen, read, discussed, shared, and stored.²⁵ The reach of social media content is easier to gauge than that of traditional media. It is not possible to know how often a printed journal article has been read by others, if at all; or how many were in an audience during a conference presentation. Authors can access data regarding pageviews, downloads and average 'time on page'.¹⁶ Every social media platform has its own impact metrics. For example, Twitter allows users to view the number of times each tweet is seen (an 'impression'), clicked on ('an engagement'), and shared with others in the form of 'retweets' and 'likes'.²² In addition to overall audience size, which some consider the best measure of digital scholarship impact, other metrics include geographic reach and number of followers from professional social media accounts such as professional societies or educational institutions. Finally, just as some authors may choose to highlight publications in journals that have a high Impact Factor, digital scholars can draw upon metrics such as the Social Media Index (SMi), which ranks FOAM websites according to their Alexa Rank, number of Twitter Followers and number of Facebook Likes. SMi correlates well with other measures of educational resource quality and has been proposed as one tool to help creators and consumers of digital scholarship identify the most reputable forums for online academic discourse.^{26,27}

Beyond demonstrating the impact or reach of discrete pieces of online content, individuals may benefit from efforts to articulate their roles in digital scholarship, which ultimately contribute to a personal 'brand' within their virtual communities of practice. Common roles include author of original content or commentary, editor, curator,

reviewer and guest presenter. Role and impact may also be presented together as part of a digital scholarship portfolio; for example, a clinician-academic might indicate that they are editor-in-chief of a clinical blog with more than 5000 page-views per calendar month, which would represent an important role in a moderate-impact organisation.²⁵

The impact of digital scholarship readily stretches beyond professional circles and academia. Dr Morgan Edwards, obstetric anaesthetist at North Shore Hospital, Auckland and current president of the New Zealand Society of Anaesthetists, utilised Instagram to disseminate critical health information to her 52,000 followers during the height of the Covid-19 pandemic.²⁸ One author (NS) can attest to parturients in their institution describing how Dr Edward's educational social media posts allayed their fears and was the catalyst for their decision to get vaccinated during pregnancy. If the ultimate aim of academic scholarship is to improve patient outcomes and wellbeing, there is an argument that digital scholarship – which is accessible to patients – has a far greater reach and more direct impact compared to traditional academic discourse hidden behind paywalls.

Digital scholarship is more readily produced than some traditional academic media. This low barrier to entry, combined with digital scholarship's apparent similarities to recreational social media, has raised scepticism about the general quality of online content. Accordingly, several groups have endeavoured to develop direct quality assessments for specific digital works.¹⁶ The emergency medicine community have contributed significantly to this field of research. In 2014, the Academic Life in Emergency Medicine (ALiEM) collaborative developed the Approved Instructional Resource (AIR) series to help specialist training programs incorporate high quality digital scholarship as an aid to asynchronous professional development.²⁹ The AIR scoring matrix has five domains: the Best Evidence in Emergency Medicine (BEEM) rating scale, content accuracy, educational utility, Evidence Based Medicine (EBM), and Referencing. Content for the AIR Series is sourced from the SMI-50, a list of the top 50 FOAM sites, ranked by the Social Media Index. Other similar tools exist, including several versions of the Medical Education Translational Resources: Impact and Quality (METRIQ) score^{27,30} and the Quality Checklists for Health Professions Blogs and Podcasts.³¹ The AIR Series is now widely incorporated into US residency programs and it, along with the other aids to structured appraisal mentioned above, typify the ongoing pursuit of academic rigour within the digital scholarship community.

BARRIERS TO EFFECTIVE DIGITAL SCHOLARSHIP

In the past decade, digital scholarship has expanded in scope and has acquired a more mature framework of supporting educational theory. But the place of social media in academia and specialty education is still not universally acknowledged. Barriers to acceptance must be explored by the digital scholarship community if it is to continue to grow in legitimacy and influence.

One of the major criticisms of digital scholarship relates to the use of altmetrics. As described above, these metrics allow us to understand how content is consumed by both professional and lay users. From this we may draw inferences about the scholarly impact of a particular work, complementing the insights gleaned from traditional bibliometrics such as citation counts and journal impact factor. However, like most indices, altmetrics is susceptible to gaming. Authors may choose to blog or tweet about their own work or that of friends to carve out a bigger stake in the economy of attention. This is no different to the practice of 'self-referencing' that occurs in traditional academia. Additionally, some authors are concerned that social media popularity does not discriminate between positive and negative attention³² and that, to an extent, there is no such thing as bad publicity in digital scholarship. Recent research has drawn inconsistent conclusions about the relationship between social media activity and traditional markers of impact, such as citation counts, with some studies finding that metrics such as Twitter activity are strongly correlated with citations,^{33,34} while others suggest only a weak association.³⁵ These legitimate concerns should motivate digital scholars to adopt holistic approaches to evaluation of their academic output, clearly articulating their roles within relevant communities of practice and incorporating various quality assurance tools alongside simpler measures of social media reach.

A related criticism of digital scholarship is that academics may not sharply demarcate their personal and professional activities, and that popularity from one virtual community may lead to inflated social media impact in online academic discourse, giving 'undue' prominence to their scholarship.³⁶ A well-known researcher may in short order tweet about their latest trial, their cat, the traffic, and international politics. Users initially attracted by one post may then explore further and opportunistically engage with the researcher's academic content. To an extent, online interactions of this nature could be said to confer a competitive advantage on more digitally extroverted researchers over less socially engaged but equally deserving colleagues. Equally, it could be said that by establishing an online presence that is convivial and authentic, academics are setting the conditions for engagement with lay audiences and creating opportunities for real-world translation of their scholarship. Social media policy, such as that recently published by ANZCA, can help practitioners to achieve appropriately balanced social media engagement, cultivating a personal brand that is both genuine and professional.

Digital scholarship's heterogenous approach to peer review may be confronting to some academics. While some argue that peer-review is absent from FOAM and digital scholarship more generally, an alternative perspective is that the commitment to peer review is unchanged and that practitioners employ a diverse range of approaches, from traditional pre-publication review by deidentified external experts, to post-publication peer review via online comments or question and answer sessions.¹⁶ Post-publication peer review enables rich interactions between researchers with potential for corrections, clarifications, and generation of new hypotheses or research projects.¹⁸ Responses to social media posts may act as a raw form of peer review, one that is unencumbered by hierarchy, occasionally brutal in its assessment, and itself subject to further review by others.

There is an argument that the risk of disseminating specious research findings may be heightened in the absence of a pre-publication gatekeeper. Even if egregious errors are identified early in the post-publication period, it is possible that erroneous conclusions will already have been drawn by media or lay audiences, who are now much more likely to encounter research findings incidentally as a component of their various social media feeds. However, conventional peer review and editorial oversight does not prevent this occurrence in traditional academic publishing. *The Lancet* took 12 years to retract the widely discredited paper falsely linking autism to the MMR vaccine³⁷ and there are almost 300 retracted or withdrawn articles related to Covid-19 alone.³⁸ The most robust approach is likely to be one in which digital scholars retain elements of pre-publication peer review, even when their main focus is post-publication discourse, while traditional publishers seek opportunities to engage with their readership in the period after articles are made available online.¹⁸

Most social media platforms monetise their users' presence to generate advertising revenue. Their primary aim is not the propagation of academic discourse, but profit generation for shareholders. In-built algorithms are unlikely to consider academic merit or social impact when selecting which posts to disseminate widely. Whilst this is a valid observation regarding digital scholarship, it is no more concerning than exploitative elements of traditional academic publishing, such as volunteer peer review valued at over \$US2 billion annually,³⁹ free content generation, expensive institutional access fees to bypass paywalls, and profit margins higher than the largest tech companies.⁴⁰

SOCIAL MEDIA AND TRAINING IN THE SCHOLAR ROLE

The ANZCA Roles in Practice outline the expected roles of a specialist anaesthetist and how they apply to contemporary practice.⁴¹ Scholar role activities are intended to facilitate the development of trainees as teachers and learners.⁴² Accordingly, trainees are expected to develop skills in critical appraisal of information, as well as application of research evidence to specific clinical settings or problems. Key learning activities in this domain include teaching a skill, facilitating a tutorial, critiquing a paper, and completing an audit. Additionally, trainees are expected to engage with the anaesthesia community through attendance at regional meetings and participation in quality assurance programs. Completion of scholar role learning objectives is supported by a departmental scholar role tutor (DSRT) who assists trainees in planning and conducting each learning activity.

Importantly, both the ANZCA Roles in Practice and its ideological antecedent, the Canadian CanMEDS Framework,⁴³ aim to prepare trainees for *contemporary* practice. Evidence of this aspiration can be found in the most recent revisions to the scholar role, which have deemphasised the historical concept of a formal project in favour of a broader research literacy and audit skillset for most trainees.⁴⁴ However, our local curriculum does not presently give weight to digital scholars who contribute to the body of FOAM, except in so far as social media may be used for broader dissemination of previously submitted audit or research findings. The CanMEDS Framework by contrast is presently under review in preparation for its next iteration in 2025⁴⁵; social media has been identified as an emerging theme for inclusion, both as a tool for clinical communication with patients and for its role in teaching.

Trainees are presently faced with a superabundance of FOAM that is easy to access but inconsistent in quality. The anaesthesia community has not yet developed mature resources such as the ALiEM AIR Series and therefore the burden of appraising online content largely falls on trainees themselves. Even FOAM platforms that may be viewed as reliable by specialists may not be suitable for trainees because of the relative paucity of foundational knowledge included in many online resources.⁸ This creates potential for trainees to assimilate the views of those they follow, falling into the trap of eminence-based medicine and superficial learning. Recognising this and the incomplete translation of traditional quality metrics to the digital arena, it could be argued that educational institutions have a duty of care to specifically equip learners with the tools necessary to develop as independent digital scholars.

HOW MIGHT ANZCA SUPPORT GROWTH OF DIGITAL SCHOLARSHIP?

In this paper, we have explored the dramatic impacts of digital scholarship on medical teaching, learning and research around the world. We have also established that digital scholarship cannot solely be appraised using tools designed to evaluate traditional academic output. ANZCA has recently acknowledged the importance and legitimacy of social media as a means of communication and advocacy. Consistent with this, ANZCA is now ideally positioned to support appropriate use of social media across the remaining roles in practice, in particular by championing a culture of digital scholarship among both trainees and fellows. We propose the following practical initiatives for ANZCA to achieve this goal.

Acknowledge the role of digital scholarship and outline strategic priorities for developing this domain of practice in the next iteration of the Social Media Policy. Social media platforms constantly evolve and current platforms of choice may be replaced in the future, but the role of digital scholarship in education and training will only grow. Institutions that fail to recognise and embrace digital scholarship risk being left behind and unable to deal with the consequences of its impact.

Establish a process to allow recognition of digital scholarship within the ANZCA and FPM CPD Program. This process could include development of a tool for appraising online content that considers the impact and quality of each piece of work, as well as the role of the fellow in their virtual communities of practice.

Incorporate novel digital teaching and learning methods within the ANZCA Educators Program. Training in development of high-quality blog posts, tweetorials, and infographics would allow enthusiastic educators to engage with a broader community of learners than can be found in any one hospital or regional hub, creating an enduring online record of their teaching.

Curate a collection of high impact, high quality FOAM in a manner similar to the ALiEM AIR Series. The feasibility of such a body of work has already been contemplated in these pages by Juniper & Ganska (2019).⁴⁶ This may be done by the ANZCA Library or in collaboration with other anaesthesia training institutions. Other activities may include producing educational material on how to optimise social media feeds to receive content aligned with personal clinical or academic interests. Beyond any collection's value as a repository of knowledge, such a project would also develop ANZCA's reputation as a global leader in digital scholarship. It would also be possible for trainees to contribute to this body of work as part of their scholar role activities, with appropriate mentorship. An enduring and widely used resource produced through scholar role activities would demonstrate that scholarship is an integral part of anaesthesia practice, rather than an activity undertaken by only a small proportion of our colleagues.

Digital scholarship should be incorporated into the next revision of trainee scholar role activities. Trainees are already using social media extensively to learn, teach, and mentor, and ANZCA has an obligation to develop this scholarship with a higher degree of professionalism and academic rigour. Development of online exam revision slide decks and tweetorials could readily be incorporated as evidence of scholar role achievement, as could post-publication peer review activities and contributions to any future ANZCA curated collection of FOAM.

CONCLUSION

Our recent history has been marked by the many losses and compromises forced on us by the pandemic. For many of us, the collegiality, belonging and growth of conferences and special interest meetings seems like a distant memory. But with these challenges have come opportunities. ANZCA fellows and trainees who would never previously have chosen to pursue asynchronous learning or online journal clubs have been exposed to new forms of scholarship, and trainees have learned new ways to support each other remotely while tackling training requirements. These experiences and ANZCA's steps to establish professional standards for other forms of social media engagement have created an environment in which digital scholarship within our specialty can expand and mature. Learning the lessons from overseas and capitalising upon our existing strengths in research and education, ANZCA is now well positioned to help all fellows and trainees find substance in the FOAM.

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