

## University of Tasmania Open Access Repository

### Cover sheet

**Title**

Publish or Perish: a systematic review of interventions to increase academic publication rates

**Author**

McGrail, MR, Rickard, CM, Jones, R

**Bibliographic citation**

MR McGrail; Rickard, CM; Jones, R (2006). Publish or Perish: a systematic review of interventions to increase academic publication rates. University Of Tasmania. Journal contribution.  
[https://figshare.utas.edu.au/articles/journal\\_contribution/Publish\\_or\\_Perish\\_a\\_systematic\\_review\\_of\\_interventio](https://figshare.utas.edu.au/articles/journal_contribution/Publish_or_Perish_a_systematic_review_of_interventio)

Is published in: [10.1080/07294360500453053](https://doi.org/10.1080/07294360500453053)

**Copyright information**

This version of work is made accessible in the repository with the permission of the copyright holder/s under the following,

**Licence.**

If you believe that this work infringes copyright, please email details to: [oa.repository@utas.edu.au](mailto:oa.repository@utas.edu.au)

Downloaded from [University of Tasmania Open Access Repository](#)

Please do not remove this coversheet as it contains citation and copyright information.

University of Tasmania Open Access Repository

Library and Cultural Collections

University of Tasmania

Private Bag 3

Hobart, TAS 7005 Australia

E [oa.repository@utas.edu.au](mailto:oa.repository@utas.edu.au)

CRICOS Provider Code 00586B | ABN 30 764 374 782

[utas.edu.au](http://utas.edu.au)

# **Publish or perish: a systematic review of interventions to increase academic publication rates**

Matthew R. McGrail<sup>\*a</sup>, Claire M. Rickard<sup>b</sup> and Rebecca Jones<sup>a</sup>

<sup>a</sup>*Monash University, Victoria, Australia;* <sup>b</sup>*University of Tasmania, Tasmania, Australia*

Academics are expected to publish. In Australia universities receive extra funding based on their academic publication rates and academic promotion is difficult without a good publication record. However, the reality is that only a small percentage of academics are actively publishing. To fix this problem, a number of international universities and other higher education institutions have implemented interventions with the main aim being to increase the number of publications. A comprehensive literature search identified 17 studies published between 1984 and 2004, which examined the effects of these interventions. Three key types of interventions were identified: writing courses, writing support groups and writing coaches. The resulting publication output varied, but all interventions led to an increase in average publication rates for the participants.

## **Introduction**

Writing for publication is a vital activity for academics. Traditional motivations to publish emanate from scholarly, scientific and ethical philosophies regarding the importance of disseminating knowledge. These factors remain relevant, but have been further enhanced by the expectations of a modern university climate. Publication rates are used as both an indicator of individual and institutional performance and are important criteria in achieving external funding from government and other professional bodies. Emden (1998) clearly articulates the inadequacy of excellent teaching and professional activities—even combined with a PhD—when applying for academic promotion, if these are not combined with a strong track record of research publications. University funding from the commonwealth government in Australia relies partly on staff research and academic publication rates, which currently comprise 10% of the Institutional Grants Scheme (Department of Education,

---

<sup>\*</sup>School of Rural Health, Monash University, PO Box 973, Moe VIC 3825, Australia. Email: matthew.mcgrail@med.monash.edu.au

Science and Training, 2004). Furthermore, they are currently developing a Research Quality Framework (RQF), which includes publications as a key measure (Department of Education, Science and Training, 2005). If implemented, the RQF would allow comparative assessment of the quality of research in universities and would likely form the basis for resources allocation. These steps mirror those seen in other nations and, in part, explain the increasing expectation that academic staff publish, and publish regularly.

Despite compelling personal and professional reasons to publish, academic publication outputs have been repeatedly found to be low. One Australian study in an unnamed university faculty reported a median of three journal articles per staff member over a five-year period (West *et al.*, 1980). A study of 18 Australian university economics departments found the average academic published less than one peer-reviewed journal article every two years, and one-quarter had not published over a five-year period (Harris, 1990). The largest study in this area involved a survey of 890 Australian academics in 18 tertiary institutions and included those from the humanities, commerce, science, health science and engineering disciplines (Ramsden, 1994). During the five-year study period, publication rates were low and variable. A high proportion of publications were contributed by a small number of staff; conversely, 20% of academics published nothing over the period. A more recent study found just 26 individuals were responsible for 23.6% of all Australian authored research publications in 11 nursing journals from 1995 to 2000 (Wilkes *et al.*, 2002). The phenomenon of 'many published by the few' seems to have changed little since its first observation early last century (Lotka, 1926).

There are a number of reasons identified why academics do not write for publication. The greatest force holding academics back from writing is momentum (Boice & Jones, 1984). If they are currently in a writing lull, it is more difficult to begin writing again. Some academics have indicated that they need a formal support structure to keep the writing momentum going (Hale & Pruitt, 1989) or that they have difficulty keeping writing central to their role (Gainen, 1993). A common reason given for non-writing is a lack of available time (Page-Adams *et al.*, 1995). However, some studies have shown that highly productive writers do not have any more time or fewer commitments than their colleagues who do not write (Boice & Jones, 1984). One study found that what stops people from writing is a lack of framework or formal structure to continue their writing (Morss & Murray, 2001). Many writers, especially academics early in their writing careers, lack confidence in their ability, so they find professional support and encouragement to be helpful (Berger, 1990; Baldwin & Chandler, 2002). One study identified that writing generated fear and anxiety for a significant number of academics (Lee & Boud, 2003). Some writers have a limited understanding of the writing and publication processes, as well as emotional barriers like a fear of rejection, fear of competition and an uncertainty of what ideas are worthy of publication (Dies, 1993). Even simpler is that some participants have had good ideas, but felt that their writing ability was not good enough (Hale & Pruitt, 1989; Grant & Knowles, 2000).

Both the importance of publication and the undesirably low publication rates amongst academics are recurring themes in the literature. Some authors have

investigated academic's perceptions of publication facilitators/detractors. Others have sought to identify professional/personal/organizational correlates of publication rates. However, to our knowledge, there has been no prior review of the effectiveness of interventions that have been used in order to increase academic publication rates. The aim of this paper is therefore to review published literature that reports the effectiveness of measures designed to promote publication. It is hoped that this may identify strategies that can be used by university departments and their staff to meet their publication targets.

## Methods

### *The search strategy*

The databases Medline, CINAHL, ERIC, PsycINFO and Web of Science were searched for reports of interventions used to increase academic rates of publication. This search strategy emphasized health, education and related disciplines. Material was limited to that published in the English language between 1984 and 2004. Search terms included combinations of the following: publication, rate, publish, writing, support, course, coach, review and workshop. The reference lists of relevant articles were also reviewed. Identified articles were then assessed for the following required inclusion criteria: (i) the article reported the implementation of a specific structured intervention with the aim of increasing publication rates; (ii) the target group were academics or professionals involved in academic work; and (iii) the article provided data that assessed the effectiveness of the intervention. This resulted in 17 articles for use in the review. Data were extracted from the articles independently by two researchers, and then collated.

Examples of the excluded studies include: individual mentoring to staff (general support); help with time allocation; promotion of writing (self-administered); and written instructions or 'how to' guides. The following intervention studies (Table 1) were not included because there was either insufficient data or no data on the effectiveness of the intervention.

### *Who were the participants?*

A variety of participants have been evaluated after exposure to interventions designed to increase publication rates. Effectiveness data from a total of approximately 400 academics and professionals was available for review. Sample sizes ranged from five to 60 although many studies, particularly those with larger sample sizes, presented aggregated data from participants who were exposed to the intervention in smaller groups over different time frames. Despite our inclusion of the educational and social science citation indexes, most participants were from health disciplines, and although we searched the allied health and psychological indexes, predominantly nursing and medical cohorts were identified. Most participants were university academics, some with a dual academic/clinical role, and a smaller number were health professionals

Table 1. Excluded studies

Study	Intervention	Participants	Reason for exclusion
Cox <i>et al.</i> , 1990	Writing course	Paediatric specialty fellows, USA	No data on effectiveness of intervention
Hale & Pruitt, 1989	Support group	Nurse clinicians and academics, USA	Insufficient data on effectiveness of intervention
Grant & Knowles, 2000	Writing retreat	Women academics, NZ (unidentified disciplines, universities)	Insufficient data on effectiveness of intervention
	Support group	Women academics, Australia (6 disciplines)	Insufficient data on effectiveness of intervention
Padgett & Begun, 1996	Support group & writing course	Social work academics, USA	No data on effectiveness of intervention
Lee & Boud, 2003	Support group: I, new researchers; II, prior publishing	Education, women academics, Australia	Insufficient data on effectiveness of intervention
Young & Glenn, 1987	Support group	Student counsellors, USA	Non-academics and no data on effectiveness of intervention

working outside of the university environment (Lawrence & Folcik, 1996; Henninger & Nolan, 1998) whilst three groups consisted solely of health professionals undertaking PhD studies (Miller & Muhlenkamp, 1989; Gay, 1994; Page-Adams *et al.*, 1995). Three programs included academics from multiple disciplines within the university campus (Gainen, 1993; Stern, 1998; Morss & Murray, 2001). All published intervention evaluations were from the USA, with the exception of one each from Canada, Australia and the UK.

### *Types of interventions*

A variety of strategies to increase publication rates were reported in the literature. These interventions can be grouped into three approaches: writing support groups, structured writing courses and provision of a writing coach. There were nine articles reporting evaluation of writing support groups. A further six articles reported seven assessments of the efficacy of writing courses; one study by Lawrence and Folcik (1996) included three separate phases, with two writing courses and one writing support group. Two studies were published on the use of a professional writing coach or mentor.

### *Writing support groups*

The dominant model was that of writing support groups. These consisted of peers regularly meeting together to provide a combination of encouragement, discussion, feedback on manuscripts and/or writing time. Writing support groups seemed to be

either more targeted on actual writing and review of written work, or alternately focused more on psychosocial support and encouragement to publish.

Writing support groups are relatively cheap to implement and have been run in a variety of formats. The most common frequency for meeting was monthly (Ostrowski & Bartel, 1985; Henninger & Nolan, 1998; Grzybowski *et al.*, 2003; Pololi *et al.*, 2004) or twice monthly (Gainen, 1993; Page-Adams *et al.*, 1995; McVeigh *et al.*, 2002). Most support groups kept their meeting times to no more than 90 minutes (Gainen, 1993; Ostrowski & Bartel, 1985; Henninger & Nolan, 1998; Page-Adams *et al.*, 1995; McVeigh *et al.*, 2002; Pololi *et al.*, 2004). Some of the support groups only existed for up to six months or one semester (Ostrowski & Bartel, 1985; Page-Henninger & Nolan, 1998; Stern, 1998; Morss & Murray, 2001; Pololi *et al.*, 2004), whilst other groups were ongoing and have existed for up to three years (Grzybowski *et al.*, 2003). Two groups decided to meet in an external location to their work with very different structures. Grzybowski *et al.* (2003) met in the evening within participants' homes, where a group leader facilitated the meetings with minutes kept and circulated. Ostrowski and Bartel (1985) chose to hold breakfast meetings away from the office, with no formal structure. Most support groups ran their meetings with an informal structure. A couple of groups used a group coordinator to organize the participants (Henninger & Nolan, 1998; Morss & Murray, 2001), whilst a few groups utilized a group leader to facilitate the meetings (Gainen, 1993; McVeigh *et al.*, 2002; Grzybowski *et al.*, 2003).

Writing support groups give the participants an opportunity to work together to improve one another's writing and outcomes. Some of the frequently used approaches are: informal discussion of new ideas and their worthiness of publication (Ostrowski & Bartel, 1985); making participants aware that they are not the only ones struggling in their endeavour to write (Morss & Murray, 2001); distributing manuscripts between participants for review by many people—this may be one to two weeks prior to the meeting or simply at the meeting (Page-Adams *et al.*, 1995; Stern, 1998); encouraging participants through the submission process, including bouncing back from rejections (Gainen, 1993); or developing a feeling of camaraderie and working for common goals (Stern, 1998; Grzybowski *et al.*, 2003; Pololi *et al.*, 2004).

Regular meetings are a key feature of most of the support group interventions. Participants have indicated this is important to keep them goal orientated with enough motivation to accomplish their tasks (Ostrowski & Bartel, 1985; Grzybowski *et al.*, 2003). In one study, members would publicly announce completion dates, which brought a burden of public humiliation when these were not adhered to (Stern, 1998). Morss and Murray (2001) successfully used a formal monitoring process which encouraged the participants to set deadlines and writing goals which compelled them to complete their writing tasks so as not to let down their colleagues or embarrass themselves. For many participants, this was the structure that they needed in their work schedule to keep the writing momentum and interest going.

One of the support groups invited editors to their meeting to help increase the understanding of the publication process (Grzybowski *et al.*, 2003). Other interventions had more general support or discussions on where to submit their manuscripts

and how to deal with reviewer and journal editor comments (Henninger & Nolan, 1998; Baldwin & Chandler, 2002).

### *Writing courses*

The second most frequently reported intervention was the provision of a course in writing for publication. Such writing courses were led by experts, usually senior academics or professional editors. Participants were provided with didactic and written information about the writing and publication process. Most required development of a draft manuscript during the course.

Even though the ability to write for publication is a key skill for an academic staff member to possess, most staff will not at any stage of their career, whether as a student or as a staff member, be directly taught how to write for publication in refereed literature. In most cases, it is expected that they will have already attained a medium level of written communication, and will be able to learn on-the-job the more specific academic writing skills needed. However, this is not always the case and some universities have introduced writing courses, believing that their staff will benefit by attending these. The material for most of these courses has been developed internally.

These courses were of varying length and frequency. Some were run in a single block of sessions of 1–2.5 days (Sommers *et al.*, 1996; Lawrence & Folcik, 1996; Carlson & Ludwig-Beymer, 1997). Most were run as an ongoing series of fixed-length time, where sessions varied between 90 minutes and 180 minutes and the duration of the course ran for up to eight weeks (Miller & Muhlenkamp, 1989; Hekelman *et al.*, 1995; Lawrence & Folcik, 1996). They were presented by internal staff (Miller & Muhlenkamp, 1989; Sommers *et al.*, 1996; Carlson & Ludwig-Beymer, 1997) or external journal editors (Hekelman *et al.*, 1995; Lawrence & Folcik, 1996; Sommers *et al.*, 1996).

Writing courses provide the participants with information on a variety of topics, and have been presented in a number of different models. Some of the common elements of the presentations within the courses were: writing for a particular audience and how to select appropriate journals; tips for dealing with writer's block; knowledge of the submission and reviewing process; conceptualizing ideas for writing (Miller & Muhlenkamp, 1989; Hekelman *et al.*, 1995; Lawrence & Folcik, 1996; Sommers *et al.*, 1996; Carlson & Ludwig-Beymer, 1997). Examples of flawed writing were discussed as well as examples of published material (Miller & Muhlenkamp, 1989) and also examples of replying to reviewers' comments (Miller & Muhlenkamp, 1989; Hekelman *et al.*, 1995). Writing sessions were included for one course run on consecutive days (Sommers *et al.*, 1996), but for courses with intermittent sessions participants could prepare their manuscripts and have them reviewed at the next session, with the intention of having a near-completed manuscript by the end of the course (Lawrence & Folcik, 1996). Courses often included presentations from editors as part of their programs to discuss what the hallmarks of a publishable paper are and the basis for reviewers' suggestions and decisions (Hekelman *et al.*, 1995; Sommers *et al.*, 1996).



*Provision of a writing coach or formal mentor*

The remaining strategy was the provision of a professional writing coach or professional mentor to university staff. This intervention was reported only twice in the literature (Berger, 1990; Baldwin & Chandler, 2002). The writing coach or mentor's role was to offer help, encouragement and support to any staff member that sought their assistance in any stage of their scholarly writing.

*What evaluation methods were used?*

All published evaluations consisted of cohort study design, whereby groups of academics/professionals exposed to the phenomenon of interest were then measured for outcomes. Most studies used multiple evaluation methods, including a range of quantitative and qualitative techniques. A small number made some attempt at comparison to a control group who had not been exposed to the intervention.

**Results***Effect on publication rates*

The most obvious question to ask about these implemented strategies is: did they increase the publication output of the participants? The 17 selected articles provided publication outcomes after the intervention, and some gave an indication of the change in publication outcomes, with a direct comparison of publication activity pre and post the intervention. Using the data available, we converted publication rates to publications per person per year (PPY) to allow comparability. We endeavoured as far as possible to standardize this measurement to include only first or co-authored peer-reviewed journal articles that had either been accepted for publication or were published. Tables 2–4 show a summary of the interventions and the resulting publications rates.

There was consistency in the reported studies, with publication rates increasing after all interventions, regardless of whether they were a writing support group, writing course or writing coach. The range of PPY rates post intervention were 0.25–4.4 for support groups, 0.02–1.1 for writing courses and 0.4–0.9 for writing coaches. There did not appear to be any trend in one type of intervention being more or less effective than the others. Where pre and post data were available, publication rates improved at least twofold. Participants (7/9 or 78%) in one study indicated through a written questionnaire that they were more productive directly as a result of the program (Morss & Murray, 2001), whilst another study quantified the publication rate improvement to be statistically significant at the 0.01 level (Sommers *et al.*, 1996). A few studies did comparisons between groups. Lawrence and Folcik (1996) found that attendees at a single-day writing course had very little impact on publication outcomes. However, when similar material was presented in a seminar series over eight weeks, and where it was encouraged, the participants spent a minimum of 20 hours on their own writing during that period and there was a marked improvement in publication outcomes.



Table 2. Support group interventions

Reference	Participants	Description of intervention	Pre PPY	Post PPY	Publication outcomes/comments
Gainen, 1993	12 junior women academics, USA	Support group led by senior academic. Met twice monthly for 1 hour. Goal setting and reporting	–	0.25 <sup>i</sup>	2 members withdrew as wanted writing group not support group
Grzybowski <i>et al.</i> , 2003	15 physician academics, Canada	Monthly writing group, evening meetings at home. Semi-structured, evolved to be flexible. Included workshops with journal editors	0.3 <sup>ii</sup>	0.7 <sup>ii</sup>	Only evaluated those who attended $\geq 3$ meetings. Control group of non-attendees ( $n = 7$ ) PPY pre = 1.1, post = 1.0
Henninger & Nolan, 1998	18 nurse clinicians, USA	1 hour meeting/month for 3 or 12 months. Instructions and support from experienced authors. Goal setting	–	0.3 <sup>iii</sup>	No difference in PPY between those who attended the 3-month or 12-month program
Lawrence & Folcik, 1996	18 nurse clinicians, USA, 3 cohorts (Phase III)	5 $\times$ 1.5 hour seminars over 8 weeks + independent writing assignments $\geq 20$ hours	$\sim 0$	1.1 <sup>iii</sup>	
McVeigh <i>et al.</i> , 2002	5 nursing academics, Australia	Publication syndicate, chaired meeting –3 weekly, peer review	1.0 <sup>ii, iv</sup>	4.4 <sup>ii, iv</sup>	
Morss & Murray, 2001	10 multi-disciplinary academics, UK; 5 had PhD	4 meetings over 6 months + ‘buddy’ meetings 2–3 weekly external facilitator, goal setting	<sup>v</sup>	$\sim 0.8$ <sup>vi, iv</sup>	Most participants achieved or exceeded their goals. Qualitative analysis results positive.
Ostrowski & Bartel, 1985	Counselling academics with Masters, USA <sup>viii</sup>	Monthly 1.5 hour breakfast meeting. Support group, informal discussion	0.4 <sup>ix</sup>	–	Publications increased ‘3-fold’ <sup>vii</sup>
Page-Adams <i>et al.</i> , 1995	8 social work PhD students, USA	Writing group. Discussion & peer-review. 1 hour twice per month for 1 year	0.06 <sup>iii</sup>	0.5 <sup>iii</sup>	Control group (non-attending PhD students) PPY <sup>iii</sup> pre = 0, post = 0.1
Pololi <i>et al.</i> , 2004	18 (50% female) medical academics with PhDs, USA, 2 cohorts	75-minute monthly meeting for 7 months. Peer review and support, external facilitator, goal setting.	–	0.75 <sup>x</sup>	Part of a larger staff development program. All completed a manuscript. Qualitative interview results positive.

Table 2. *Continued.*

Reference	Participants	Description of intervention	Pre PPY	Post PPY	Publication outcomes/comments
Stern, 1998	13 female health academics with PhDs, USA	13-week writing support group, peer review, goal setting	–	0.9 <sup>iv</sup>	
PPY = Publications (first or co-authored) per person per year.					
<sup>i</sup> Indexed journals only;					
<sup>ii</sup> Peer reviewed journals only;					
<sup>iii</sup> Submitted and published journal articles counted due to inability to distinguish or short follow up;					
<sup>iv</sup> Papers accepted but not published were counted due to short follow-up;					
<sup>v</sup> Most participants had some previous publications;					
<sup>vi</sup> Peer-reviewed journal articles or refereed conference papers;					
<sup>vii</sup> No further publication information is given;					
<sup>viii</sup> Number unknown;					
<sup>ix</sup> Publication type unknown;					
<sup>x</sup> Journal articles, book chapters or monographs.					

Table 3. Writing course interventions

Reference	Participants	Description of intervention	Pre PPY	Post PPY	Publication outcomes/comments
Carlson & Ludwig-Beymer, 1997	10 nurse clinicians, USA	1-day workshop, run by hospital	~0	0.4	
Gay, 1994	~60 nursing PhD and Master's students, 4 cohorts, USA	1-day course then independent drafting of manuscript for assessment at end-semester	~0	~0.2 <sup>i</sup>	All participants completed a draft manuscript. Follow-up for this publication only. Post PPY data incomplete for all participants
Hekelman <i>et al.</i> , 1995	40 medical & other health academics, USA, 3 cohorts	Year-long program of seminar, independent writing and an all-day workshop. External editor	0.2 <sup>ii</sup>	0.4 <sup>ii</sup>	
Lawrence & Folcik, 1996	31 nurse clinicians, USA (Phase I) 40 nurse clinicians, USA, 2 cohorts (Phase II)	1-day writing for publication workshop run by university 1-day writing for publication workshop run by journal editor	~0	0.1 <sup>iii</sup> 0.02 <sup>ii</sup>	Controls (well-matched non-attending nurses) PPY post = 0
Miller & Muhlenkamp, 1989	35 postgraduate nursing students, USA	Academic-led credited subject. 3 hours twice/week for 5 weeks Peer review. Preparation of draft for assessment	~0	0.5 <sup>iv</sup>	
Sommers <i>et al.</i> , 1996	35 medical & other health academics, USA	2.5 day writing workshop off-campus retreat. Lectures, writing, discussion. Run by academics and a journal editor	~0.3	0.7 <sup>v</sup>	Additional positive results from pre/post survey and interview data. Voluntary attendance and prior publication predicted success

PPY = Publications (first or co-authored) per person per year.

<sup>i</sup>Calculated for one-year period as only reported on the article from the course;

<sup>ii</sup>Indexed journals only;

<sup>iii</sup>Submitted and published journal articles counted due to inability to distinguish or short follow-up;

<sup>iv</sup>Papers accepted but not published were counted due to short follow-up;

<sup>v</sup>Peer reviewed journal articles, books or book chapters only.

Table 4. Professional coaching and mentoring

Reference	Participants	Description of intervention	Pre PPY	Post PPY	Publication outcomes/comments
Baldwin & Chandler, 2002	16 nursing academics, 75% had PhD, USA	External writing coach available to all staff, 16 of 26 sought help	0.2 <sup>i</sup>	0.4 <sup>i</sup>	Those with recent PhDs had highest rate of increased publications
Berger, 1990	10 social work academics, USA	Internal writing mentor available to all staff, 10 of 39 sought help	–	0.9	

PPY = Publications (first or co-authored) per person per year.

<sup>i</sup>Peer reviewed journals only.

### *Effect on publication quality*

Several studies noted findings that suggested writing interventions improved not just the number of manuscripts developed, but also the quality. The process of having a large group of people reviewing manuscripts may be beneficial to the author as it is akin to having a personal review board prior to the peer-review process that happens on submission to a journal (Ostrowski & Bartel, 1985; Miller & Muhlenkamp, 1989; Stern, 1998). A well-written paper should be understood by readers who are outside the direct discipline of interest, so using multidiscipline teams as reviewers seems to force clear writing from the author (Stern, 1998). Participants have been noted to be more receptive to criticism and accepting of suggestions for improvement, and when the time comes, they may respond better to suggestions from journal editors and reviewers (Miller & Muhlenkamp, 1989; Lee & Boud, 2003). Against this trend, some participants in one study suggested that they would have had increased benefit if they used smaller groups and more natural groupings of writers with similar disciplines and types of manuscripts (Grzybowski *et al.*, 2003).

### *Effect on writing knowledge and skills*

Some participants indicated that a perceived lack of skills was a key barrier to their level of publication writing. One study did a pre and post course self-assessment of knowledge and skills in writing and publication with 74 respondents (Sommers *et al.*, 1996). All nine elements, such as applying techniques and grammatical rules for writing, clearly had a statistically significant increase. In the same study, a separate follow-up telephone interview found that 24/35 (69%) of respondents indicated they had become more skilful in writing following the course. However, there also appears to be an association between a perceived lack of skills with a lack of confidence in writing (Morss & Murray, 2001).

There are other benefits that have been identified. These include: understanding the types of scientific papers, sections of the research paper including the introduction, methods, results and discussion model (Hekelman *et al.*, 1995); the process of developing concise purpose statements and clearer ideas, as well as the importance of a well-constructed abstract (Miller & Muhlenkamp, 1989); and improving selection of journals and understanding of the process of submission and correspondence with the editor (Cox *et al.*, 1990).

### *Effect on psychosocial outcomes*

Support, encouragement and motivation are key benefits of writing interventions, apart from an increase in knowledge and skills gained that help to achieve an increase in published writing. Lack of momentum has been cited as the greatest force against writing (Boice & Jones, 1984). This could be due to any one of a number of issues like a perceived lack of confidence, time or ability. All of the interventions outlined in this review attempt to create momentum in the participant's writing by giving them at least one (and possibly all three) of the elements of support, encouragement and motivation. Often an external force such as these interventions is enough to start the momentum. Psychosocial benefits reported include: overcoming writer's block and improving organization (Gainen, 1993; Hekelman *et al.*, 1995); providing a non-threatening environment with a climate of inclusion and encouragement (Grant & Knowles, 2000; Grzybowski *et al.*, 2003); giving the opportunity to exchange energy and ideas without fear of ridicule and helping participants to be more self-critical and accepting of suggestions (Miller & Muhlenkamp, 1989; Grzybowski *et al.*, 2003).

### *Effect on other academic activity*

Sometimes programs are expanded to support grant writing, conference papers and abstract submissions (Morss & Murray, 2001) or simply just to test new ideas before committing to a new research topic (Ostrowski & Bartel, 1985; Miller & Muhlenkamp, 1989; Hekelman *et al.*, 1995; Grzybowski *et al.*, 2003). Apart from the staff who directly participated in these programs, many studies have found flow-on benefits for other academic staff. Sometimes the inspiration of the staff participating in the writing group can have a ripple effect on other unpublished staff that leads them to begin writing (Baldwin & Chandler, 2002). Participants have created their own writing partnerships with more professionally suited people outside of the initial group (Gainen, 1993), whilst collaborative writing and research between members of the same group has surfaced as a result of the syndicate (McVeigh *et al.*, 2002). A successful writing group can encourage other departments within the same campus to establish their own writing groups (Gainen, 1993). The presence of a writing guild within one faculty was found to be a significant factor in the decision of two recently hired staff to join the faculty, as they viewed this as a supportive environment (Padgett & Begun, 1996).

## Discussion

This review has critiqued 17 published results of interventions applied with the intent of increasing academic publication rates. Three models of intervention have been tested in a variety of ways and settings. Although the reviewed data do not come from rigorously designed experimental research studies, and thus do not constitute high-level evidence, the consistency of positive effect suggests a reasonable degree of confidence in the results. Although there is possibly publication bias, in that interventions with negative outcomes are less likely to be published, there is reasonable evidence from the available studies that the delivery of an intervention will increase participant publication outcomes.

Writing course participants tended to have lower post-intervention PPYs than those in writing support groups; however, participants in these courses also tended to have lower pre-intervention PPYs. Participants in writing courses were more likely to be publication novices prior to the intervention than those in support groups, who tended to be academics with at least some prior publication record. There is some evidence that technical writing skills learnt from a didactic, one-off communication will have limited outcomes (Lawrence & Folcik, 1996; Baldwin & Chandler, 2002). Many of the participants were clinicians, so whilst either a partial or full academic role within the university environment would involve an expectation of writing for publication, clearly the full-time academics would be more likely to have stronger expectations and more time to write.

Most participants were self-selecting, where individuals perceived a need for professional development and generally often had specific writing projects already in mind. This is significant in terms of generalizability of effectiveness of interventions. Clearly the tested cohorts represent individuals who were already committed to writing for publication or had a strong desire to begin writing before the intervention. In one such study, it was noted that there was no time freed up to complete their support group projects, so this group represented those who had a personal commitment to writing (Morss & Murray, 2001). Another study found that motivation for writing was the important factor in deciding whom to target their courses at (Sommers *et al.*, 1996). Only four out of 19 (21%) participants who published post course did not have prior publishing experience. In fact, many of the participants indicated that they would have published without attending the course. Thus it is difficult to gauge how much the intervention had directly contributed to the outcomes. One study carried out a direct comparison of participants in a writing support group (88% wrote papers) with non-participants (20% wrote papers) (Page-Adams *et al.*, 1995). Prior to the support group, 75% of participants had previously published and only 30% of non-participants had published. The members who had chosen to participate already had some desire and motivation to publish and the support group enabled them to maintain that level of interest.

Over the past few decades, several factors have been identified as contributing to the publication rates of academics. These include age, rank, institutional type and department, intrinsic motivation to conduct research, autonomy and job stress (Sax

*et al.*, 2002). Female gender has traditionally been linked to lower publication outputs, although the gap is narrowing. A recent study of 8544 full-time academics in the USA examining similar factors impeding men's and women's productivity found little or no effect of family-related variables such as marriage, children or ageing parents (Sax *et al.*, 2002). More important contributors were academic rank, salary, orientation towards research and desire for recognition. Such studies evaluated rarely controlled for factors that have been linked to publication productivity in earlier research; for example, age was rarely looked at, and never measured, yet Sax *et al.* (2002) found that younger academics in the USA tended to be more productive, perhaps due to their education in a time of heavy focus on publications.

Nurses featured heavily as target groups in the studies reviewed, including having a writing coach available (Baldwin & Chandler, 2002), meeting regularly for hands-on writing support groups (Ostrowski & Bartel, 1985; McVeigh *et al.*, 2002; Grzybowski *et al.*, 2003) and extended writing courses (Hekelman *et al.*, 1995; Sommers *et al.*, 1996). Interestingly, although we did not seek to exclude other professions, a majority of identified articles reported interventions amongst health academics or clinicians (predominantly medical and nursing). This suggests either a higher need or higher focus on increasing publications within the health sphere.

Two studies limited participation to female academics (Gainen, 1993; Stern, 1998), as well as two of the excluded studies (Grant & Knowles, 2000; Lee & Boud, 2003). Combining this with the preponderance of studies targeting nursing academics/clinicians suggests that most of the total knowledge accumulated on this topic has so far been tested on women. Whilst women academics have been identified as a group needing extra assistance to increase publication rates, this gender imbalance limits generalizability of results. It is quite possible that strategies found beneficial for women, may not have the same effect for males.

A number of challenges needed to be overcome during the interventions for the participants to benefit. In one study, some group members left because they specifically wanted to have an exchange or review of each other's manuscripts, rather than the discussion-only format that this group entailed (Gainen, 1993). Another group encountered concerns with the sharing and critiquing of manuscripts. Not all researchers and writers were comfortable receiving criticism from their fellow professionals (Grzybowski *et al.*, 2003). The writing support group may not suit all participants.

There was a large variation in the follow-up times of the studies. This made comparisons difficult, although we attempted to standardize measures as much as possible via the PPY calculation. Many follow-up periods were very short (often six months) and may not have been long enough to give a true indication of the intervention's effect on publication rates. There is often a long time period from manuscript commencement to submission, revision, acceptance and, finally, publication. This makes analysis or comparisons of publication rates extremely difficult and not an exact science.

Additionally, measurement definitions of publication rates were inconsistent between studies. Whilst we endeavoured to standardize measures of PPY to count



only those manuscripts published in peer-reviewed journals, this was not always possible. Some studies had very strict criteria, including only those publications which would be eligible for university funding under the Australian system (peer-reviewed journal articles, books, refereed conference papers, etc.), whilst others were looser, including reports and other non-refereed work. One study of 34 Australian universities included the views of 86 education academics and found the most highly valued research publication productivity indicators were refereed journal articles and peer-reviewed books (Print & Hattie, 1997). Creamer (1998) and Sax *et al.* (2002) identify the most common measure of research productivity in the USA as the number of 'professional writings' published or accepted for publication during the preceding two-year period.

We suggest that future research uses a standardized approach (e.g. PPY) and is explicit about category of publication, stage of manuscript, overlap between co-authored and first-authored papers, so that alternative calculations may be made by readers. We acknowledge, as have others, that there are shortcomings in the use of publication rates as an indicator of research or publication activity. One excellent paper in a top-ranking journal might be worth several in lesser forums, whilst some disciplines place higher regard on book authorship and others on journal articles (Sax *et al.*, 2002). Nevertheless, publication rates are indisputably a frequent measure of quality and activity, and greater clarity in reporting and definitions will at least allow the best use of the tool.

Academics can expect their publication output to be scrutinized annually during performance management reviews as a key indicator of job performance. Ramsden (1994) highlights the absolute necessity of prior publication if academics are to be successful in obtaining competitive research grants (which are another key performance and funding criterion). Creamer (1998) notes the use of publication productivity as an index of institutional or departmental prestige. Clearly it is in the best interests of both university employers and employees for staff to be publishing, and publishing often.

## Conclusion

This paper gives an overview of known strategies that have been used to seek increased publication activity amongst academics and professionals undertaking academic activity. It identifies three models that have been tried in a variety of ways. These include short-term interventions of 'how to write for publication' courses, led by internal and external experts, and the longer-term interventions of ongoing writing support groups or coaching arrangements.

Although the information gathered for this review does not provide definite cause-and-effect relationships, it suggests all three models can be beneficial. Support groups were superior for most reported interventions, in attaining higher publication rates than writing courses. There was also a trend that mainly didactic writing courses offered in a short-term format were the least beneficial in terms of an immediate return of published papers. Both of the professional coaching and mentoring

interventions were beneficial. Other benefits of all models included an increase in confidence, skills and teamwork.

Academics and other professionals are either expected to, or are strongly encouraged to, write for publication in refereed journals. In fact, it is unethical for researchers not to publish their findings (Savitz, 2000), and there may also be financial incentives to do so (Department of Education, Science and Training, 2004, 2005). However, only a small subset manages to successfully achieve this outcome on a regular basis. There are many reasons why this is not happening, but the strongest links are those who publish may have the motivation and confidence and thus they also have the momentum. Writing courses, support groups and coaching are all methods designed to help staff have the ability and, hopefully, the motivation to publish their writing. Some universities already have benefited from these interventions, as in the reviewed studies.

We recommend that universities support the development of structured interventions for their staff in order to increase their writing for publication. A regular, ongoing arrangement seems to be most beneficial, with a format that can be adapted to meet the needs of the attendees.

## References

- Baldwin, C. & Chandler, G. E. (2002). Improving faculty publication output: The role of a writing coach. *Journal of Professional Nursing*, 18(1), 8–15.
- Berger, R. M. (1990). Getting published: A mentoring program for social work faculty. *Social Work*, 35(1), 69–71.
- Boice, R. & Jones, F. (1984). Why academicians don't write. *Journal of Higher Education*, 55(5), 567–582.
- Carlson, G.-E. & Ludwig-Beymer, P. (1997). Stimulating peers to publish: The role of staff development. *Journal of Nursing Staff Development*, 13(6), 314–318.
- Cox, B. G., Schatz, D. A., & Van Mierop, L. H. (1990). Scientific writing courses for pediatrics fellows. *Academic Medicine*, 65(10), 652–653.
- Creamer, E. G. (1998). *Assessing faculty publication productivity: Issues of equity ASHE-ERIC Higher Education Report*, Volume 26, No. 2. Washington, DC: The George Washington University, Graduate School of Education and Human Development.
- Department of Education, Science and Training (DEST). (2004). *Institutional grants scheme guidelines*, Canberra, Australia.
- Department of Education, Science and Training (DEST). (2005). *Research quality framework: Assessing the quality and impact of research in Australia: Issues paper*, DEST.
- Dies, R. R. (1993). Writing for publication: Overcoming common obstacles. *International Journal of Group Psychotherapy*, 43(2), 243–249.
- Emden, C. (1998). Establishing a 'track record': Research productivity and nursing academe. *Australian Journal of Advanced Nursing*, 16(1), 29–33.
- Gainen, J. (1993). A writing support program for junior women faculty. *New Directions for Teaching and Learning*, 53, Spring, 91–100.
- Gay, J. T. (1994). Teaching graduate students to write for publication. *Journal of Nursing Education*, 33(7), 328–329.
- Grant, B. & Knowles, S. (2000). Flights of imagination: Academic women be(com)ing writers. *International Journal for Academic Development*, 5(1), 6–19.
- Grzybowski, S. C., Bates, J., Calam, B., Alred, J., Martin, R. E., Andrew, R. et al. (2003). A physician peer support writing group. *Family Medicine*, 35(3), 195–201.

- Hale, S. L. & Pruitt, R. H. (1989). Enhancing publication success. *NursingConnections*, 2(1), 59–61.
- Harris, G. T. (1990). Research output in Australian economics departments: An update for 1984–1988. *Australian Economic Papers*, 29(55), 249–259.
- Hekelman, F. P., Gilchrist, V., Zyzanski, S. J., Glover, P., & Olness, K. (1995). An educational intervention to increase faculty publication productivity. *Family Medicine*, 27(4), 255–259.
- Henninger, D. E. & Nolan, M. T. (1998). A comparative evaluation of two educational strategies to promote publication by nurses. *Journal of Continuing Education in Nursing*, 29(2), 79–84.
- Lawrence, M. M. & Folcik, M. A. (1996). Writing for publication. *Journal of Nursing Staff Development*, 12(6), 289–293.
- Lee, A. & Boud, D. (2003). Writing groups, change and academic identity: Research development as local practice. *Studies in Higher Education*, 28(2), 187–200.
- Lotka, A. J. (1926). The frequency distribution of scientific productivity. *Journal of the Washington Academy of Sciences*, 16, 317–323.
- McVeigh, C., Moyle, K., Forrester, K., Chaboyer, W., Patterson, E., & St John, W. (2002). Publication syndicates: In support of nursing scholarship. *Journal of Continuing Education in Nursing*, 33(2), 63–66.
- Miller, B. K. & Muhlenkamp, A. (1989). Teaching students how to publish in nursing journals: A group approach. *Journal of Nursing Education*, 28(8), 379–381.
- Morss, K. & Murray, R. (2001). Researching academic writing within a structured programme: Insights and outcomes. *Studies in Higher Education*, 26(1), 35–42.
- Ostrowski, P. M. & Bartel, S. (1985). Assisting practitioners to publish through the use of support groups. *Journal of Counseling and Development*, 63(8), 510–511.
- Padgett, D. L. & Begun, A. L. (1996). The writer's guild: A model of support for social work faculty. *Journal of Social Work Education*, 32(2), 237–244.
- Page-Adams, D., Cheng, L.-C., Gogineni, A., & Shen, C.-Y. (1995). Establishing a group to encourage writing for publication among doctoral students. *Journal of Social Work Education*, 31(3), 402–407.
- Pololi, L., Knight, S., & Dunn, K. (2004). Facilitating scholarly writing in academic medicine. *Journal of General Internal Medicine*, 19(1), 64–68.
- Print, M. & Hattie, J. (1997). Measuring quality in universities: An approach to weighting research productivity. *Higher Education*, 33(4), 453–469.
- Ramsden, P. (1994). Describing and explaining research productivity. *Higher Education*, 28(2), 207–226.
- Savitz, D. A. (2000). Failure to publish results of epidemiologic studies is unethical. *Epidemiology and Society*, 11(3), 361–363.
- Sax, L. J., Hagedorn, L. S., Arredondo, M., & Dicrisi, F. A. (2002). Faculty research productivity: Exploring the role of gender and family-related factors. *Research in Higher Education*, 43(4), 423–445.
- Sommers, P. S., Muller, J. H., Bailiff, P. J., & Stephens, G. G. (1996). Writing for publication: A workshop to prepare faculty as medical writers. *Family Medicine*, 28(9), 650–654.
- Stern, P. N. (1998). In-house peer review: The writing support group. *Health Care for Women International*, 19(3), 177–178.
- West, L. H. T., Hore, T., & Boon, P. K. (1980). Publication rates and productivity. *Vestes*, 23, 32–37.
- Wilkes, L., Borbasi, S., Hawes, C., Stewart, M., & May, D. (2002). Measuring the outputs of nursing research and development in Australia: The researchers. *Australian Journal of Advanced Nursing*, 19(4), 15–20.
- Young, I. L. & Glenn, S. (1987). Becoming published through a writers' support group. *Elementary School Guidance and Counseling*, 21(3), 173–176.