



# **Student and supervisor perspectives on publishing during PhD candidature: towards developing a capacity building model in academia**

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## **Abstract**

There is increasing pressure for academic institutions to solve societal problems, engage more deeply in industry-academic linkages and produce PhD graduates who are ready for an industry or academic career pathway. The training of doctoral students is becoming much more focussed on outputs. The academic workplace where new academics are employed is arguably different from that which characterised graduate education in the past. PhD graduates enter an academic workplace where they are expected to demonstrate multiple skills and abilities as they engage in a full range of academic activities that support various institutional missions. An academic's understanding of the institutional expectations and the development of their capacity to contribute to the institution's performance begins with the graduate school experience. Publications are an important way for universities to measure personal and institutional performance. However the academic workplace places demands on academics to give priority to other achievements. Consequently writing for publication appears to be an ad-hoc activity for many PhD students. Underpinning this is the capacity of supervisors to support and steer students to publish effectively. This article represents the authors' experiences of publishing during their PhD candidature from a student and supervisor perspective. The advantages and disadvantages of the publication process are presented as well as the inhibitors and enablers for successful outcomes. The discussion is contextualized within the Australian graduate research education sector. The growing body of literature reimagining doctorate education and in particular the publishing process is considered. We conclude with suggestions on how the authors' experiences can contribute towards the development of a capacity building model for both PhD students and supervisors in fostering publications by PhD students. The *art* of publishing is pursued with the philosophy that it is the space dually occupied by the supervisor as academic mentor and the doctoral student as emerging trainee scholar.

**Keywords:** doctoral education, supervising PhDs, academic capacity-building, academic publications

## **1. Introduction**

Past work into graduate research education has identified that current training tends to focus on the "how to" instead of the actual "doing" of a higher degree research program (Rugg and Petre, 2004; Churchill and Sanders, 2007). Whilst achieving the final research dissertation is often seen as the ultimate outcome of a postgraduate degree it is not the only outcome. The softer side of graduate education – with an emphasis on the experiential role of the student –

in the development of their training to become future leaders in academia, government or industry and the social interactions which take place in the process are equally important if we are to develop well-rounded high performing academics. Increasingly questions are raised about the appropriateness, quality and adequacy of existing graduate education programs in preparing PhD students for the competitive and demanding workplace they will face (Austin, 2002; Evans et al, 2003). Publishing skills are often considered as one of the main tools of the academic *trade* whereby writing for publications is an important activity for established academics and PhD students alike (Cuthbert and Spark, 2008). The capacity of students to publish during their PhD candidature is increasingly being recognised as an important way to prepare students for the competitive real world of science (Giegerich et al, 2007). Success in publication of PhD work is well correlated with subsequent scholarly activity (Robins and Kanowski, 2008). Newly employed academics who learnt to balance writing, teaching and collegiality early in their academic careers generally have high levels of publication productivity (Page-Adams, 1995). Within this context formal structures, pedagogic practices and supervisor capacity can play a critical role in building PhD student capacity and exposing them to the values and practices that they are likely to confront upon entry into academia. The majority of PhD students do not receive adequate mentoring or structural support to publish from their research.

There is a small but growing body of literature on the advantages of publishing during PhD studies. However very little attention has been placed on the complexities of the publication process during PhD candidature. The conditions or enablers which foster PhD publications are also not often considered. There is a need to develop a greater understanding of the enablers and inhibitors for success. This paper explores the authors' experiences of publishing during PhD candidature from a student and a supervisor perspective. The advantages and disadvantages of the publication process are presented as well as the inhibitors and enablers for success. The discussion is contextualized within the Australian graduate research education sector. The growing body of literature that is evaluating and reimagining doctorate education and practices and in particular the publishing process is considered. We conclude with suggestions on the development of a capacity building model for both PhD students and supervisors in fostering publications by PhD students.

## **2. Graduate research education in Australia**

The PhD was first introduced in Australia in 1948. The approach to graduate research education in Australia was similar to that which emerged in the United Kingdom (UK) in the early twentieth century where individual students have been closely associated with individual supervisors as well as individual institutions (Evans et al, 2003) with a research program that has been characterised as an "extension of the BAHons with some research" (Clarke, 1995, p. 79). This is unlike the American system which adapted the German practice combining graduate coursework with research in a PhD program (Gellert, 1993). Since the award of the first PhDs in 1948 in Australia there has been a significant growth in numbers of research students and PhD students in particular. The approach to doctoral education in Australia has, however, remained largely research-based and is generally completed in 3-4 years full time or part-time equivalent. The definition of a PhD degree offered by the University of Melbourne's Graduate School of Research (GSR) largely sums

up the general approach to doctoral education in Australia: *A PhD degree “signifies that the holder has undertaken a substantial piece of original research which has been conducted and reported by the holder under proper academic supervision and in a research environment for a prescribed period...Its contribution to knowledge rests on originality of approach and/or interpretation of the findings and, in some cases, the discovery of new facts. It demonstrates an ability to communicate research findings effectively in the professional arena and in an international context. It is a careful, rigorous and sustained piece of work demonstrating that a research “apprenticeship” is complete and the holder is admitted to the community of scholars in the discipline” (University of Melbourne, 2012).*

Increasingly PhD graduates have varying employment outcomes and as a result the PhD may no longer be seen as an “apprenticeship” for being a university academic (Thomson et al, 2001). The emergence of professional doctorates in Australia in the early 1990s represents one of the key responses towards the changing expectations of graduate education (Kemp, 2004). Another response has been a liberalization of rules governing PhD programs to accommodate new specialties as well as different ways in which research can be carried out and theses presented (Pearson and Ford, 1997; Evans et al, 2003). In 2008 there was an increase of 41 per cent in number of students who completed a higher degree by research (HDR) in Australia since 1998 with international students contributing significantly to this growth (Australian Government, 2011). Research training in Australia is funded by the Australian government through the Research Training Scheme (RTS), Australian Postgraduate Award (APA), International Postgraduate Research Scholarships (IPRS) and Commercialisation Training Scheme (CTS). The Australian Research Council (ARC) and the National Health and Medical Research Council also provide a number of research training places. Additionally, universities, private research institutes, industry bodies and employers also contribute towards funding research training (Aust Govt, 2011).

## **2.1 Publishing productivity of graduate research students**

In Australia there has been no widespread move to develop the publishing potential of graduate research students (Cuthbert and Spark, 2003). One of the key factors contributing to the lack of attention paid towards fostering publications by graduate research students is the policy and management of higher degree by research education in Australia which significantly downplays the importance of the publication process (Cuthbert and Spark, 2003). The Research Training Scheme (RTS), which is the country’s largest source of funding to higher education providers, provides support for research training to domestic (including New Zealand) students undertaking doctorate or masters degrees. The RTS is paid, on a calendar year basis, as a block grant to eligible universities according to a performance index (DIISRTE, 2012). A weighted performance index determines the allocation of the RTS block grant to universities based on the following breakdown: HDR student completions: 50 per cent, research income: 40 per cent and research publications: 10 per cent. Underpinning the formula for the performance index is an assumption that student completions within the required timeframe equates to students receiving high quality research training supervision. Whether or not high quality research and research training supervision is achieved, however, remains questionable as pointed out by a recent consultation paper by the Australian Government (2011) on defining quality for research training in Australia: *“The original policy intent for including HDR completions in the RTS funding formula was*

*to reduce completion times when these were becoming unsustainable, and to reduce attrition...Whilst the inclusion of completions in the RTS formula has been effective in reducing completion times, there have been some concerns that in some cases higher completion rates might have been achieved at the cost of quality" (p. 11-12).* As can be seen through the RTS' weighted performance index, extreme pressure is placed on academics to perform in the two areas of student completions and research income. Arguably the focus on achieving timely completions and obtaining research income has been undertaken in expense of other areas in the delivery of graduate research education including nurturing students into the publication and research cultures of their disciplines (Cuthbert and Spark, 2003).

Publications are an important way for universities to measure personal and institutional performance. It is widely recognised that PhD research is a major source of new knowledge production in universities. PhD students play a critical role in establishing international collaborative links (Kamler, 2008). Yet writing for publication appears to be an ad-hoc activity for many PhD students whereby publication performance varies considerably from one student to the next. Mentoring towards publication is also not often a routine part of the process of graduate education whereby PhD students appear to be "left to their own devices to sort out how to publish from their research" (Kamler, 2008, p. 283). Work conducted in the United States of America uncovered that publishing productivity could be stimulated during graduate education (Green et al, 1992). Amongst some of the key factors that could facilitate PhD students' publishing productivity are: encouragement from supervisors (Dinham and Scott, 2001), institutional support (Kamler, 2008) and critical feedback and attention to writing-in-progress for eg through writing groups (Lee and Boud, 2003; Cuthbert and Spark, 2003). In summarising these studies, Kamler (2008) aptly points out that "doctoral publication is not a given" and that "it flourishes when it receives serious attention and skilled support from knowledgeable supervisors and others who understand academic writing as complex disciplinary and identity work" (p. 284). Kamler (2008) further argues that greater pedagogical attention needs to be provided to writing for publication through a more sustainable and long-term approach to re-envision and rethink doctoral pedagogies.

### **3. Reflections on publishing during PhD candidature**

This section outlines the reflections of the authors' experiences of publishing during their PhD candidature from a student and a supervisor perspective. The advantages and disadvantages of the publication process are presented as well as the inhibitors and enablers for successful outcomes. The two PhD student authors are currently doctoral scholars in the School of Property, Construction and Project Management at RMIT University, Australia and are both supervised by the same principal supervisor (author 3). The first student commenced her PhD program in August 2009 at a different Australian university and transferred to her current university in February 2011 to remain under the supervision of her supervisor who had taken up a position at the university. Since commencing her PhD program, the first student has produced 26 publications which include 1 book, 17 conference papers, 5 journal papers and 2 book chapters. Similarly, the second student commenced his PhD program in June 2009 at a different university and transferred to his current university to remain under the supervision of the same supervisor. Since commencing his PhD program, the second student has produced 16 publications which

include 12 conference papers, 3 journal papers and 1 book chapter. The third author is a senior academic in the same school who supervises a number of doctoral students including the two PhD student authors of this paper. The supervisor has jointly produced 41 publications with her research students since 2009. The average annual publication rates of the authors are 8.7, 5.3 and 19 respectively for a three-year period between 2009 and 2012. The publication output of the authors far exceeds the discipline average of 1.3. The authors can thus be considered as successful cases of students publishing during their PhD candidature. The authors have also received several awards for their publications: 2009 Emerald Best paper award, student 1 and supervisor; 2011 Emerald best paper award, student 1 and supervisor; 2011 UITM Innovative paper award, student 2 and supervisor and 2012 Best paper award, student 1 and supervisor. More recently the three authors signed a book contract with a renowned publisher. The book is a collaboration between the authors and includes the PhD work of students 1 and 2 as well as previous research projects lead by the supervisor and for which PhD student 1 was employed as a researcher.

### **3.1 Case 1: PhD Student 1**

The first student author is a recipient of an Australian Postgraduate Award, which is a scholarship awarded to “students of exceptional research potential undertaking a HDR in Australia” (DIISRTE, 2012). Her PhD study explores the client governance context of megaprojects using the theories of governmentality and cultural political economy. The research involves two case study megaprojects in Malaysia and Singapore and the student has visited both countries on several occasions to conduct fieldwork. During her PhD studies she also spent two weeks at Hosei University, Tokyo, participating in an intensive Young Researchers’ School through a scholarship awarded by the Promotion of Sustainability in Postgraduate Education and Research alliance at the United Nations University. Throughout her PhD studies she has worked on a number of research projects on an average of 2 days per week. It is relevant to note that Student 1 completed a Masters of Philosophy under the supervision of the third author-supervisor at a university in NSW, Australia. She has also worked as a Research Assistant (RA) and Research Fellow on research projects since 2004 in both full time and part time positions. Her experiences of the publication process thus began prior to commencement of her PhD program. Student 1 has also tutored in an Honours Research Methods course which has provided her another dimension to the research process. The student has found that through explaining the process of research to others she is able to increase clarity in her own ideas. Student 1 was offered her first RA job by her supervisor to work on a Cooperative Research Centre (CRC) for Construction Innovation research project in 2004. The student worked closely with her supervisor on various activities: reviewing literature, developing ethics application, collecting and analysing data. It was while working on this project that the student was first introduced to the world of academic publishing. The student co-authored a conference paper with her supervisor who guided her through the publication process from abstract to paper submission to conference attendance. The paper explored one component of the study and the student found the writing process both enjoyable and useful as it enabled her to sharpen her thinking around a concept. It was also important that she was able to simply attend the conference without the stress of having to present as her supervisor presented the paper, which allowed her to observe and experience the process in a relaxed manner. At the conference the student

began to appreciate the value of publishing where she could see that it was an opportunity to present early findings to an intelligent audience for critical feedback. The student was introduced to various academics and HDR students and started to feel like she was a part of a larger community of researchers.

Since then, she continued to work on five other CRC-CI research projects with her supervisor. Being involved with the CRC environment provided her with an excellent opportunity to engage with industry and government as well as other academic institutions. The CRC projects provided an environment for intellectual debate and discussion to take place as projects often involved more than one RA and the research team tended to be multidisciplinary. The student was introduced to theories from sociology and business which she could see were applicable for understanding built environment industry problems. She was consistently entrusted with a high level of autonomy and responsibility on the projects by her supervisor. When she had developed her confidence and skills she assisted her supervisor in overseeing junior research assistants on projects in selected tasks. During this time she was a foundation member of a research centre of which her supervisor was the director. She was a member of the organizing committee of a conference hosted by the centre and experienced conference organisation. The CRC projects had project deliverables including administrative milestones and research outputs. Research teams were not only encouraged to publish but it was often a part of the project requirements. Specific funds were often sought by project leaders to present findings at academic conferences. Through her involvement on the CRC projects student 1 was able to attend conferences each year. One of the highlights was her first presentation at a conference in London. The student gave a joint presentation with her supervisor. The student prepared the presentation with her supervisor and was given advice on key points to discuss when they were preparing the presentation. The supervisor ensured that the student was comfortable with presenting and physically stood next to the student throughout the presentation. This was an important experience for the student because this was the first time she was presenting and engaging with an international research community. The experience enabled the student to build her confidence. It also further demonstrated to her the merits associated with the publication process. Following the conference they received an invitation to develop their paper into a book chapter. Whilst this seemed like an exciting opportunity the student found parts of publishing process quite challenging. Reflecting on her experiences she recalls feeling overwhelmed and inadequate as the reviewers had recommended extensive changes to the chapter. The student and supervisor went through a series of intensive sessions to address the reviewers' comments which eventually resulted in a most positive outcome. Despite the sessions being extremely productive the student felt that she was incompetent in writing an adequate literature review and communicating ideas and findings poignantly. Looking back she can now see the invaluable learning achieved through the experience but it was not easy and did at one point discourage her from wanting to publish. During this time she shared her feelings of disheartenment with her supervisor who then shared her own personal experiences in relation to the publication process and in particular in addressing reviewers comments. The supervisor said something which stayed with the student, "it happens to everyone" and very importantly the supervisor let the student know that she respected and valued her work as a researcher. This was important because the student had lost confidence in writing and being told by a respected senior academic that her work

was valued and knowing that others also had similar experiences kept her motivated. Eventually she could see that the process led to a much more enhanced and refined chapter with richer work presented. It was through this experience that the student realized the importance of publishing as it forced her to not only commit to a position when writing but to also justify and provide a rationale for the position.

Student 1 has received funding through a variety of sources to participate at conferences since 2004 including research projects and CRC projects. Another key source of funding has been HDR funds provided by universities. For example the student has been provided \$4000 for the duration of her candidature which can be used for various activities such as fieldwork, traveling to conferences, etc. Whilst the HDR funds were very useful the student found that the funds were inadequate to support a high level of publication activity. Given that the funds were expended after only one international trip the student has missed out on opportunities to publish at specific conferences even though the conferences were well aligned with her area of research due to a lack of funding. Unfortunately PhD students are not provided the same opportunity to apply for travel funding as staff members and therefore there is little incentive for students to want to write more than one publication throughout their candidature. Student 1 is currently the President of the RMIT CIB Student Chapter which is an organisation of research students in the built environment disciplines aimed at providing students with opportunities to network with the international research community, provide peer support, build their identity and provide a framework for career development. Regular meetings are held which are chaired by Student 1, under the guidance of at least one of three academic advisors. The third author-supervisor of this paper is the senior academic advisor of the Chapter. The Student Chapter provides students with a 'taste' of the academic environment. Student 1 is also actively involved with the Chartered Institute of Building (CIOB) Australasia and is the editor of the professional magazine "Contact Australasia" with readership of over 750 members. Her supervisor, who is the president of the CIOBA invited her to become a member of the CIOB and take on the role of Publications officer. Her role as the editor has provided her with yet another interesting perspective of the publication process. The audience of the magazine comprises largely industry professionals and so the student has had to think of ways to present quality research and keep the audience engaged

Since 2004 she has been exposed to various activities academics are required to engage with and the capabilities they must develop to become high performing academics. The student learnt academic research skills and research management skills for eg. developing grant proposals, collaborating with other academics and/or researchers and managing budgets. The student learnt quite early that people issues often required attention and appropriate management. The student also realized that in order to teach well and develop high quality curriculum design this needed to be supported by leading edge practice and innovative research. Such softer skills and capabilities are largely "passed on" to students by their supervisors and not found in university policies or guidelines. There is often no clear guidance provided on how students can be taught these essential skills on becoming a high performing academic. Student 1 has been fortunate to have been nurtured and mentored with much care by her supervisor who has taught her much more than research skills alone. Through her variety of experiences the student has started to understand the importance of



achieving a balance between research, teaching and leadership/governance in academia and the importance of the publication process within this context.

## **Case 2: PhD Student 2**

The second student's PhD topic is "Comparative analysis of China and developed countries' construction industry based on productivity and industrial competitiveness under the context of globalization and internationalization". Both qualitative and quantitative approaches in data collection and analysis are employed in this study. Chinese and Australian construction industries are studied as cases. He is currently the secretary of the RMIT CIB Student Chapter. He has been supervised by the third author since 2009. He has worked as a Research Assistant on several research projects since 2011. He usually works 2 days a week on research projects and dedicates 3 days a week to his studies. Throughout student 2's PhD candidature, his supervisor has always encouraged him to develop his ideas through publications. He has found this very helpful for him to generate his PhD dissertation. Following the publication of his papers, the student 2 would reorganize the material in the papers and revise its content based on the feedback received from the reviewers and/or conference audiences' feedback to further develop his PhD thesis.

In 2010 student 2 attended and presented at his first international conference in Brisbane. This was his first experience of the publishing world. Through this experience he learnt the whole process of publishing a conference paper and the process of writing up an academic paper. The supervisor greatly helped him by explaining to him the key issues associated with the publication process. Before his presentation at the conference, the supervisor explained to the student a number of important and useful skills, such as how to do a presentation, how to control his nervousness, how to answer the audiences' questions and how to build up his network. Student 2's first journal paper was published in 2011. What the student found most important about his learning from his supervisor was the process of responding to the reviewers and revising the publication based on their comments. Student 2 is currently working as a research assistant on an international project where he is working closely with his supervisor on various phases of the project. His work on this project has provided him with an exposure to some of the realities of the research and academic world. He has learnt about various aspects of working on research projects including identifying and preparing relevant material for developing a literature review, organising data collection, generating interview questions and conducting interviews overseas. The student has also been able to further develop his skills and abilities in solving new problems, communication skills, team work and time management. In addition, the School of Graduate Research provides a series of seminars and workshops for HDR students to develop their research skills. Some very useful seminars are provided, for example "Finding Theses and learning from them", "Citations: tracking the development and impact of research", "Searching Library databases", "Introducing Library resources and services", "How to pass confirmation", "How to make a beautiful thesis", "Writing for and presenting at Conferences", "Peer reviewing: tips and techniques", "The literature review: writing and structuring", "Managing (up) your supervisor", "What do examiners really want", etc. A series of research seminars is also organized by the student's school. Through the weekly seminars students could not only learn from the presenters, but also they can present to academics and staff in the school to get feedback

as well as improve their presentation skills by using it as a good practice environment prior to presenting at an international conference. Recently student 2 gave a joint presentation with authors 1 and 3 in the school's research seminar on the topic of publishing during PhD studies. All HDR students can apply for funding from their school and university to support their publication activities. Every PhD student is provided a total of \$4,000 by the school. Additionally they can apply up to twice for funding from the university through the Deputy Vice Chancellor's (DVC) Research and Innovation HDR Student International Conference Grant. Student 2 has used funding from both the School and DVC R&I sources to attend various international conferences, which has been good opportunity for him to share ideas, learn from others, receive feedback and get recognized in the academic world. Student 2 is very appreciative of the support of his school and university in helping him publish.

### **Case 3: Supervisor**

The supervisor had experiences to share from being a Masters and doctoral publishing scholar as well as a supervisor. There were seven key advantages of publishing during the student projects as perceived by the supervisor including; 1) developing skills in publishing 2) improving rigour of the research through the international peer review process 3) creating a name for yourself 4) developing a robust CV for an academic career 5) the enjoyment of learning from others in a collaborative research group 6) developing collaborative research skills in writing with others and 7) a sense of achievement with smaller milestones. There were four key disadvantages of publishing including; 1) getting 'side tracked' 2) writing and not getting credit for your efforts 3) writing and exposing your IP on your PhD too early to 'preying' academics (other than your supervisors) and 4) doing too much publishing in low quality places and thus diminishing your credibility. The inhibitors can be 1) lack of mentoring by supervisor 2) lack of interest by supervisor 3) demotivation caused by negativity of the peer review process and 4) lack of skills in dealing with the publishing process. The key enabler is a supervisor who understands mentoring; that their role is fundamentally about building and nurturing careers and that the writing process is one of the key learning spaces for this close mentoring to occur. As a Masters student she was introduced early on into academic publishing as she was employed on an ARC Linkage federally funded grant. She was a full time research assistant and she completed her Masters part time. The study duration was 3 years and for the final year the supervisor was employed outside the University environment as a full time project manager for capital works projects within a government agency. The research study was supported by two research assistants and three Chief Investigators (CIs). Two of the CIs were completing their PhDs at the same time. The culture of this group was characterised by high performing people who were very competitive. Interestingly they were largely competitive with themselves; although peer competitiveness was also a feature of the group and they were all high achievers. Three of the four in the group have subsequently become Professors. The lead CI was a Professor and mentor to all in the research group. Publication of conference and journal papers was the norm. It wasn't the most productive group that the supervisor has experienced to date and there could have been many more outputs, however given other experiences that other students have had this appeared to the supervisor as an excellent grounding and introduction into what it *means* to be an academic.

As a PhD student she was enrolled at a G08 University in Australia and the experience was very different. The attention to publishing was much deeper and more focussed. The career development and the *'entre'* into the life of an academic was profound. The expectations were much clearer and it was almost like the supervisor had entered an academic professionalization phase of her life. Career pathways were clear and well communicated and the conventions and norms were well established. Corridor discussions on the 'right journal', the 'right company to keep' and who was in whose research networks were commonly held. She recounted a story whereby she had drafted an abstract for a World Congress within 8 weeks of arriving because as her supervisor told her this event was only held every three years and 'she must get to it and begin to expose her research to the international community'. It was an unwritten rule in the Faculty that you would have published at least one journal paper in 'the best journal in your discipline'. The convention was that the paper idea was to originate from the PhD student however the supervisors would be co-authors on all papers published during the candidature. The primary supervisor would discuss the idea of the paper and the overall structure of the argument in the early days and then the student would subsequently develop the paper. The level of detail and attention to argument structure and writing style overwhelmed the supervisor on the first paper but then for some reason she let go and attended to the critique one step at a time and could literally feel the quality and argument emerging from the paper. She recounted that she would be forever grateful as her PhD supervisor developed and honed her resilience to critique. This is one of the attributes she tries to instil in her students now. The way she supervises is a development of the way she was supervised. She pays attention to the publishing process and attempts to build student confidence levels. She also tries to think more holistically about their experience as a scholar and their future. She tries to expose them to grant writing, conference organisation, event organisation and the international network of researchers which is 'their individual home'. She attempts to attend conferences with the students writing a paper from her own work as well as attending their publication presentation. This time away together is about discussing the conference, the other participants and the audience response to their paper. The supervisor published quite extensively with her supervisor during her PhD and found it a most rewarding experience. Finally the attendance at conferences is not without a financial burden which must be borne by the institution or the supervisor. When the supervisor was completing her PhD she was well supported by her scholarship as the industry partners had provided an additional grant towards conference attendance above and beyond her scholarship. Her supervisor explicitly allowed her to use that funding and plan it herself with discussion and some guidance. The supervisor then understood the importance of institutional support and the role that grant income can play in supporting students to attend conferences and participate in these networking activities. This guided her in her own methods for supervisor whereby she developed the philosophy that grants provided infrastructure to support research activity for both the student, the research assistants and the supervisor. This additional income often supplemented University or School level financial support for travel to conferences.

#### **4. A capacity-building model in academia**

The authors' experiences support findings of past research in that there are various benefits associated with the publication process. A key part of the graduate education process is

about the PhD student feeling empowered and being able to take control of their research and personal development (Mercer et al, 2011). The reflections of the three authors highlighted that they were provided various opportunities for personal and professional development through non-technical skills training including; practice in communicating their ideas, writing and reviewing scholarly publications and networking with the wider academic community and industry. The authors' experiences demonstrate that there is value in PhD students learning with and from other researchers through these exchanges. For a large majority of PhD students there is a tendency to assume that writing is an activity that is undertaken at the end of the research process. A more useful approach evidenced here has been to consider the activities of writing, reviewing and analyzing as part of the daily academic work practices. The authors received much support from their supervisor to write for publications, however, this largely was left up to the supervisor and students to manage themselves. Perhaps greater attention can be given to thinking about how to better support and achieve more sustainable ways of fostering publications during PhD candidature. This section identifies some of the common themes highlighted by the authors as inhibitors and enablers for successful outcomes in relation to publishing during PhD candidature.

#### **4.1 Enablers and Inhibitors**

Two main themes can be identified as enablers and inhibitors for successful publication outcomes of PhD students; 1) encouragement and mentoring from supervisor and 2) institutional support. Perhaps the most important theme which has arisen is that the practice of supervision shapes the writing and publication activity of students. For the authors writing for publications has become very much *part and parcel* of completing their research degree. Their supervisors instilled in the authors a culture of writing for publications and published extensively with the authors. Ultimately this had led to a high level of performance by the authors in terms of publication output. However it is important to note that the encouragement and mentoring received by the students was heavily reliant upon the capacity of the supervisor to be able to carry out the supervisory role appropriately. Little attention currently goes into ensuring that supervisors have the right skills and experiences to mentor students towards publishing. As cautioned by the third author, there are a number of potential disadvantages to publishing during PhD candidature if not undertaken appropriately. For novice researchers much guidance and mentoring is required to ensure that they are not disadvantaged by the publication process for example getting side-tracked in their studies or publishing consistently in low quality places. For the authors the mentoring received from their supervisors was crucial in training them towards understanding the 'right' approach to writing and publishing in the 'right' places. It is also important to note that the role of the supervisor encompasses the softer side of providing encouragement during times when students get demotivated by the negativity of the peer review process. There often comes a time in an academic's publication experiences where they will encounter challenges when dealing with the peer review process. Often one's confidence will be questioned and it is during this critical time of crisis that students feel most fragile and need to be treated with much care and sensitivity as they can easily be dissuaded from being involved with the publication process altogether.

The second theme relates to institutional support towards fostering publications by PhD students. Funding provided by the university greatly assisted the students' ability to attend and present at conferences. However the experiences of the students also demonstrated that the current level of funding provided to PhD students does not appear to be particularly supportive of high performing students who seek to publish at more than one international conference throughout their candidature. Underpinning this is perhaps a general lack of valuing the importance of writing for publications which can be attributed to the RTS weighted performance index which places far higher importance on student completions and research income compared to research publications. Whilst this relates to broader issues of government funding and policy which perhaps may be difficult to change it is important that the manner in which students tend to deal with issues arising from the lack of funding is again to seek assistance and guidance from their supervisors. Experiences of the authors show that the students' first 'port of call' whenever there was an issue related to their PhD studies was their supervisor who would then provide relevant advice to help the situation.

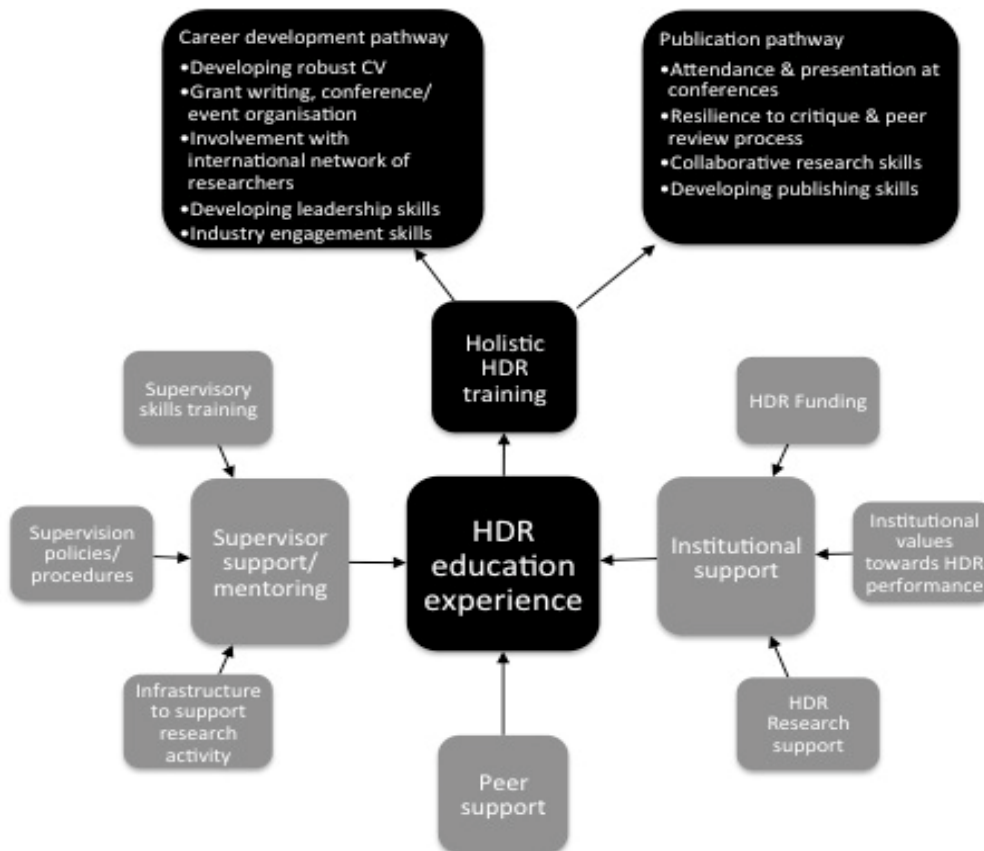
## **4.2 Building capacity of supervisors**

The graduate education experience is the beginning of the development of an academic's understanding of the full range of academic activities that support various institutional missions. A PhD student's academic performance and learning takes place within a network of relationships with peers, academic supervisors and the broader intellectual and social domains of university life. HDR success and well being is reliant upon the support of diverse professional staff from across the university. For example, at RMIT University research support is delivered by staff from Schools, Colleges, Research and Innovation Portfolio, Financial Services Group, Legal Services Group, RMIT Library, Marketing Group and International Services Group. They each play a critical role in contributing towards a positive graduate education experience for PhD students. However for many students the graduate education experience is closely linked to their relationship with their supervisor and how the supervisor "brings them into the fold of things". The reflections of the authors show that the supervisor is often the 'lynchpin'; the person who introduces and mentors students towards understanding the academic world. A high level of care needs to be given to crafting the publication pathways of PhD students alongside their career pathways. The realities of the academic workplace places demands on academics to give priority to other achievements such as grant income and PhD completions. Publication writing appears to be an ad-hoc activity for many PhD students and performance varies considerably from one student to the next. Underpinning performance is the supervisor capacity to support students to publish effectively and to develop various other skills related to academic and research activities. As shown by the third author, the manner in which she now supervises has very much been shaped by the way she was supervised as a student. Therefore it is critical for students to be provided the 'right' training during their PhD candidature as this will inevitably influence the way they supervise in the future. At present the institutional policies for student supervision generally define the minimum responsibilities for supervision. Whilst most of the policies are aimed at providing students an appropriate intellectual and academic environment and ensuring that students receive high quality supervision there is little explicit recognition that supervisors require adequate training to learn good practices in supervision. There is even less guidance or support provided to supervisors to develop the intangible skills required to

supervise effectively for eg sensitivity, etc. The unspoken or unwritten skills appear to be critical skills that supervisors need to possess in order to provide appropriate mentoring to their students. In summary there is little spoken about what it means to achieve excellence in a research group within the context of higher degree students publishing.

## 5. Summary and concluding remarks

The authors' experiences of publishing during their PhD candidature from a student and a supervisor perspective have been presented in this article. We identified enablers for successful outcomes based on how the authors' experiences can contribute towards the development of a capacity building model for both PhD students and supervisors in fostering publications by PhD students. In summary the supervisor plays a critical role in facilitating the publication productivity of PhD students and more attention needs to be given towards building supervisor capacity. This paper explored cases where students have achieved a level of success in their publication performance during their candidature and so did not identify specific inhibitors to successful outcomes. The findings are limited in that only the personal experiences of the authors have been discussed. Further work is required in order to explicitly develop a capacity building model for academics based upon more case studies of both successful and unsuccessful PhD publication performance. This should be carried out with a larger pool of doctoral candidates and supervisors to validate the findings.



**Figure 1: A capacity building model in academia (developed for this research)**

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