Realising graduate attributes in the research degree: the role of peer support groups

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Realising graduate attributes in the research degree: the role of peer support groups

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This paper discusses the role of peer support groups (PSGs) in realising graduate attributes in the research degree. The literature indicates that top-down embedding of graduate attributes has met with only limited success. By taking a bottom-up approach, this paper shows that PSGs offer an opportunity to improve the graduate attribute outcomes of universities. This paper presents the experiences of research students in three PSGs in New Zealand, Australia and Malaysia, and the results of an exploratory opinion survey that required past and present PSG members to share their learning experiences about the development of graduate attributes. The participants favoured five attributes: communication, critical thinking, self-motivation, research organisation and teamwork. Viewing the development of graduate attributes through the lens of the students adds to our understanding of how PSGs help them to develop graduate attributes and contribute to university efforts to instil these attributes by taking into account experiential learning.

Keywords: doctoral education; graduate attributes; higher education; postgraduate peer support groups; research students

Introduction

Doctoral study is a learning process for graduates who are expected to meet outcome goals set out by universities. Many universities see the outcome goals being achieved through a mix of skills, attributes and knowledge (Barrie 2006). Universities put forward outcome goals to ensure that students remain competitive, acquire new knowledge in a knowledge-based world and are able to interact effectively (Teichler 1998). These attributes are based on workplace demands where employers expect graduates to have a range of skills that goes beyond discipline-specific knowledge. There is also requirement from employers that graduates should be able to adapt quickly and apply these skills. In other words, universities are asked to produce employable graduates, which is 'increasingly becoming the *raison d'être* for continued university education' (Platow 2012, 103). In practice, universities are required to articulate their outcomes and demonstrate their usefulness for life beyond the university context.

In this paper, we suggest that peer support groups (PSGs) can play a central role in realising graduate attributes in the research degree. By focusing on three particular PSGs, we aim at bringing a more learner-centred perspective into the discussion around graduate

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attributes. In a first step, we survey the literature on graduate attributes in doctoral education before providing a brief overview of the role of PSGs in postgraduate education. Next, we describe how three particular universities in New Zealand, Australia and Malaysia describe graduate attributes in their policies before focusing on the doctoral students themselves, who were all members of the PSGs at these universities and under investigation in this study. After presenting the PSGs' activities and the PSG members' views on how the PSG helped them develop the graduate attributes that their universities required, we conclude that PSGs help research students to achieve these goals. We argue that more research that places the doctoral student in its centre is needed for the realisation of graduate attributes in education.

Graduate attributes in doctoral education

In order to meet the demands of employers and governments, universities attempt to implement curricula that embed attributes that prepare employable graduates. There are a number of contentious issues surrounding the embedding of these attributes that are usually referred to as graduate attributes. One is the assumption that these attributes are generic and thus are transferable across disciplines. However, it has been reported that generic attributes are not really generic, but (departmental and research) community-based (Jones 2013) and reflective of disciplinary culture. A second contentious issue is how these are conceptualised and articulated in terms of learning outcomes; having been referred to as generic skills, key skills, core skills and transferable skills, their place in the curriculum has been debated, and each definition has its own assumptions. The reason for the variance in definitions is that the list of expected attributes and outcomes is not based on any theoretical underpinning; thus, the actual outcomes are debatable due to the lack of theorisation and conceptualisation (Barrie 2012; Manathunga, Lant, and Mellick 2007). A third issue with graduate attributes is that they are usually promoted through policy and enacted through pedagogy. Thus, it is the expectation of universities that academic staff provide support to develop these skills. However, the top-down policy of embedding graduate attributes through the curriculum has limitations (Barrie 2006; De la Harpe and David 2012). Academic staff are not trained to embed the attributes; they might question the importance of the attributes; there is the issue of their willingness to teach and concerns about the actual emphasis of these attributes in teaching practice (De la Harpe and David 2012).

Therefore, continuing to depend solely on academic staff to deliver and embed these attributes into the curriculum may not be the best option. Given the limitations, there has been a call to consider graduate attributes from the 'perspective of the student […] how graduate attributes are understood and learnt by students' (Jones 2013, 603). A paradigm shift empowering students is essential if universities want graduate attributes to be embedded successfully. In this paper, we take such a student-centred approach and discuss three cases of how PSGs fostered experiential learning of graduate attributes.

PSGs in doctoral education

The idea of PSGs is not new in higher education – faculties, departments and schools offer various settings for students to meet. These settings may be formal (such as a reading group) or informal (such as Friday afternoon get-togethers in the Ph.D. lounge). A wide range of settings means a wide range of names: study groups, graduate cohorts, cohesive learning communities, research communities, and groups for accountability and

support. A PSG is often understood as a group of postgraduate students who meet without their supervisor and was described by Fisher (2006, 42) as 'a small group of three to five candidates who meet regularly to discuss the content and process of their research projects'. PSGs also provide writing support (Ferguson 2009), contribute to the development of information literacy (Green 2006) and, ultimately, influence the likelihood of completing a degree (Conrad 2006). PSGs have also served as a place where students are accountable to the group for their progress and a place where students provide and receive support for publication (Denhold and Evans 2006). Stracke (2010) suggests broadening the definition of the term 'peer group' to mean a group of peers that includes supervisee(s) *and* supervisor(s). Stracke emphasises the importance of a desired partner-like relationship between supervisee and supervisor that is of the peer-to-peer notion, as underpinned in the idea of a community of practice (Lave and Wenger 1991). We use this broadening of the standard definition of PSGs.

In the following, we describe the experiences of three PSGs in the field of Applied Linguistics at three universities in New Zealand, Australia and Malaysia, preceded by a short overview of how the three universities describe graduate attributes in their respective policies. We compare the attributes and highlight common denominators that became the site for this research.

The graduate attributes of Otago, Canberra and Universiti Putra Malaysia

All three universities promote a strong research culture that encourages and supports postgraduate development and have defined their respective graduate attributes in specific documents.

The University of Otago, New Zealand

The University of Otago in New Zealand sets out its graduate attributes in a document entitled *University of Otago Teaching and Learning Action Plan* (2011). This interim plan 2011–2012 focuses on the attributes 'most often sought after by employers'. This graduate attributes for *all* Otago students:

> help ensure that [students] start their careers with the expertise, social attitudes and principles that will allow them to advance effectively in their chosen careers, and to grow as morally responsible people, while retaining a resilient passion for lifelong learning.

First, the student must have the *ability to communicate* information, orally and in writing. Second, a student must become a *critical thinker* who can challenge conventional assumptions and make flexible, well-informed decisions. Third, a student must embrace *cultural understanding*, to include an understanding of biculturalism, multiculturalism and how to apply this knowledge in a culturally appropriate manner. *Ethics*, *information literacy*, *research*, *self-motivation* and *teamwork* are also aspects that are part of the Otago graduate profile. A distinct attribute in Otago is *environmental literacy* that requires graduates to have 'a [b]asic understanding of the principles that govern natural systems, the effects of human activity on these systems, and the cultures and economies that interact with those systems'. The university also stipulates that these attributes will arise both 'formally and informally on- and off-campus'. The university provides academic staff with specific guidance on how they should incorporate these attributes into their teaching.

The University of Canberra, Australia

The University of Canberra has two sets of attributes: one for undergraduates and postgraduates of University of Canberra coursework courses, and another for graduates from research degree programmes (University of Canberra 2013). This policy complements the policy statement, *Generic skills and attributes of graduates of University of Canberra coursework courses* (University of Canberra 2010), which lists five key areas of skills and attributes: *communication, analysis and inquiry, problem-solving, working independently and with others*, and *professionalism and social responsibility*. For postgraduate research education (this refers to the policy in place at the time we conducted this research), the university had identified six key learning areas of *knowledge, inquiry, communication, organisation, creativity* and *ethical practice*.[1] Each learning area (both in the 2003 and 2013 policy) has a set of skills and attributes that the student must develop during their research education programme.

The Universiti Putra Malaysia, Malaysia

Universiti Putra Malaysia has adopted eight domains of learning outcomes for their research degree students by specifying that Ph.D. graduates[2] must be able to:

(1) synthesise knowledge in the relevant field;
(2) adapt practical skills leading towards innovative ideas in the relevant field;
(3) provide professional services to society in the relevant field;
(4) conduct research independently and adhere to the legal, ethical and professional codes of practice in the relevant field;
(5) communicate and work effectively with peers, scholarly communities and stakeholders, while displaying leadership qualities.
(6) appraise problems in the relevant field critically using scientific skills; and
(7) integrate information to develop lifelong learning in the relevant field (Universiti Putra Malaysia 2010b).

Comparison of graduate attributes and skills across the three universities

When comparing the attributes from the three institutions, we notice the emphasis on top-down policies to embed these attributes. It seems that academic staff are expected to embed these attributes in the curriculum. It should be recalled that such expectations have limitations. An additional insight is the overlap of some attributes, such as *communication, inquiry and critical thinking*, and *ethical and professional practice*, even though the terms used may be different. For example, while the universities in Malaysia and New Zealand use the terms *critical thinking* and *problem-solving*, the University of Canberra uses the term *inquiry*.

As well as the variation in term use, we realised that we had to consider wider information in the relevant university document to get a complete picture of what the universities expect (skill level and attributes) of their graduate students. For example, the University of Otago does not include *knowledge* as a graduate attribute, while the University of Canberra and the Universiti Putra Malaysia do include it. However, Otago has a preamble that states explicitly '[a]ll University of Otago graduates will possess a deep, coherent and extensive knowledge of at least one discipline, coupled with knowledge of the fundamental contribution of research to this discipline'. Similarly,

while Otago does not indicate lifelong learning as an attribute, the *Teaching and Learning Action Plan* (2011) notes that one overarching attribute it seeks from its students is 'retaining a resilient passion for lifelong learning'. We also noticed differences at the country level and university level, such as Otago's emphasis of *cultural* understanding in the framework of the Treaty of Waitangi, and the importance of bilingual competency in English and *Bahasa Malaysia* to the Universiti Putra Malaysia.

To get a better overview, Table 1 lists those attributes that all three universities list as specific graduate skills and attributes. The universities have labelled these required qualities as attributes, key learning areas and learning outcomes. While different terms are used, all refer to generic educational outcomes (shown by an 'x' in the table). If the universities refer to the attribute elsewhere, this is shown by an '(x)' in the table, sometimes with an explanation.

In the next section, we turn our attention to the three PSGs at Otago, Canberra and Universiti Putra Malaysia. By taking this bottom-up approach, we aim to show that such experiential learning environments are important to embed graduate attributes in doctoral education. First, we describe the genesis and membership of the three PSGs to provide an overview of the diversity in terms of membership and operation of the groups. Next, we list the activities carried out in the three PSGs and highlight the student-developed nature of the activities. Finally, we present the findings of our exploratory opinion survey with past and current PSG members and argue that PSGs can play a pivotal role in the embedding, development and enhancement of graduate attributes.

Genesis and activities of the three PSGs at Otago, Canberra and Universiti Putra Malaysia

Genesis and membership

The PSG at the University of Otago was the first PSG we were involved with between 2003 and 2006 (for more details, see Stracke 2010). There were up to eight other students in this group who were mostly doctoral students. They developed a strong sense of group identity that led to the creation of the Postgraduate Applied Linguistics Club (PALC). The creation of the second and third PSG resulted from two members of this first PSG (the authors of this paper) moving to other universities. In 2009, one author started a PSG at the University of Canberra. The other author worked with his students at the Universiti Putra Malaysia from 2006 to 2011. The University of Canberra PSG fluctuates and has four to six members at the doctoral level. The PSG at the Universiti Putra Malaysia had eight members – three Ph.D. candidates and five Master's research students.

The members of all three PSGs included local students from New Zealand, Australia, Malaysia and also international students from China, Yemen, Iran and Malawi. Among the members were 'fresh' students who had no working experience and there were also senior academics from universities. This diversity provided a range of cultural values such as what was considered important in the research journey. While some were mainly focused on completing the thesis, others wanted to gain as much experience as possible to be able to function beyond the thesis. Most academic-oriented meetings were conducted face-to-face. However, in the PSG in Canberra, this was sometimes carried out via Skype (so that overseas participants could join in the discussions).

Table 1.   Graduate attributes of Otago, Canberra and University of Putra, Malaysia.

Attributes	Otago, New Zealand (nine attributes)	Canberra, Australia (six key learning areas)	Putra Malaysia (seven learning outcomes)
Communication proficiency	x	x	x
Creativity	(x referred to under *critical thinking*)	x	– (but referred to in MQF 2011)
Critical thinking, problem-solving, inquiry, innovation	x	x	x (scientific skills) and x (with an emphasis on practical skills)
Cultural understanding	x	– (referred to under *communication* in coursework students graduate attributes)	– (attribute *communication* includes bilingual competence)
Environmental literacy	x	(x referred to under *organisation*)	–
Ethical and professional practice	x	x	x (together with research)
Information literacy and management skills	x	(x referred to under *communication*, *organisation*)	(x as part of *lifelong learning*)
Knowledge	(x explicitly mentioned in preamble)	x	x
Leadership skill	(x referred to under *teamwo*rk)	(x mentioned in preamble)	(x explicit part of *communication*)
Lifelong learning	(x mentioned in in preamble)	– (but referred to as a personal attribute in policy for coursework students graduate attributes)	x
Provision of professional services	–	– (but policy for coursework students graduate attributes emphasises professional education)	x
Research and organisation	x	x	x (together with *ethics*)
Self-motivation	x	– (but referred to in policy for coursework students graduate attributes	(x referred to under *research*)
Teamwork	x	– (as a coursework students graduate attribute)	(x explicit part of *communication*)

Note: x means that the attribute is listed.

Types of activities

All members in the three PSGs generated their topics at the start of the semester, and each group member volunteered to facilitate one or more sessions. The sessions were held fortnightly to monthly. Besides these academically orientated sessions, all groups also met occasionally for social events. These events encouraged collegiality between PSG members and sometimes included some of their families.

Below is a list of activities carried out in the three PSGs. We have grouped the activities around five categories:

(1) *the research*: focus on the content of the thesis and (preliminary) results, product orientation, presenting conference papers trial runs, presenting 'milestone' seminars trial runs, and sharing findings of research;

(2) *the research process*: focus on developing the skills and strategies that will lead to the thesis, writing the literature review, discussing the methodology (e.g. discussing principles of qualitative and quantitative research), learning about the ethics application process, planning the thesis, discussing the data collection procedure, talking about the Ph.D. journey, organising the life of a researcher, presenting and publishing during candidature, and reading and discussing articles;

(3) *career*: focus on gaining and developing skills for a life after the degree and preparing to be a full member of an academic community, reviewing journal articles, learning about grant application procedures, discussing lecturing;

(4) *practical matters*: focus on the day-to-day management of the research process, networking with professional community, developing time management skills, motivating oneself to keep writing, fighting procrastination, talking about problems, and learning about Endnote (bibliographic software training), NVivo (computer-assisted qualitative data analysis software training) and MS Word for thesis writing;

(5) *social activities*: focus on collegiality in an informal environment, such as visiting each member's home for lunch or dinner, attending picnics, or going to a movie.

It should be noted that the diversity of PSG members was instrumental in the choice of activities. The members discussed their individualised development, found common themes and utilised the resources in their respective groups to select the topics. What is pertinent is that none of these activities were 'dictated' by curriculum or top-down approach.

Evaluation and discussion of peer learning experience for the development of graduate attributes from the research students' perspective

We conducted an exploratory opinion survey to find out how past and current PSG members reflected on their peer learning experiences in relation to the development of graduate attributes. Data was collected from written responses of current and past PSG members. We invited 20 participants to participate – seven (Otago), four (University of Canberra) and nine (Universiti Putra Malaysia). The participants were emailed a list of 12 graduate attributes based on Table 1,[3] and asked to identify the five attributes they thought the peer group fostered the most. They were then asked to comment on how the

Table 2. Students' top five graduate attributes.

	Otago	UC	UPM	All universities
Communication	3	2	8	13
Creativity	3	0	1	4
Critical thinking, problem-solving, inquiry, innovation	5	2	4	11
Cultural understanding	1	1	4	6
Ethical and professional practice	4	0	1	5
Information literacy and management skills	1	0	4	5
Knowledge	2	1	3	6
Leadership skill	2	0	2	4
Lifelong learning	0	0	2	2
Research and organisation	4	1	4	9
Self-motivation	3	2	5	10
Teamwork	2	0	7	9

peer group activities fostered each of the five attributes they selected. Once we received the responses from the participants ($n = 17$), we tabulated their choices of five attributes (see Table 2).

We then grouped the electronic responses according to attributes. Each author read the responses independently before discussing and reaching a consensus on emerging patterns (presented in the following section). Table 2 shows the attributes that PSGs fostered the most. The research students in this small-scale opinion survey clearly favoured communication, followed by critical thinking, self-motivation, research organisation and teamwork.

Communication

Communication was top of the list of attributes selected by participants across the three groups. The three universities define this attribute as the ability to take on a leadership role to transfer and disseminate information to both disciplinary and non-specified audience both orally and in writing. The *research and research process* strand of the PSG activities indicates that the members had the opportunity to be engaged in communicative activities that were envisioned by their universities.

Members of the groups found the opportunity to make oral presentations to be a valuable experience. NZ5,[4] for example, commented that 'I believe that my communication skills definitely improved'. OZ2 too reflected by indicating that there was improvement in communicative skills as a result of this opportunity to 'share' information with supportive peers. Besides presentation skills, the members found performance feedback to be extremely valuable. NZ4 found the feedback from peers to be invaluable in improving her research and presentation skills. M4 benefited from performance feedback that helped her to identify alternative options in her research directions. An additional communication skill was the opportunity to co-construct learning experiences as they engaged in group discussions. Co-construction refers to the idea that learning is negotiated through social interactions. M8, for example, reflected by saying that:

> I understood that my peers were more read than I was as they had a lot of information regarding the topic we were discussing. It was during this time that I learnt how to communicate … and gained more knowledge of any topic.

In other words, she was building team bonds through the process of negotiation and diplomacy. NZ5 too reflected on the notion that learning took place as a result of 'interpretations that peers had of their ideas'. This sharing of ideas, experiences and opinions in written and oral form provided students with the opportunity for critical self-assessment.

Additionally, the PSG activity also provided leadership opportunities for students when communicating ideas to peers. M1 reflects by saying that she was assigned a topic (how to write the introduction chapter) to research and present. Following the presentation, she reflected in this way: 'I was able to help my friends who were working on the introduction chapter'. In other words, M1 took on the role of a leader in an experiential learning environment and taught important skills to her peers. Other skills valued by the members were the opportunities to present their research and to get feedback in a supportive and collaborative environment that added to the co-construction of learning experiences. What seems to be apparent is that the communication in group discussions and activities (sharing of ideas and experiences by supporting and encouraging peers) developed higher learning abilities (in terms of reasoning, reflection, critical thinking and justifying choices) in a collegial environment. In linking these reflections to the attributes stipulated by the universities, it is clear that participation in the PSG fostered the ability to communicate orally and in writing (Otago and Canberra). The Universiti Putra Malaysia stipulates a leadership role and working effectively with peers in its communication attribute; this too is evident from the data above.

Critical thinking

A second attribute chosen by the participants was critical thinking. Among the highlights was the idea that participating in the PSG allowed for opportunities for perceptions to be challenged and to provide justifications for choices. NZ3, for example, commented that 'participants will be forced to provide justification for their ideas … and the ideas … inspire new ideas'. As a result of this experience, participants, e.g. NZ1, learnt about 'continual synthesis of data to determine emerging themes' and NZ6 commented that each idea can be challenged and that 'discussion proved extremely useful to visualize strengths and flaws in my argument'. What seems to be apparent is that, in the PSGs, members were seeking for clarifications and justifications from their peers, thus engaging in a process of reasoned argument with an experiential social dimension.

The participants felt that their ideas were subject to critical scrutiny and had to reevaluate their thoughts to be innovative and creative based on interactions in the PSG. These are valuable skills that transcend the formal teaching–learning nexus. The formulation, of course, of action and goals to take action and to achieve these goals are reflective of high-quality thought and learning. This is echoed by OZ2 who claimed that 'some topics … help me improve my skills of solving problems'. Such experiences challenged their thinking and these led to new discoveries and ideas. This result seems to echo what Otago has stipulated for this attribute, i.e. the ability to challenge conventional assumptions and to make well-informed decisions. Similarly, the experiences of the participants show that they critically reflect (Canberra) and also evaluate and justify decisions innovatively (Universiti Putra Malaysia).

Self-motivation, research organisation and teamwork

A third attribute that was fostered through the PSG is self-motivation. One skill fostered through this attribute is that participating in the PSG helped members to maintain momentum and to keep track of progress by showing interests. They were also motivated by the knowledge that others were going through the same struggles. As reflected by M8, 'I felt self-motivated when they shared with me their own sets of troubles and problems'. In other words, the PSG fostered the ability to be motivated to work independently. NZ2 commented that, 'it was inspiring to see the progress of the other members'. Seeing that others could progress motivated the capacity for self-directed learning (Otago). The motivation for the members came from supporting each other.

Research organisation and teamwork were among the five most frequently mentioned attributes fostered by the PSGs. Most members were unaware of the level of organisational skills needed when starting a major research project. NZ5 expressed this clearly when she wrote, 'I believe all of us in the peer group started our work messier than expected'. The peer group allowed the participants to share 'best practices of research skills' (NZ6). For example, students valued highly being able to learn about basic but crucial skills like the organisation of files in computers or time management. The peer groups helped 'how to organise the whole research project' (NZ1), from its preliminary steps to the actual write-up. Thus, students could move from the 'messy' state at the start of the project to the level of organisation required by universities, that is, to 'be able to develop advanced strategies to lead the planning, management and implementation of a project' (University of Canberra 2013).

Participants of the PSGs also believed that the PSG activities developed their teamwork skills and realised ultimately that 'research is not an individual work but rather a collective work' (NZ4). Indeed, some participants perceived the experience of working with peers as an emotionally rewarding experience. M9 described the feeling of 'closeness' and 'extra special relationship' with his peer group members; M2 expressed that the group gave him a 'feeling of belonging to a group and a sense of identity'. Such experiences demonstrate how powerful peer groups can be to fight loneliness and isolation.

Further, research students in these three PSGs listed all other seven attributes (creativity, cultural understanding, ethical and professional practice, information and literacy skills, knowledge, leadership skill, and lifelong leaning) when asked which attributes the peer group activities fostered (see Table 2). It should be recalled that all three PSGs had at least as many international students as domestic students; so the members viewed cultural learning experiences as a value-added benefit. M2 describes such benefits when saying, 'I communicated with them in an authentic situation and this provided lots of cultural nuances and real-life experiences'. NZ3 highlighted that cultural understanding was crucial for the group to succeed. Similarly, OZ2's experience of accepting uncomfortable moments fostered her better understanding of other cultures. These experiences seem to echo the notion that graduates must be equipped with some understanding of culture when they graduate. While some formal induction programmes may expose them to different cultural norms, it is these interactions with peers that formulate their experiential learning in an increasingly international(ising) university environment.

Further discussion

It seems evident that activities in the PSGs and the attributes that were fostered are in line with real-life demands and the attributes required by the universities. The reason why universities have stipulated such attributes is to ensure that graduates can move easily into the real world once they graduate specifically 'to help ensure that they start their careers with the expertise, social attitudes and principles that will allow them to advance effectively in their chosen careers' (University of Otago 2011).

The data from this small-scale study, spanning three countries, show that involvement in a PSG fostered the important graduate attribute of communication. The reflections by the PSG members showed that the PSGs embedded both organisational and leadership communication skills, which are core skills of communication (Conrad and Newberry 2012). Organisational skills that were evident from the reflections include making convincing presentations (conveying information), providing performance feedback and teaching important skills. Leadership skills seen in the data include building team bonds, expressing encouragement, providing motivation and being persuasive. As for critical thinking, the participants clearly indicate that the PSG activities provided them with 'a sense that knowledge is contestable and [the necessity to be able] to present evidence to support one's arguments' (Pithers and Soden 2010, 238). We also found that PSGs provide the opportunity for members to be responsible for their own motivation and developments. These developments were also evident in areas of research and organisation and working well with others, as well as cultural understanding, ethical and professional practice, information literacy and management skills, creativity, leadership skills and lifelong learning.

This paper has shown that it is worthwhile exploring the perspective of the research student and how they think they acquire graduate attributes (Jones 2013). However, there are limitations and points to consider to the research. It has concentrated on three PSGs in the area of Applied Linguistics, and the sample size is modest. Yet, our exploration of how members of these particular PSGs perceived the benefits of PSGs with regard to graduate attributes provides a basis for further research, with a larger sample, and in and across other disciplines.

A second limitation is the role of the supervisor in the PSG. Our experiences were multi-fold. We collaboratively co-created the PSGs in the three universities with the students we supervised, and we provided the initial guidance and mentorship. We also participated as advisors upon request. Both the PSG student members and we were able to interact and to demystify the hierarchical process of supervision. This outcome supports Stracke's (2010) use of the term 'peer group' for PSGs to mean including student and supervisor. By sharing our own experiences as postgraduates with the students – how we steered our journey to success – we inspired the PSG members. Our participation paved the way for the PSG members to get to know us outside the formal supervisory environment. Listening to the PSG members and getting to know them and their families during social events helped improve our supervisory relationship with them; the PSG brought out our 'human-ness' so we were able to treat our students with more respect. This sort of experiential learning augurs well for the merits of the PSG. We believe that we and the PSG student members were able to work productively together and to discuss openly hierarchy problems associated with the interaction of all parties, students, staff and supervisors.

A third point to consider is the role of the PSG in the supervision process. Supervisors provide valuable feedback and alternative options in research directions, but the PSG is a platform for the members to try out these ideas before taking these up with the supervisors. As supervisors, we found this useful as our students usually came with ideas and drafts that had already been 'tested' in the PSG. PSGs may reinforce what is taking place in supervision but in the three cases of this research it was a precursor. In such circumstances, the PSGs complemented the role of the supervisors.

A fourth issue to consider is the role played by the institutions in fostering graduate attributes. The three PSGs did not receive any institutional support and were not part of any formal academic structure of the university; yet, the groups played a crucial role in contributing towards the fostering of attributes. In most cases, PSGs are 'hidden' from the official curricula and often not institutionally supported (Buissink-Smith, Hart, and Van der Meer 2013, 702). In the three universities, there were no institutional guidelines or short courses for supervisors and students how to foster graduate attributes. The PSG members relied on their own expertise and took it upon themselves to develop and foster the attributes.

Finally, PSGs cannot compensate for poor supervision. However, poor supervision needs to be interpreted carefully – our view is that if a supervisor focuses only on the research and dismisses his/her role in the well-rounded development of the candidate, then, there are concerns. There are skills that supervisors themselves may not be competent with and they may rely on the expertise of the PSG or seek external assistance to ensure the candidate has a rich experience. We had PSG members who were already actively publishing, disseminating research and building academic networks, and they shared these experiences with junior members of the group. Supervisors cannot be masters of all attributes, and thus PSGs can play a complementary role.

Conclusion

Ph.D. study certainly develops content-specific knowledge but not (or less) graduate attributes that have to be acquired beyond the actual research context. PSGs seem to be an empowering agent to achieve these goals. They provide not only the often much needed emotional support, but also a route to an academic community in which all members are equipped with the required graduate attributes and skills of a scholarly community. Universities cannot rely solely on top-down approaches to achieve those attributes that prepare students to meet the demands of the workplace. PSGs offer a complementary, learner-centred opportunity to improve and enhance graduate attribute outcomes of universities.

Acknowledgements

Notes

1. Since we started working on this study, the University of Canberra has replaced the 2003 statement and now lists the following five attributes: innovation and creativity, critical

judgement and reflection, communication, management of research, and professionalism and social responsibility (University of Canberra 2013).
2. The Universiti Putra's guidelines for learning outcomes for Masters by research graduates are very similar – see Universiti Putra Malaysia (2010a).
3. We excluded environmental literacy and provision of professional services due to their specificity.
4. We de-identified all responses received by giving each student a number preceded by the country initial (A for Australia, M for Malaysia and NZ for New Zealand).

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