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Abstract   The worldwide academic workforce is ageing. At the same time, health and human services workforces are expanding. The preparation of educators to fill gaps in expertise and to position the health sciences for future growth is an urgent need. The findings from a recent action learning project that aimed to enhance the professional growth and development of higher degree researcher student supervisors in a School of Health and Human Sciences are presented. Seven early career researchers and the facilitator met for two hours every two to three weeks over 4 months between April and July 2010, in a rural and regional university in New South Wales, Australia. The processes initiated were a combination of experiential knowledge, referral to relevant published reports, use of an effective supervision checklist, and critical conversations. Learning outcomes centered on higher degree management and supervision pedagogy, communities of practice, knowledge translation, and the establishment of a research culture. The contextual barriers and implications of the methodology and learning outcomes for the professional development of health and human science practitioners, researchers and educators is also discussed.

Key words   action learning, early career researchers, higher degree supervision, higher education.

INTRODUCTION

The worldwide academic workforce is ageing (Koopman-Boyden & McDonald, 2003; Larkin & Neuman, 2009). At the same time, health and human services workforces are expanding, leading to political and financial pressures to increase the retention and completion rates of postgraduate research students (Park, 2005; Skarakis-Doyle & McIntyre, 2008). Recent changes in higher education in Australia reflect worldwide trends toward meeting these expectations.

A combination of university restructuring and loss of senior academic staff have led to a decline in postgraduate research student supervisors who are suitably experienced to meet this need. To enhance retention and timely completion, preparation of educators to fill gaps in expertise and to position the health sciences for future growth is thus urgently required. In the words of Peter Miller "[w]orkplace learning plays a key role in organizational productivity and effectiveness" (Miller, 2003: 3). We here present the findings from a recent action learning project that aimed to enhance the professional growth and development of earlier career researchers in a School of Health and Human Sciences in an Australian University.

Literature review

Postgraduate supervision, having traditionally been considered an individual right or responsibility, has often been left to those individuals wishing to participate. For example, research into the views of students and supervisors at the University of Victoria, Canada, identified that experiences of supervision were mixed, especially in relation to "student satisfaction" and "degree completion" (Ricks *et al.*, 2003: 2). In higher education, research student supervision is a complex, intensive form of pedagogy (James & Baldwin, 2006). Hansen and Jensen (2004: 1) have argued that "[s]tudents need more from their supervisor than a technical consultant." Research student supervision is not always considered a teaching/learning activity. Consequently, little attention is paid to expert skills in postgraduate supervision (Skarakis-Doyle & McIntyre, 2008). While models of supervision vary across disciplines, knowledge of fundamental teaching/learning principles and the acquisition of skills contribute to effective supervision.

Within postgraduate research studies, teaching and learning, occur within the student-supervisor relationship (Ricks *et al.*, 2003; Park, 2005). Skarakis-Doyle & McIntyre (2008) found that effective supervision was transformational; required supervisor self-knowledge; an understanding of power relations; and clarity about expectations. Because of the individualized nature of the supervisor-student relationship, pedagogy within a mentoring relationship should be flexible. Given the emphasis on mentoring, the establishment of mutual trust, respect, and confidence, contributes to effective supervision (James & Baldwin, 2006; Skarakis-Doyle & McIntyre, 2008). The challenge for institutions is to provide a context in which meaningful professional development of larger numbers of academics can occur (Park, 2005), while ensuring protection of the fundamental outcomes in terms of research quality and student satisfaction.

The professional development of higher degree research (HDR) student supervisors is a strategic goal for many universities. A review of Australian university websites and relevant literature revealed that a variety of strategies are utilized to develop the supervisory skills of academics. The range of strategies available includes modules or units of study; on-line programs; one off workshops; regular series of workshops, seminars, mentoring or buddying systems; reflec- tive case study; and reflective discussion groups. Pearson and Brew (2002) have argued for a course of study that is flexible, reflexive and meets the needs of supervisors at different stages of their careers and across different disciplines. This notion of flexibility is supported by Hammond *et al.* (2010: vi) who recommended "[t]hat universities review existing professional development programs to ensure that they address the different needs of new and experienced supervisors." Symonds and Carter-Steel (2009) set up a Communities of Practice (CoP) model for supervisor development, and uti- lized discussion groups with ranking of issues, training needs analysis, and workshops.

In the context of Southern Cross University (SCU), Miller (2007) conducted an international pilot of an on-line course for HDR supervisors based on two constructs: supervision as pedagogy and supervision as project management. Miller argued that the program encouraged self-reflection and was aligned with SCU strategic directions. The process utilized for the development and evaluation of this program was action research. The evaluation revealed that participants' skills of self-reflection had been enhanced and that they had reconceptualized supervision and that this model best fitted a context of large workloads.

CONTEXT OF THE PROJECT

Southern Cross University has responded to the "growing pressure to restructure and reform tertiary education" (Dickie & Jay, 2010: 29). The effects of these changes were the motivation for the present project. Constant change associated with development and restructuring toward an integrated interdisciplinary school characterize the context. There had been a significant loss of senior, experienced, academic staff at professorial level, development of new programs and added responsibilities in the form of curriculum development and large administrative and academic workloads. These factors had caused a diminution of the previous research culture of supportive, safe, nurturing and mentoring of postgraduate research students and early career academics, resulting in a lack of effective research and teaching leadership. The particular contextual factors described above required a methodology that tapped into experiential knowledge at a grass roots level, was directed towards problem-solving, supported democratic, participatory adult learning, and was flexible enough to accommodate large workloads and academics at different stages of their careers.

THEORETICAL FRAMING OF THE PROJECT

Action learning

Action learning is a form of experiential learning that focuses on problem solving. Processes which utilize a combination of experiential knowledge and the gathering of relevant further knowledge are initiated in a context of a facilitated co–learner group (Cusins, 1995) where "knowledge is shared and problematized" (Le Cornu, 2004:141). Action learning in organizations can be seen as a process for building continuous quality improvement and is an effective process for integration of teaching and learning (Dickie & Jay, 2010). Action learning circles, also referred to as learning circles, study circles (Suda, 2001), learning communities or learning conversations (Le Cornu, 2004), have been extensively utilized in adult education programs and lifelong learning in Europe, the UK, and the USA (Suda, 2001). They are characterized as democratic, participatory, inclusive, collaborative, reflectively dialogical, and structured. A series of questions or problems are posed and learning goals selected and implemented to improve practice. Dickie and Jay (2010, citing Stringer, 1996), refer to these activities as Looking, Thinking and Acting. In the context of this project, we construed an action learning circle to be an iterative cycle of critical reflective group conversations that leads to new understandings and actions based on that knowledge with the aim of improving practice in HDR supervision.

Procedures

A group of seven early career researchers and the facilitator met for two hours every two to three weeks over 4 months between April and July, 2010, at SCU, NSW, Australia. The initial meeting processes are outlined in Table 1.

The facilitator provided an agenda for each meeting, kept notes and distributed these to participants following each meeting. Drawing on the work of James and Baldwin (2006) and experiential knowledge, the facilitator developed an Effective Supervision Checklist for each of the three stages of supervision; this was made available on-line. The three stages of supervision are shown in Figure 1 and an extract from the checklist for the Beginning stage of supervision is provided in Table 2.

Knowledge sources utilized included experiential knowledge, knowledge gained through formal research training, expert knowledge, and scholarly and research articles.

Table 1. Meeting 1 processes

1. Brainstorming group expectations and discussion of trust, safety, support, respect, allowing people to complete what they are saying, not speaking over another speaker, being constructively and critically reflective
2. Identification of individual goals
3. Identification of group goals
4. Confirmation of meeting times, day, length of meeting
5. Brainstorming of learning needs, tensions, challenges or dilemmas in relation to postgraduate research supervision
6. Prioritization of learning needs
7. Critical conversation on learning needs
8. Identification of an action plan
9. Identification of relevant resources
10. Decision on the focus for next meeting
11. Identification of learning outcomes
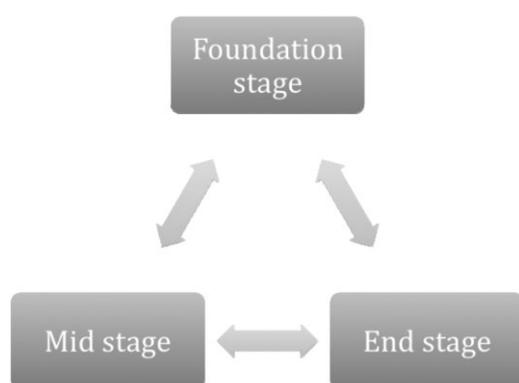
Figure 1. Stages of supervision (James & Baldwin, 2006).

Knowledge generation involved reflective critical conversations of the participant's own experiences, critical discussion of the checklist on laying the foundations of effective supervision, and specific issues related to the development of research plans and students' perceptions of good supervision (Zuber-Skerritt & Roche, 2004; James & Baldwin, 2006). We identified short and long-term actions. The meetings finished with identification of learning outcomes. See Figure 2 for a summary of the processes.

Specifically the first meeting explored several relevant areas of supervision, including:
- frameworks/models of supervision
- appropriate processes or mechanisms for identifying skills, experience and interests of other staff members in relation to co-supervision
- the lack of resources for supervisors
- the differences between Honors, Masters and PhDs
- helpful supervision tips.

Knowledge application, in the form of proposed actions, was both short and long-term. Short-term actions included:
- challenging and influencing present higher degree supervision policy
- actively promoting new policy initiatives concerning different models of supervision

- development of learning resources, including an intranet blackboard website
- exploration of processes within each of the stages of supervision in successive meetings
- invitation of an expert supervisor from another school to the meeting.

Long-term ongoing actions, which are in process, concerned the development of:
- a strategic plan to achieve grant funding to attract research students through multidisciplinary collaborative teams
- a framework for a collaborative interdisciplinary approach to supervision
- a supervisor's agreement form for co-supervision
- a Preparing for Success as a postgraduate student program
- dissemination of information about the project in a professional development seminar at another Australian university
- submission of a conference abstract
- a paper for publication.

The learning outcomes for the first meeting were that learning circle processes allowed for:
- reflection on processes and structures at SCU
- clarification of issues around HDR supervision
- useful insights about co/supervision
- action and outcome orientation
- tangible products
- preparation of potential supervisors for new Honors programs presently being developed.

Participants agreed that the supervision checklist was valuable. It includes supervision tips such as reviewing a piece of written work by a candidate before deciding to supervise the student; being clear with the candidate about roles and responsibilities in co-supervision; being prepared to meet with the candidate when problems arise, resourcing of such meetings; and the need to set boundaries around research questions and topic areas.

Successive meetings, processes, actions and learning outcomes

Successive meetings followed up on planned actions and explored processes within each of the *11 Steps in Effective Supervision* (James & Baldwin, 2006) in order to gain knowledge of "good" supervision pedagogy. The processes initiated were the same as for Meeting 1. These processes were embedded in a supportive environment of facilitated co–operative learning that resulted in critical discussion and modification of a checklist tool for HDR supervisors in each of the stages of supervision.

Knowledge generation also involved reflective critical conversations about teaching and learning in the three stages of HDR student supervision and drawing on knowledge sources both internal and external to the group. Internal to the group, one member took responsibility for facilitating a discussion of the different models of supervision. External to the group, two experts in HDR student supervision shared knowledge and experience of the processes of new confirmation of

Table 2. Extract from the beginning stage supervision checklist

Issue	Deficit Yes	Deficit No	Deficit Remedy
What does the student know about the substantive area, methodology?			Formulate systematic reading plan. This will be a time of high exploratory reading and writing. There should be freedom to explore combined with pragmatism.
Skills: Statistics, computing, writing, lab equipment			Suggest, where appropriate, human resources, reading matter, software programs, course work units, programs of study, learning assistance, librarian. Begin writing early, determine the role of supervisor in editing, Recommend use of an external editor, critical friend.
Psychological needs			May take time to reveal, requires trust. Refer to counselor, disability officer, general practitioner..
Socio-cultural: Gender roles and expectations, cultural difference in expectations concerning authority, disagreement and acknowledging others' work, ideological differences.			Determine expectations, reflection on issues, support, mutual learning, and respect. Refer to Academic Integrity policy, Copyright policy, Intellectual Property policy, decide on publication authorship. Establish mutually agreed and reasonable expectations.
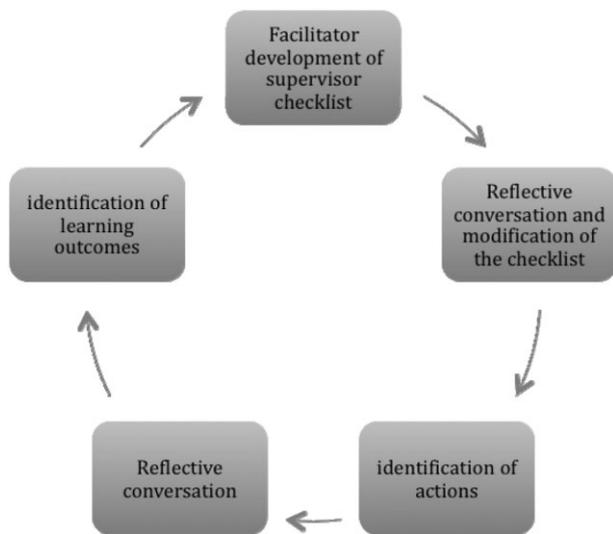
Figure 2. Meeting processes.

candidature, thesis submission, and defending a thesis in the case of non-unanimous examiners' reports.

Because this was a professional development project, the focus was on effective HDR student supervision. In successive meetings, we broadened the question of "what is 'good' pedagogy" to a discussion of the administrative and the organizational cultural contexts of higher degree research and supervision.

Administrative management

In terms of the administrative aspects of supervision, group members identified increased knowledge of the new policies concerning candidate progression processes, eligibility for different supervisor roles, and the related challenges.

Further, they gained increased knowledge concerning documentation and reporting requirements in relation to student progress and thesis submission. For the final meeting, the facilitator compiled a checklist of administrative responsibilities in relation to the progress of students through higher degrees.

Higher degree research student supervision pedagogy

In terms of available resources, there was increased knowledge of present resources and identification of resources for potential development, including web-based resources. Understanding of team supervision was enhanced, and it was found that thinking through and exploring supervision in terms of various present and potential supervision models was helpful.

There was recognition of the value of analyzing different approaches to HDR student supervision and the need for supervision to be flexible in order to meet individual student's ways of working, their needs and contexts. An enhanced understanding of the supervision process also informed early career researchers who were supervising students in a newly developing Honors program.

The value of a structured process, such as a checklist that supervisor/s complete with the student, was recognized. Strategies for encouraging and supporting thesis writing and setting boundaries in the supervision process were considered helpful. There was further recognition of the need for clear identification of, and processes for, discussing the limitations of both students and supervisors.

Further, the value of reading thesis chapters vertically for their structure and horizontally to assess coherence overall was considered important. Finally, there was de-mystification of the processes of thesis submission, completion to graduation and defense when there are non-unanimous examiners' reports. Overall, there was a substantial increase in confidence in relation to HDR student pedagogy.

Community of practice

Being a member of a community of practice of higher degree supervision enabled sharing of experience and resources when issues and questions arose during the supervision process.

In relation to the value of interdisciplinary collaboration, there was a realization of the commonalities with other disciplines and value of outside of discipline co-supervision. Cross-disciplinary contributions to supervision included increased awareness of diversity of disciplinary expertise within the broad School of Health and Human Sciences; and the diversity of knowledge and experience with different research methodologies and approaches to supervision.

Establishment of a supportive research culture

We validated the potential for collaborative research across school and disciplines and the importance of networking and encouragement to move forward together. There was encouragement and support for the establishment of a research culture to support and inspire supervisors and students.

Supervision was considered a mentoring process; therefore, positive constructive feedback, rather than gate keeping, should be the focus. The value of writing groups and the need to develop a supportive culture for staff and postgraduate students to encourage all aspects of the publication cycle was also articulated.

DISCUSSION

It has been argued that issues related to administrative aspects of HDR student supervision are focused on the question "What is supervision?" rather than "What is effective supervision?" and are a response to the increasing demands of timely completion (Miller, 2007). However, organizational policies and procedures that are unclear or constantly changing can limit the effectiveness and quality of supervision. If the due date or form of a research proposal, requirements and processes related to progression or supervisory arrangements are in a constant state of flux, advice and guidance concerning these matters can undermine the confidence of both the supervisor and student. In the context of this action learning project, the focus on "good management" related to the ever-changing HDR student supervision policy, new procedures and forms, and constantly changing administrative staff within the Division of Research. Lee (2008) terms this a functional construct of the supervision process. In a review of the literature on effective PhD supervision, Delany (cited 2010) identifies a business-inspired model of supervision by Gratfield (2005). The model contains a structural component consisting of organizational processes, accountability and skills provision. In relation to the structure and function of supervision, formulation of a checklist of administrative processes and procedures, conversations with internal and external expert peers concerning candidature, and demystification of thesis submission and defense enhanced the confidence of members of the group.

Effective supervisory pedagogy was the focus of the action learning project. Pedagogical principles that informed the Effective Supervision Checklist included:
- Effective supervision is exemplified by good teaching
- Supervision is located in mentoring and personal relationships
- Supervision requires focused attention and adequate time
- Supervision is highly individualized and requires flexibility and adjustment to varying needs
- Supervisors extend student knowledge, set appropriate realistic standards and encourage independence (James & Baldwin, 2006).

These principles are echoed in Miller's (2007: 34) on-line HDR supervisors' course, which is founded on four constructs, "good pedagogy, good administration, good contribution to knowledge [and] good relationships". Kandlbinger (2000) found that, although being a good scholar was important to students, of more importance was establishing and maintaining effective professional relationships. Research on important themes in postgraduate supervision by Symonds and Carter-Steel (2009) aimed to achieve outcomes related to knowledge of institutional requirements, increase awareness of participants' own understanding of educational pedagogy, and increase knowledge of good research learning and practice. Echoing similar principles Maxwell and Smyth (2010) proposed a Research Management Matrix to frame supervisory processes in doctoral education. This tool focuses on the interrelated concepts of the teaching and learning process, student development, and the social practice of producing a research project. Thus the principles that underpin the pedagogy, explored through the Effective Supervision Checklist, reflect the principles generally iterated in the literature related to "good pedagogy".

A valued aspect of the action learning process was the rebuilding of a culture of collaborative collegiality. There was a desire for nurturing, mentoring research and a supervision culture that was supportive and educative, rather than individualistic, punishing and characterized by gate-keeping. The action learning group was not alone in this desire. In their research, Hammond *et al.* (2010) found that one of the challenges in supervisor education is creating a collaborative, shared, multidisciplinary team research culture.

The action learning process enabled space for a particular form of leadership – the sharing of wisdom – to emerge. Jackson (2008: 28) has argued that a servant leadership style supports "positive, nurturing milieus for successful supervision of research higher degree (RHD) students". She further argued that servant leadership is like transformational leadership, which emphasizes the valuing and empowering of members of an organization. In relation to early career academics Jackson (2008) has posited that this form of leadership builds capacity, supports the emergence of new leaders and encourages a sustainable collegial, supportive and nurturing culture. In the context of this action learning project, the building of a community of practice has created an informal network of scholars who have demonstrated the potential for capacity building in higher education. These notions reflect research Recommendations 1 and 2 of the *Final*

Report: Building Research and Training across Australian Universities (Hammond *et al.*, 2010: 8) which states that universities should "[f]acilitate rich and sustained conversations about research supervision… [including] the nature of good supervision practices, including insights from cross-disciplinary and cross-institutional [settings]… and further support and develop leadership in research education."

Knowledge translation

We have not achieved all short and long-term planned actions. Because of the particular institutional context described earlier, translating the elements of "good" pedagogy has not always been possible. Knowledge translation is about "moving knowledge into action" (Graham *et al.*, 2006: 13). Davis *et al.* (2003: 35) have argued that knowledge translation is a "method for overcoming barriers to change [by] promoting… [and]… reinforcing… change."

In the context of this action learning project, knowledge translation refers to actions taken as a result of knowledge generated through learning circle processes. Knowledge utilization (Estabrooks *et al.*, 2003) refers to research-based knowledge generation that is put into practice and related to health professional development. Implicit in knowledge translation is the notion of the collaborative research processes that are characteristic of learning circles. In the present project, the acquisition of knowledge and skills generated through the processes of learning circles is incorporated into the knowledge and skills set of early career academics, thus improving teaching practice.

Barriers to knowledge translation

The context of knowledge translation has a major influence on the incorporation of theory into practice (Glass, 2010). It is not yet possible to know the effect of putting knowledge into practice because the degree to which the process of action learning has enhanced supervision of research students by early career academics is so far untested in practice. There are certain aspects of the context that have increased the gap between knowledge, action and effect. Relevant aspects of the context are:

• Involvement: teaching and research workloads were such that not all participants could attend all meetings and one member had to withdraw. The multi-campus context required phone meetings in order for all participants to be included

• Action: policy changes and implementation at university committee level, which the group was unable to influence, restricted early career academics' involvement in supervision in the principal supervisor role

Hammond *et al.* (2010) reported that participants in their research suggested that whereas research training is often directed to new academics, this needs to be balanced with competing responsibilities experienced by the group. Because it is a challenge to meet all competing demands, immediate responsibilities often take precedence.

Some planned actions have not yet been realized. For example, the preparing for success as a postgraduate student resource and a framework for collaborative approaches to supervision are yet to be fully developed. However, some members have initiated collaborative supervision arrangements with each other and identified key resource colleagues.

CONCLUSION

Hammond *et al.* (2010: 26) refer to the supervision of HDR students as "hybrid space… between teaching, learning and research" and that research education should be considered in the broader context as an "ecosystem". The present project evolved within the tension created by the loss of research leadership, constant change, and integration of several health disciplines into one school. The action learning model of professional development filled the vacuum created by the circumstances previously described. The process supported and encouraged self-reflection and critical conversation, two elements of adult learning.

The action learning process allowed exploration of the "ecosystem" that includes good management and pedagogy, communities of practice, early development of a research/scholarship culture and a level of knowledge translation. While there is clearly a range of models of professional development in HDR supervision, this particular action learning project has contributed enormously to building the confidence of members of the group. This approach allows emergence of a style of leadership that is supportive and collaborative and builds capacity in teaching, learning and research for both supervisors and students. It is cost-effective and value-added to the compulsory one-day workshop that the University requires all supervisors to attend once every three years. The challenge that remains is to create opportunities for a professional, flexible and sustainable approach to the education of HDR supervisors within the complex, pluralistic and constantly shifting higher educational ecosystem.

CONTRIBUTION OF AUTHORS

Study Design: KD
Data Collection: KD, SB, FD, SE,MH, BM-S, SP, RvA
Analysis: KD, SB, FD, SE,MH, BM-S, SP, RvA
Manuscript Writing: KD, SB, FD, SE,MH, BM-S, SP, RvA

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