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A pilot study on postgraduate supervision

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Abstract

The postgraduate education is considered to be important as it provides the educational institutions opportunities to build their research capabilities, enhance academic reputations and financial gain. The success and quality of post graduate education largely depends on effective and efficient supervision of postgraduate students. Despite its immense importance, the teaching and learning through postgraduate supervision is not still fully understood. As the expectation of high quality postgraduate supervision is increasing, the supervisory role is becoming more challenging due to the fact that most postgraduate students are coming from various ethnic, cultural, political, economical, linguistic and educational backgrounds and their attraction and retention are paramount for educational institutions. The primary objective of this work is to undertake a study on postgraduate supervision experience to provide better support for improving timely research completion, quality supervision, retention rate, student satisfaction, research environment and administrative support services. The research was undertaken based on questions based surveys. A set of anonymous questionnaires was distributed among postgraduate students studying at 3 universities in Australia. The study indicated ways to improve timely completion, quality thesis writing and scientific publications. The role of the supervisor plays a crucial role to the overall satisfaction, retention and completion.

Nomenclature

APA	Australian Postgraduate Award
APAI	Australian Postgraduate Award Industry
RTS	Research Training Scheme

1. Introduction

The world wide demand for specialised skills and innovative research due to globalisation, continuous change in competitive market, management and services, design and development has compelled to produce large number of postgraduates. Opportunities and access to postgraduate studies have also been increased. Most universities in developed nations are currently underfunded due to reduced government subsidies. Finding no other alternative, most institutions heavily rely on full paying international students. As a result, educational institutions are trying hard to build their research capabilities, enhance academic reputation through producing high quality graduates, publishing journal articles in high impact journals and creating a brand image to attract full paying undergraduate and postgraduate students. In order to be competitive for attracting postgraduate (PhD & Masters) students, universities are striving to improve the quality of

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postgraduate research (both fundamental and applied), provide quality supervision (for higher student satisfaction, completion and publication) and create research support services including facilities & resources to achieve those goals [2, 10-11].

Currently both supervisors and students are under enormous pressure to complete postgraduate programs within a defined timeframe. As postgraduate students generally come from diverse background, ethnicity and vary significantly by age, cultures, language, religion, experience and ability, with and without scholarships, they face pressures to complete their degrees prior or within the candidature time. Additionally students are under pressure to publish research papers, financially support families by undertaking jobs; and develop broader skills for enhancing their employability after completion. If required infrastructure, supervision and research environment are not available, pressures and expectations can negatively affect the creation of new knowledge, ground-breaking work, keeping up with the current body of knowledge through critically examining contemporary literature, and writing quality thesis by postgraduate students [10].

A schematic of multiple skills that students should acquire from a postgraduate research program is shown in Fig. 1. Deficiency in any of these skills will lead postgraduate students to experience delays in their studies or withdrawing from the program altogether. Postgraduate students generally face multi-fold problems due to inadequate or faulty research design, inaccurate or insufficient data collection and processing, and difficulties with thesis writing. These issues can arise due to inexperience of the student, poor supervision and/or an inefficient system [14]. Rademeyer [16], Hockey [9], and Smith & West-Burnham [18] found that the successful completion of a dissertation/thesis was just as much a function of abilities of the student and the supervisor. As mentioned earlier, there are high proportions of postgraduate students failing to complete their studies within the stipulated time frame or giving up their studies completely due to problems related to inadequate supervision, research support and research environment.
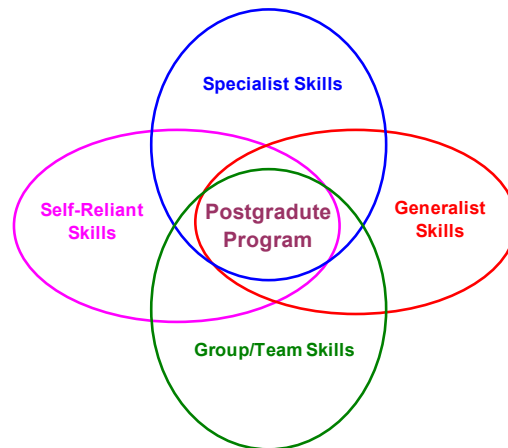

Fig 1. Schematic of postgraduate skills (adapted from [4]).

There is a growing concern about higher degree attrition and completion rate. The attrition rate is as high as 50% in postgraduate research programs especially from first year of programs offered in North American universities [3, 6, 7, 12, 19]. Among developed nations, Australian universities generally had lower attrition rate (~10-20%) in late 1990s [3]. More recent data for 2007 indicates that the attrition rate of postgraduate students (Masters and PhD) in Australia is around 10%. However, the attrition rate for Master students is higher than PhD students [15]. Nevertheless, it has created a concern for university managements as most universities are under tight financial budgets.

Currently research supervision has become a focal point for achieving higher research completion, research output and graduate student satisfaction. Supervision can be defined as two-way interactional process that requires both the student and the supervisor to consciously engage each other within the spirit of professionalism, respect, collegiality and open-mindedness. Supervision is a complex social encounter which involves two parties with both converging and diverging interests. Therefore, balancing these interests is very crucial for the successful supervision of postgraduate students. The relationship between the supervisor and the postgraduate student is considered to be the key factor in the success or failure of students' research work. It is no doubt that a supervisor is the closest person who can mentor and provide the necessary support and guidance to the student in need [1, 5, 8, 13, 17].

As mentioned earlier, postgraduate supervision can generally face multifaceted problems including a) inadequate supervision (e.g. lack of supervisor's experience, commitment, and/or time; b) emotional and psychological problems

(student's intellectual and social isolation; his/her insecurity to fulfill the standard and lack of confidence in his/her ability to complete thesis within the time frame or not at all); c) lack of understanding and communication between supervisor and student; d) student's lack of knowledge, skills, training or experience in research methods, e) family and work commitment, f) lack of financial support, g) inadequate administrative or institutional support, and h) poor research infrastructure and environment. Therefore, it is the utmost interest of the university, supervisor and the student to complete the research with higher impact within the time frame. However, often it is not clear how this objective can be achieved. Therefore, with a view to understand the issues faced by postgraduate students, a pilot study among a group of postgraduate students at three Australian universities was undertaken.

The study explores the postgraduate supervision experience in order to render better support for improving timely research completion, quality supervision, retention rate, student satisfaction, research environment and administrative support services.

2. Research design and methodology

In order to understand the factors that can affect students most, we have undertaken a pilot study among current and recently completed postgraduate (Masters and PhD) students in two broad disciplines (Engineering and Management) at 3 Australian universities. The targeted students for the pilot project are from the School of Aerospace, Mechanical and Manufacturing Engineering at RMIT University in Melbourne, Department of Management at Monash University in Melbourne and the School of Engineering and the Built Environment at Central Queensland University in Rockhampton. Out of three groups of students, two groups are from engineering background (RMIT & CQ University) and the remaining group is from management background (Monash University). The reason for selection of such wide background is to see if there is any variation in student's feedback. The target student number for the pilot project was 40. A plain language questionnaire was developed. The survey contains 21 questions in 3 main sections: a) section one – support from the research supervisor, b) section two – support from the institution, and c) section three – general student comments or suggestion. Section one contains 9 questions, Section two – 6 questions and Section three – 6 questions. Additionally, the questionnaire has introductory questions regarding postgraduate program, host institution, country of origin, background of financial support for the study and the medium of instruction of prior program(s). Students were asked not to write any sort of identification in order to keep the survey completely unanimous. The survey questionnaires are given in Appendix. Over 40 copies of questionnaire were distributed among targeted postgraduate (Masters and PhD) research students in aforementioned three universities. A total of 30 completed surveys were received. The survey response rate was 75%.

3. Results and discussion

Data from all 30 completed returned surveys has been grouped and analyzed. It was noted that participated students came from varied cultural, geographical and linguistic backgrounds. The participated 30 students came from a range of countries including Australia, India, Bangladesh, China, Japan, Saudi Arabia, Oman, Kuwait, Sri Lanka, Thailand, Malaysia, Indonesia, Philippines, and Jordan. Based on student responses, it was noted that over 60% students have earned their prior degrees through English medium and the remaining students have had their degrees in other languages. The financial support received by students for their tuition fees and sub assistances is varied significantly. Nearly 70% students obtained Australian government (APA, APA-I, RTS) and host university scholarships. However, over 25% students have received scholarships from their home countries' governments. The Australian students are excluded from this statistics. Only 5% postgraduate students are financed by themselves (i.e., self finance).

The students responses related to Section 1 (supervisory support) and Section 2 (institutional support) are analyzed together. The analyzed data for questions 3 to 15 is shown in Fig. 2. Responses to questions 1 & 2 were not included in Fig. 2 as responses to these questions are incompatible with responses to Questions 3 to 15.

The responses to Question 1 have revealed that 75% postgraduate students selected their supervisors through direct contacts with their respective supervisors. Only 16.7% students found their research supervisors through the university research office and around 8.3% through the university webpage as shown in Appendix. Nearly 90% international students have chosen their supervisors long before they formally applied for admission. Nearly 50% students meet with their supervisors fortnightly whereas 37.5% students meet once or twice a week and only 12.5% students meet with their supervisors monthly (Appendix). However, some students who meet with their supervisors fortnightly are happy to meet once a week.

Over 95.8% postgraduate students are happy with their supervisors for providing support and academic direction. In contrast, only 4.2% students are not happy with their supervisors. The unhappy students are mainly from the category of students who meet with their supervisors monthly. Most postgraduate students (~91.7%) have received appropriate

academic support in their first year of candidature whereas only small number of students has received little or no academic support from their supervisors. Regarding non academic support and pastoral care from supervisors, over 85% students expressed their satisfaction and the remaining students (15%) did not receive expected non academic and pastoral care support. The students' responses also revealed that nearly 46% postgraduate students fall behind against the timeline of their research progress due to some difficulties in their 1st year of candidature. Only 20.8% students received timely advice and guidance from their supervisors to overcome this initial research difficulty.

More alarming piece of information has come out from this pilot survey is that over 33% postgraduate students have experienced the temporary breakdown of relation with their supervisors out of frustration and lack of clear research goals. Most students are satisfied with the support that they received from the research office. Similarly they are happy with available research environments and resources at the university. Around 70% students consider the research seminars organized by the department or school are not useful. However, it was not clear why did these seminars fail to excite postgraduate students. Although around 71% postgraduate students are happy with the level of financial support they receive from the university to attend and present research papers at conferences nationally, most of them cannot attend international conferences due to the unavailability of funds at the university. Majority students commented that the attendance to international conferences provides an opportunity for them to develop networking, obtain external feedback to their research work and enhance their communication skills.

Over 80% of students commented that they expect from their research supervisors to guide them in their research proposals, choice of research methodology, and documentation and publication of their research. They strongly wish to have supportive and professional relationship with their supervisors, and happy to receive constructive criticism and reflection on their research processes.
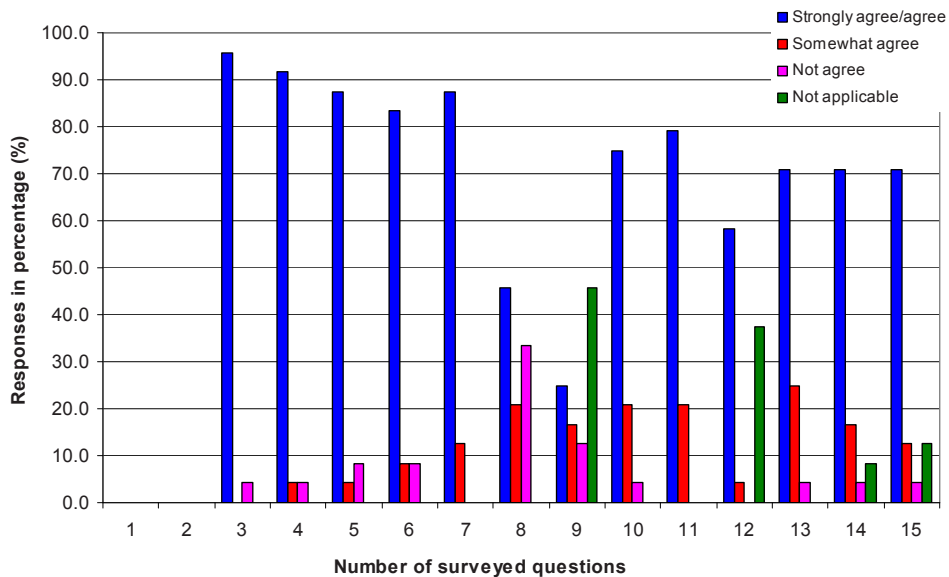
Fig 2. Students' responses to questions 3 to 15.

4. Concluding remarks

The post graduation education is essential for universities to build their research bases and profiles. The success and quality of postgraduate education largely depend on multiple factors. The supervisor's role determines postgraduate student's overall satisfaction, retention and completion.

The pilot study indicates that most students choose universities and research projects through personal contacts with the respective supervisor. A very small number of students select universities and research projects via the university research office and other online/offline means. Most students are happy with the support they receive from their supervisors. However, they need more support and guidance especially in the early stage of their candidature.

The lack of progress makes students apathetic, anxious and poor relations with their supervisors. Most students are appreciative of their institutional, administrative and financial supports. However, the current amount of financial support is

not adequate for most students to attend international seminars/conferences which are considered to be the vital for their networking, obtaining professional feedback and improving communication skills.

Most students prefer to have research meetings with their respective supervisors weekly or fortnightly. Students who have meetings monthly with their supervisors are generally unhappy with their supervisors. This group of students also falls behind in their research progresses.

References

[1]   Acker, S., Hill, T., Black, E., 1994. Thesis supervision in the social sciences: managed or negotiated? Higher Education 28, p. 483-98.
[2]   Beer, M.D., Mason, R.B., 2009. Using a blended approach to facilitate postgraduate supervision, Innovations in Education and Teaching International 46(2), p. 213–226.
[3]   Colebatch, H.K., 2002. Through a glass darkly: Policy development on higher degree completions in Australia, Journal of Higher Education Policy and Management 24(1), p. 27-35.
[4]   Cryer, P., 1998. Introduction, in: P. Cryer (Ed.) Developing Postgraduates' Key Skills: issues in postgraduate supervision, teaching and management, Guide 3, pp. 1–5 (London, Society for Research into Higher Education/ Times Higher Education Supplement).
[5]   Cryer, P. and Mertens, P., 2003. The PhD examination; support and training for supervisors and examiners, Quality Assurance in Higher Education 11 (2), p. 92-99.
[6]   D'Andrea, L.M., 2002. Obstacles to completion of the doctoral degree in colleges of education, Educational Research Quarterly, March.
[7]   Elgar, F., 2003. PhD Completion in Canadian Universities. Final Report. Halifax, Nova Scotia: Graduate Students Association of Canada.
[8]   Ellis, E.M., 2001. The impact of race and gender on graduate school socialization, satisfaction with doctoral study, and commitment to degree completion, Western Journal of Black Studies 25(1), p. 30-45.
[9]   Hockey, J., 1996. Strategies and Tactics in the Supervision of UK Social Science PhD Students, Qualitative Studies in Education 9(4), p. 481-500.
[10] Ismail, A., Abiddin, N.Z., 2011. Improving the Development of Postgraduates' Research and Supervision, International Education Studies 4(1), p. 78-89.
[11] Lee, A.M., 2007, Developing effective supervisors: Concepts of research supervision, South African Journal of Higher Education 21(4), p. 680-693
[12] Lovitts, B.E., Nelson, C., 2000. The hidden crisis in graduate education: Attrition from PhD. Programs. Academe, 86 (6), p. 44-50. Available at www.aaup.org/publications/Academe/00nd/Nd00lovi.htm. (Accessed November 5 2007).
[13] McAlpine, L., Weiss, J., 2000. Mostly true confessions: Joint meaning-making about the thesis journey, Canadian Journal of Higher Education 30(1), p. 1-26.
[14] Mouton, J., 2001. How to Succeed in your Master's and Doctoral Studies. Pretoria: Van Schaik
[15] Olsen, A., Spain, J., 2008. Staying the course: Retention and Attrition in Australian Universities. Australian Universities International Director's Forum Report, available at www.spre.com.au/download/AUIDFRetentionResultsFindings.pdf (Accessed August 20, 2012)
[16] Rademeyer, G., 1994. Thesis supervision: getting the genie out of the lamp, South African Journal of Higher Education 8(2), p. 92-95.
[17] Seagram, B., Gould, J., Pyke, S., 1998. An investigation of gender and other variables on time to completion of doctoral degrees, Research in Higher Education 39(3), p. 319-335.
[18] Smith, P., West-Burnham, J., 1993. Mentoring in the Effective School. Essex: Redwood Books.
[19] Wright, T., Cochrane, R., 2000. Factors influencing successful submission of Ph.D theses, Studies in Higher Education 25(2), p. 181-195.

Appendix: Postgraduate supervision experience survey questionnaires

The postgraduate supervision experience survey is designed to capture feedback about your research experience. The feedback we receive helps us to clearly identify priorities for improvements to your postgraduate research experience.

Program Name …………………………………………………………………………………………...
Institution/University..…………………………...
Your home country……………………………..
Institution/University of your prior degree(s)…………………...
Medium of instruction of your prior degree(s) ....……………………………………….
Financial support status (please circle):

   ○ Aust Govt. Scholarship   ○ University Scholarship   ○ RTS
   ○ Int. Aid Agency scholarship   ○ Home country Govt. scholarship   ○ Self funded

Institution/University……………………………………………………………………………

Section one: Supervisory support

1. How did you choose your principal supervisor?
   ○ University webpage   ○ Personal contact   ○ Do not know   ○ Through research office

2. How often do you meet with your supervisor to discuss your matter?
   ○ Once/Twice weekly   ○ Fortnightly   ○ Monthly

3. Are you satisfied with the supervision and support by your supervisor?
   ○ Highly satisfied   ○ Satisfied   ○ Somewhat satisfied   ○ Not satisfied

4. Have you received adequate academic support in 1st year of your candidature?
   ○ Strongly agree   ○ Agree   ○ Somewhat agree   ○ Not agree

5. Are you satisfied with the level of support you received from your supervisor at the beginning of your program? [accommodation, transport, banking, shopping, schooling, social & cultural issues related to Australian way of life]
   ○ Strongly agree   ○ Agree   ○ Somewhat agree   ○ Not agree

6. Are satisfied with the level of pastoral care from your supervisor? [support during low moral, sense of isolation, death/sickness of immediate family member, family issue, financial hardship, racial discrimination, etc]
   ○ Strongly agree   ○ Agree   ○ Somewhat agree   ○ Not agree
7. Have you received guidance and encouragement for publication during your study?
   ○ Strongly agree   ○ Agree   ○ Somewhat agree   ○ Not agree

8. Have you faced any of the following issues during your study:
   ○ Lack of progress against   ○ Timely advice when   ○ Breakdown of relation between you and
      timeline   needed   your supervisor

9. How often do you attend Group Meeting organised by your supervisor?
   ○ Once/Twice weekly   ○ Fortnightly   ○ Monthly   ○ N/A

Section two: Institutional support

10. Are you satisfied with the level of support from Department's/School's Higher Degree Committee (admin support, financial support, professional development, etc) ?
    ○ Strongly agree   ○ Agree   ○ Somewhat agree   ○ Not agree   ○ N/A

11. Are you satisfied with the level of support from Faculty/College and University Higher Degree Committee?
    ○ Strongly agree   ○ Agree   ○ Somewhat agree   ○ Not agree   ○ N/A

12. Are you satisfied with the level of support provided by the University Ethics Committee with your ethics application (if applicable)?
    ○ Strongly agree   ○ Agree   ○ Somewhat agree   ○ Not agree   ○ N/A

13. Do you have adequate research environment in your department/school that inspires you to conduct research?
    ○ Strongly agree   ○ Agree   ○ Somewhat agree   ○ Not agree   ○ N/A

14. Do you think that postgraduate seminar organised by the Department/School is useful?
    ○ Strongly agree   ○ Agree   ○ Somewhat agree   ○ Not agree   ○ N/A

15. Have you received any financial support from the university to attend scientific conference/seminar/education fair?
    ○ Strongly agree   ○ Agree   ○ Somewhat agree   ○ Not agree   ○ N/A

Section three: Comments

16. Are you facing any type of difficulties, if so, please write?

17. How does your supervisor manage resources required for your research?

18. Did you face any difficulties because of your non-English speaking background (if appropriate?)

19. Was there any reason for delay in your progress (if applicable) and how did you overcome this delay?

20. Was there any opportunity for work in the faculty as a teaching or research assistant, or so? If not did you work outside of university?

21. Do you have any comments? If so, please write