

Proposing student support model for postgraduate research education

Postgraduate
research
education

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Abstract

Purpose – Many start pursuing graduate or postgraduate research based education, however few complete on time. The purpose of this paper is to conceptualize a postgraduate student support model which will facilitate students to complete their studies successfully and on time.

Design/methodology/approach – The model was designed using authors viewpoint on this issue which was informed by literature and first-hand interactions with post graduate students and supervisors.

Findings – Ahmad's Student Support Model for Postgraduate Research Training proposes that students need support on three major dimension (Financial, Technical and Publishing) to complete degree on time. University and supervisor play critical role in this as they provide administrative and emotional support as they create learning environment for students. The model illustrates their role.

Originality/value – The model is useful for universities to ensure they provide students with all elements proposed. New supervisors can get ideas how to play their role in facilitating students to complete their degrees on time. Students can evaluate an institution before enrolling in research education if the institution has the elements proposed in the model.

Keywords Student support model, Post graduate research, University research support

Paper type Viewpoint

Introduction

Much has been written about the quality of research training and the challenges faced by students and higher learning institutions alike in delivering a satisfying experience at the postgraduate level. The essential problem of increasing dropout rates and lengthy completion times continues to plague many institutions despite the raft of new policy and institutional framework changes over the past few decades. The implementation of newer approaches over the recent years seem to have yielded limited success with regard to age old issues relating to the interaction of students, supervisors and institutions.

The lack of strong structure processes and support systems to underpin the delivery of various research based degree programs continue to constrain students' preparedness to undertake quality research studies. Factors such as financial, technical and publishing support are important inputs that institutions must provide if they wish students to complete research programs on time. University administrators will need to rethink policies which will advance students' pressing interest and concerns. Many continue to lament about the lack of sufficient financial support surrounding issues such as the funding of tuition costs, awareness and availability of research grants, costs associated with travelling to conferences or sourcing financial support for scholarships.

In addition, the availability of strong mechanisms and frameworks to guide students on methodologies how to conduct, write and evaluate research, how to share research findings and gain critical feedback or how to apply various research tools and technologies to gain important insights are areas of improvement. Closely related to this is the need for guidance by supervisors who play a critical role in guiding and facilitating the students' transition from undergraduate to research graduate studies. Much has been written on the importance of high levels of interaction, communication and relationship building practices between



supervisor and student and supervisors and university administration for success at this stage. Supervisors play a critical role not only in facilitating and managing change for students during their research and dissertation phases, but also post degree, in creating career and professional opportunities and assisting in sustaining good quality journal publications over the long run (Grant, 2010; Hockey, 1997; Leder, 1995; Lee, 2007; Pearson and Brew, 2002)

This paper discusses the major challenges and issues and the responses by adoption of new framework approaches to research training at learning institutions worldwide. This will provide a good basis for advancing the focus of this paper. The approach to this paper builds on the experiences of previous theoretical frameworks and models proposed by various authors and scholars on solving past and more recent issues and challenges to the delivery of high-quality research education for students. The author hopes to extend the contribution of this study by proposing a model to support and enhance students' postgraduate research program completion rates from a future oriented perspective.

The HE landscape is undergoing significant and radical transformation, brought on by rapid advances in technologies and the future of work. How will HE respond to the following pressing issues identified in more current literature in deciding the correct path for research education?

- (1) The impact of new learning environments such as “virtual” networking, online, distance learning and “cohort model” of learning on research-based degrees
- (2) The growing use of technology and digital tools in research education- are supervisors, teachers and students sufficiently equipped to use such tools in research based education delivery?
- (3) The use of newer learning pedagogies to manage change and grapple with complexity such as “action learning” (AL) and lifelong learning methodologies
- (4) The role of supervisors in 21st century learning environment – what value creation proposition can they offer students during the research and post studies phases.

Such changes are forcing institutions to rethink and revamp their educational models in order to remain relevant and sustain their programs. It is this context, that this paper attempts to propose a simple model which could be used as a framework for students and institutions to consider the critical inputs or process steps in order to generate a greater chance of success in research based graduate program.

Challenges, framework initiatives and policy responses

The vast literature over the past few decades on issues and challenges in research based postgraduate programmes points to recurring themes. In response, university administrators and policy makers have developed a number of interesting techniques, frameworks and models to address the myriad of following challenges.

Structured programs and processes. The disconnect between students' expectations and institutions requirements regarding the administrative and other related support systems necessary to guide them through the learning process exposes the lack of strong structures and processes. Studies indicate that students need to know, from commencement, how to access the necessary services needed to fulfil the requirements to attain post graduate research degree (Kiley and Liljegren, 1999). It is clear that there remains glaring gaps with respect to protocols and procedures in the recruitment and administration, consistency of rules relating to examinations, guidelines to adhere to for research papers across institutions and within countries and standardization of learning methods and modes of delivery.

For example, it cannot be assumed that they have full knowledge of the process involved in the research experience, in terms of accessing grants, conference funding or equipment. Transfer and registration policies need to be clear for transitioning from a research masters to doctoral degree program, e.g. in terms of the mechanism for transfer, timelines and deadlines to submit application, preparing the case for transfer, writing the transfer document, handling the outcome etc. (Cryer, 2006).

In one study conducted by Baker *et al.* (2013), research was conducted on the various process challenges encountered in a doctoral program and the framework response developed by students to better cope with them. The study using the popular “stage model” approach is predicated on a set of generally accepted formal and informal requirements and expectations utilized by students. The three stages involve the entire process running from admissions, course work and exams to submitting and defence of a proposal to completion and job search.

Challenges encountered by students involved mechanisms for coping with the transition away from structured classroom type instruction to an informal type of instruction, isolation and the enhancement of personal development goals. This transition from “knowledge consumers” to “knowledge creators” creates a challenge for students. Students increasingly depended on “learning based interactions” or collaborative communications with academic advisors and faculty staff via meetings, goal setting and impression management as a coping strategy to fill the void in this process (Baker *et al.*, 2013).

In addition, balancing personal and career goal setting around the new “learning realities” of teaching, researching and publishing with students; personal identity creates unique challenges for students during this learning phase. Students tended to utilize self-directed learning strategies as a coping mechanism to take ownership to better align self-learning and goal setting (Baker *et al.*, 2013).

With regards to learning methods and modes of delivery, another study suggests the use of ontology, methodology and epistemology research as a better approach to optimise learning at the doctoral stage (Berman and Smyth, 2015). Developing strong conceptual framework is essential in advancing research questions and ideas. However doctoral research training and learning methodology extends to using sound set of criteria or abstract thinking necessary in establishing structures to properly define a research problem, test its coherence, which leads to practical conclusions, prior to the writing of thesis.

This learning framework is based on the development of sound conceptual framework using higher order thinking beyond content accumulation so as to utilize a research matrix to assist students to theorize, generalize, hypothesize, reflect and integrate the learning pedagogy of “why, what and how” of research in the context of the research problem to guide their learning. More importantly, this model encourages integrating the experiences of supervisors to play a mediating role in developing and sharing their knowledge with students, but more importantly, in assisting in developing cognitive abilities to guiding them in structuring their learning (Berman and Smyth, 2015).

Supervisor–student relationships. Good student-supervisor interaction forms the basis for satisfying and successful completion of higher degree research programs. Some of the major themes range from experiences of supervisors teaching at the research level, from their perspective (Bruce and Stoodley, 2013), the transition phase from student to new supervisors (Amundsen and McAlpine, 2009), exploration of early models of supervision (Acker *et al.*, 1994), students’ views of what factors constitute good feedback from supervisors (East *et al.*, 2012) and a suitable roadmap to foster effective supervisor-student relationships (Grant, 2010).

Early models exploring the student-supervisor relationships attempted to explain the interaction as a tension between “technical” versus “negotiated” styles of supervision. While the technical rationality model is touted as the preferred method as it depends heavily on a

process and procedural, planning and reasoning oriented relationship style, it is conceded that the negotiated style is more often used as it entails range of dynamic sets of relationship which can be renegotiated between both parties (Acker *et al.*, 1994).

Others trace the experiences of new supervisors as they manage the transition. Based on the concept of “activity theory” the study conducted by Amundsen and McAlpine (2009) describes the journey of young supervisors as they actively interact with students while simultaneously forging relationships with the wider university community. Their findings show that to a large extent, younger supervisors face numerous challenges of trying to balance competing objectives of establishing their academic careers and require social support while mitigating negative factors such as isolation, poorly defined roles, low satisfaction and uncertainty of tenure (Amundsen and McAlpine, 2009; Jairam and Kahl, 2012; Kiley, 2009).

However students also hold to strong views on the role of supervisors in the research training process. Effective feedback received from supervisors remains the most important determinant of supervisor value (East *et al.*, 2012). Students placed far greater importance of supervisors’ ability to give both written and oral feedback, constructive comments, have the knowledge and competence to understand the requirements of the research projects and have the ability to genuinely engage and display interest as characteristics of the “ideal” supervisor (East *et al.*, 2012; Jones, 2013).

Financial support. Be it private, government assisted or self-financing, funding shapes the quality of research degree programs and academic institutions globally (Panda and Gupta, 2014). A lot has been written regarding the challenges facing students pursuing researched-based and doctoral degrees and the processes involved to access funding and to cope with some of the financing issues (Cohen *et al.*, 2007; Cryer, 2006; Harman, 2003; Kiley and Austin, 2008).

Given the benefits of greater mobility and the advantages of pursuing programs outside local jurisdictions, studies find that students opt to remain at home in their territories, rather than exploring outside opportunities. Finance is seen as a major factor in this decision due to the increased cost of relocating (Kiley and Austin, 2008).

The situation is more pronounced for international students. Financial support in the form of income, employment and research support is lacking. In one study of students in Australia, it was found that besides the challenge of paying high tuition fees, postgraduate students experienced difficulties sourcing scholarships, funding support such as access to materials and special equipment (Harman, 2003).

However, institutions are playing their role in assisting students to navigate the financial mine fields while pursuing their studies. A number of procedure oriented frameworks developed over time have been implemented and used as guides in the process. For instance, recommendations have been devised to guide in the steps involved in accessing funding, applying for grants and leveraging related support services on campus and employment opportunities (Cryer, 2006).

Notwithstanding, students still find it increasingly difficult to cope. Increased cost factors in the various phases of the research process can make it especially challenging. Costs associated with training, interviewing, printing, coding, questionnaire design, planning and designing the survey remain significant obstacles. Obtaining private and public funding, travel reimbursements, can be time consuming. In addition, financial incentives to encourage greater survey response rates may not justify the financial outlay (Cohen *et al.*, 2007). All these factors impact research quality for students which require a more coherent, coordinated and structured response at the institutional and administrative level.

Technical and publishing support. Much of the literature surrounding technical and publishing support focus on a number of recurring themes especially as it relates to doctoral research students. Issues pertaining to writing and research methodology, teaching

methodology, program design and how to sustain publishing are the main areas (Jones, 2013). Special attention seems concentrated on providing students with useful frameworks and models which guide them through the writing and research process, best practices and approaches to doctoral education, namely students' awareness in identifying and choosing research topics, enhancing writing skills, research training, software tools and technology and ensuring sustained publishing support.

Writing and researching at this level involves more than reading and understanding. Rather, it entails a process of rigorous investigation, judgment and evaluative skills, the application of higher order thinking and cognitive abilities to absorb content and synthesize material in order to write a persuasive dissertation (Golde, 2010; Yin, 2009; Zuber-Skerritt and Knight, 1986). The use of journal clubs and list based exams is seen as one good support mechanism by which students' writing and research skills may be enhanced via the use of question formulation and critique based techniques tested by faculty committee members (Golde, 2010).

In a comprehensive book on "*The Research Student's Guide to Success*" (Cryer, 2006), the author gives an in depth guide and process steps for students new to research based postgraduate studies to follow which includes the following critical elements:

- (1) How to produce research proposals (scope, writing style, deadlines, etc.)
- (2) Reading and Literature review procedures (systems and styles, accessing relevant materials)
- (3) Evaluating quality research work
- (4) Skills development support in terms of how to acquire, develop and transfer
- (5) Planning, producing and sustaining work (effective time management tools, methodologies in producing thesis from start to publishing)

However, more recent literature questions the over emphasis on the above aspects of technical support advancing the perspective that greater attention needs to be given to supporting doctoral students towards faculty success, in addition to preparing students for only quality research (Jones, 2013).

Contemporary issues and approaches

Impact of globalization. Recent studies give insights and clues as to the possible issues confronting modern day students leading to difficulties and high levels of disengagement from the research study process.

Context is important. One interesting and compelling perspective advances the view that certain inequities within the socialization or training process exists for certain groups of students at this level in the context of modern and evolving graduate systems which requires institutions to be more entrepreneurial, innovative and technology driven. Student profiles and delivery systems have also changed immensely. Students operating in a globalized society are increasingly more mature, international, culturally diverse and demanding programs which are interdisciplinary, blended and culturally diverse. Gaps in design programs or learning approaches, balancing personal/academic pursuits, independence, development and support mechanisms are possible factors contributing to such inequities. The use of technology enhanced learning (TEL) models provides good solutions to these challenges (James, 2017).

New learning systems. Learning environments also play a key role in the success and completion rates of modern research graduate students. Recent studies detail the benefits of integrating peer to peer support learning and action learning as a means of reducing stress,

isolation while allowing for better thinking, reflection, and research question formulation by students. Employing action learning environments and applying communal reflective learning styles is regarded as good investment with significant payoffs for students and institutions alike. It is easier and simpler to implement while reducing the cost burden for supervisors and other academic support systems (Marchand, 2017).

Pursuing research based masters and doctoral degrees via other delivery channels such as online, distance, networked or virtual learning modes can also prove challenging for students. How they manage change within the confines of research training setting specifically and broader external relationships can provide clues to the success of students. Some authors assert the importance of students' ability to assert their "identity positioning and social positioning" skills as a coping mechanism in order to increase their persistence and perseverance to complete the degree programs. How they interact with each other in a given learning environment such as the "act of sharing, withdrawing, rationalizing, prioritizing" and modifying these practices to cope can be used as good strategy and tool to support post graduate research students in networked learning setting (Koole and Stack, 2016).

Institutions experimenting with the use of virtual online learning environment models can also consider integrating best practices and guidelines for faculty administrators and supervisors to support students. This is also the recommendations from more recent studies (Deshpande, 2017; Nasiri and Mafakheri, 2015). Students benefit by sharing and interacting via discussion boards, and obtaining quality feedback with constructive criticisms. Newer faculty members and supervisors can also benefit by obtaining continuous support from peer to peer facilitation and mentoring by experienced staff that can monitor their teaching roles and learning styles through various phases of the program (Deshpande, 2017).

Technology enhanced learning and digital support systems. Technology also plays a significant role both as a tool in the learning process and in the administration and support systems which facilitate smoother transition throughout the various phases of students' post graduate programs. Much has been written recently about the gaps and deficiencies in the use of technology to leverage better efficiency in the administration of the programs. There has been the call for development of agile digital intelligence systems to address the problem of "disjointed student analytics" (James and Leasure, 2017) with the objective to use technology to enhance the student experience while helping administration gather vital data and information to support the needs of students, faculty and administration. A number of glaring deficiencies make it increasingly likely for students to disengage from the process. The typical modern 21st century research student is intolerant of slow data delivery and age old methods of feedback. In addition, issues of communications, the lack of "just in time" metrics and gaps in data collection and information relating to student profile slow down the process.

Recent studies have begun to advocate for the need for academics to embrace the implementation of higher level technology support models to enhance efficiency and student experience at this level (James, 2017). Students can benefit by having a seamless experience via use of portals which connects them with supervisors, faculty and administration to communicate, obtain support and learn.

Faculty can utilize dashboards to monitor students' progress, engage in real time communication and develop risk management strategies. More importantly, administration can use the systems for higher level vision and strategic decision making such as cost cutting, innovation and planning initiatives. It would also be useful in supporting the life cycle of students, engaging and assisting them through all phases of research training including personal development, and career employment pursuits in the post degree completion period (James, 2017). However there needs to be careful consideration given to incorporating a number of other important elements into the design of digital intelligence systems into higher education. Among these are the management of sensitive and unique data, ensuring student

and other education stakeholder input, and building for agility, flexibility and robustness to adapt and respond to changes over time (James and Leasure, 2017).

New role of supervisors. Students and supervisors need to be updated in their use of digital tools in the research training process. Studies indicate that on the one hand, students are finding it increasingly difficult to cope with certain aspects of digital and technology tools, specifically related to data analysis, data management and data visualization application competencies along with proposal writing. Findings are that students' dependence on supervisors' assistance is the highest at this stage. Beyond the technology itself, the deficiencies in digital literacy and academic writing were found to be a result of limited application of knowledge and 21st century in demand skills such as critical thinking. It is recommended that students wean themselves from supervisors' dependence by motivating themselves to adopt lifelong learning and self-directed learning to acquire these skills (Sidhu *et al.*, 2016).

On the flip side, supervisors need to update themselves in the use of more modern delivery systems, in particular, digital tools to assist in managing the supervision process. Raising the quality of postgraduate supervision in order to support student learning in attaining lifelong learning skills is an important factor in motivating students to persist in research training endeavours.

Students are also challenged by the quality of supervisors' support in graduate research programs. The question being asked is one of the relevance and value, that is what value can today's supervisors add beyond mere facilitation and guidance for students in a 21st century future oriented context. We have already made reference to their assistance in supporting new learning pedagogies such as life long, self-directed and action learning methodologies. Recent studies however probe the role of supervisors in helping students navigate the complexities of modern graduate learning, managing change and transition, future uncertainties and the post-doctoral and masters phase, particularly how to manage research (Franken, 2012; McAlpine, 2016).

Students still struggle with technical support issues such as methodologies and techniques required to conduct research and the process involved in writing. Earlier studies outline students' perspectives regarding challenges encountered in thesis discussion of results of research. Supervisors too complain about the scope of students' limitations ranging from deficiencies in understanding of the use of function or use of discussion results, difficulties with the processes involving the writing structure, understanding thesis requirements and gaps in the literature. Furthermore, there are limited language proficiencies especially with international students. Students cite possible reasons for these difficulties from the quality of supervisors' feedback being of a general nature, along with linguistic and cognitive differences in expression, and writing discussion results (Bitchener and Basturkmen, 2006).

International students are especially affected. In one study of students pursuing masters research degree programs in New Zealand, a number of special case studies were used to trace their transition or "re-situated" experiences, and how their unique knowledge and skills were shaped or impacted by the research process (Franken, 2012). Difficulties were encountered with students "knowing" versus "situating" a problem, i.e. their abilities relating to identifying a research or topic as against proposing the right questions with this topic area.

In addition students were challenged in adequately justifying their research proposals. It would appear that for many students, the reason for pursuing their research areas were often clouded by their own personal objectives, goals and expectations, rather than being grounded in the reality of what could reasonably be attainable under the demands of a rigorous program with serious time constraints. Moreover, there were concerns with students integrating new learning and newly acquired knowledge and applying it within the context of the research

problem. All these indicated the degree to which students are challenged in their transition and journey of becoming researchers (Franken, 2012; McWilliam and Singh, 2002).

In another study of perspectives of students and supervisors regarding literary and writing requirements of postgraduate research students conducted in South Africa, only 23% felt they attained the required standard. Specific difficulties encountered by students included language and linguistic diversity issues. Supervisors identified academic styles and genres, such as descriptive versus argumentative writing, thesis versus technical reporting and lack of critical thinking skills as major problems. However, surprisingly, only 45% were of the opinion that academic writing requirements was necessary, and those who did, a large majority of 84% felt strategies to improve were only partly successful at best (Butler, 2011, 2010).

Support in post-doctoral phase. Support in the post-doctoral phase is also becoming an area of increased focus in more recent studies. Many seem unaware of the significant challenges and difficulties experienced during the period from graduation to the attainment of the first grant funding. Students in the post-graduation period have to balance the pressure to identify research gaps in order to have meaningful research impact as against the “publish or perish” principle with urgency to ensure hiring, tenure and promotion opportunities (De Rond and Miller, 2005).

Studies are now examining coping strategies being adopted by graduates, but more importantly what support institutions can offer. One recent in-depth study identifies the important features of this period as being more of career leadership phase dominated by the urgency to generate funding, academic papers, broadening networks and engagement with others in academia in the pursuit of professional objectives (McAlpine, 2016).

Graduates need to develop their own unique coping mechanisms. Recommendations from the study advance the need for students to develop greater independence and autonomy-specifically to build on important qualities of resilience, self-reliance and to be their own change agents.

To achieve this, postgraduate students will have to implement strategies which demonstrate independence, ability to manage and check emotions, while at the same time building and expanding network. However, students at this level are at a significant disadvantage as the lack of management skills poses a hurdle to effective control over a range of functions such as the supervision of funding process, multidisciplinary and research team management. Tapping into extended networks and informal institutional resource support and exploiting opportunities to train and sensitize themselves regarding the required funding and management skills are important in coping. Supervisors of post-doctoral students can also lend support by pointing them to the relevant training opportunities.

Advancing a student support model for postgraduate research training

The purpose of this paper is to propose a model to assist and guide new research students through all phases of their research study program. It is not the intention for this to be a complex or all-inclusive framework, but rather a simple, easy to understand viewpoint approach which hopefully students will find helpful in navigating the complex systems encountered in modern graduate degree study. This model incorporates elements of new thinking gained from recent research work in this field of study.

This paper undertakes a different approach in advancing the model, by analysing its applicability in the context of the challenges faced by the typical 21st century postgraduate student. The future of higher education is changing where new methods are being used to engage Millennials in business, for example CSR and education, learning and evaluation (Ahmad, 2015, 2018a and b; 2019a and b; Early Cite-a and b; forthcoming-a, b and c). The author acknowledges that the modern graduate research candidate have certain advantages at

their disposal. They are more mobile, have access to resources, technology, information and are more culturally and ethnically diverse (Neumann, 2002). Despite this, students at this level are still struggling with high dropout rates and long completion times.

Ahmad's student support model

The best way to help a student graduate is to admit only the students who are college-ready and motivated. Even when colleges admit the best and brightest, there are still a number of students who do not complete the process. Some reasons are unavoidable such as medical reasons, family needs, etc. However, there are many other reasons which the university can plan to avoid.

Therefore, the university should plan accordingly because when students fail to complete their graduate degrees, it is a loss, not only for the student, but also for the university.

The proposed model can help the university to devise a strategy which will help them create a learning environment which would help students to complete their degrees. While the model proposed focuses primarily on doctoral candidates many of the findings may apply to student working on research based Master degree.

First thing university can do is look within and see what are the issues unique to the institution and rectify them. In other words, the university needs to create a systematic guide that assists a graduate student avoiding the common mistakes made by students in graduate school. This way, the students can learn from common pitfalls faced by students at that institution and avoid them.

In my view, if a university can apply this model while showing empathy and concern to the students – giving them a listening ear when they complain and try to solve their problems – post graduate research students are more likely to complete their degrees.

As students enter the typical graduate research program, they are faced with a number of competing deliverables which must be met within tight deadlines. They will discover that it will be necessary to carefully manage and balance these priorities given the growing complexities of a modern higher education system. Many will find it hard to cope and may eventually become disengaged from the start of the process.

This carries the reader contemplating embarking on graduate research studies, an overview of the basic input requirements ranging from essential instruction and guidance to core input assistance factors, supported by strong institutional and administrative infrastructure. The objective output result is the “production” of a highly qualified and marketable research graduate who would have completed the program in full and on time.

As depicted in the [Figure 1](#), the model starts with the input being the new (or potential) research students. The first point of contact for the student is their interface with all aspects of administrative services ranging from registration, procedure oriented protocols and procedures. Their second point of critical contact pertains to all matters with teaching and guidance support with faculty members. These initial points of contact depicted at “A” and “B” represents important planks on which students’ transition and eventual success in postgraduate research training will be predicated.

Strong support structures and processes

In order to ensure a strong and robust institutional infrastructure, universities must provide new students with strong support by addressing administrative issues proactively, planning and supporting new learning environments and by supporting the internationalization of the institution.

Students must know beforehand what protocols and procedures are in place for registration and transfer. In addition, there needs to be clear and transparent policies

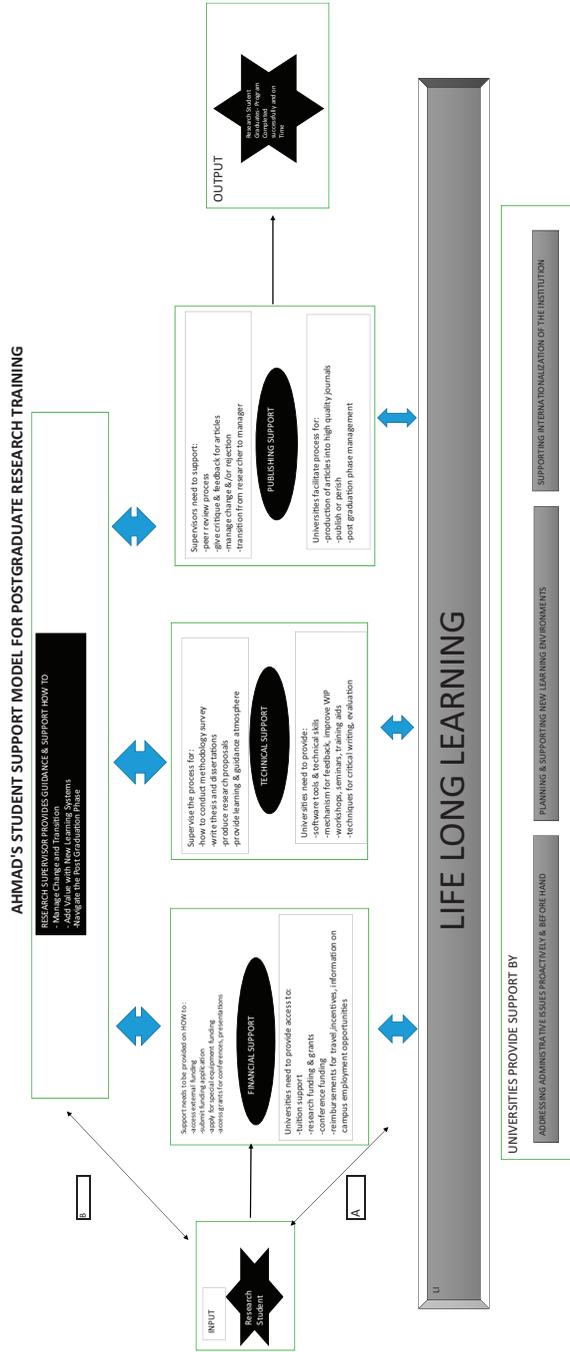


Figure 1.
Tashfeen Ahmad's
Student Support Model
for Postgraduate
Research Training

pertaining to the enforcement of timelines and deadline. Standardization of guidelines and regulation pertaining to recruitment and administrative issues is paramount at this initial stage. Staff in various departments also “needs to be aware of the regulations and best practices for research students” (Carton *et al.*, 2013).

The integration of technology enhanced learning support platforms and digital intelligence systems can assist immensely with this process (James, 2017; James and Leasure, 2017). Author’s view is that universities operating in technology age should make the implementation of digital intelligence systems in their institutions mandatory. This will create a unified “seamless experience” for both students and staff in the provision of multiple services. Students will benefit by accessing a real time information, communication and response mechanism for teaching and learning issues. Faculty staff and administration will benefit by obtaining JIT metrics and analytics for planning, strategic and proactive purposes (James and Leasure, 2017).

Graduate Technology Support Platforms provide additional and useful resources which students can access online which provide excellent assistance in guiding students through the entire process of post graduate programs.

Technology is also disrupting modes of delivery and pedagogical approach in postgraduate programs. Universities must plan to support these new learning environments, such as online, distance and virtual modes. In addition, the experimentation of new learning approaches such as action learning, cohort models, and peer group systems need to be planned in a coherent and integrated fashion with faculty, supervisors and administrative staff (Deshpande, 2017; Marchand, 2017).

Supporting internationalization of universities is also critical in the context of globally integrated environment. Strong institutional capacity building strategies such as the forging of relationships and networking partnership links across universities is vital to building stronger internal processes and in attracting external funding (Anderson and Lemke, 2018; Carton *et al.*, 2013). Students need to recognize these institutions with strong ecosystems to enable them to take advantage of high quality research training and enhance their chances of completing their degree programs on time.

Obtaining relevant supervisor guidance and support

The role of supervisors has evolved over past decades. In the context of 21st century HE learning environment, researchers have begun to question their role beyond mere guidance and facilitation. It is recommended that students pursuing higher degree programs in a 21st century future oriented environment, question the value supervisors can bring to the process. This paper suggests that student’s measure supervisors’ importance in process by evaluating the help received in guiding and supporting them to:

- (1) Manage change and transition
- (2) Add value with new learning systems
- (3) Navigate the post-graduation phase

Much of the contemporary research studies on the value added role supervisors can offer to today’s modern graduate program seem to centre on these three issues. Students want to know how best to manage the complexities and uncertainties with modern graduate learning (Franken, 2012; McAlpine, 2016). Furthermore, given technology disruption and new pedagogical approaches, students are interested in the value supervisors can offer in adapting to new systems, in particular, the onset of action learning, peer group and most recently, the effectiveness of “joint supervision aka collective academic supervision (CAS) (Agne and Morkenstam, 2018).

More notable, students need guidance in the post-graduation phase to deal with issues of managing research and being able to acquire the necessary management, networking and supervisory skills to cope with an academic career life. Supervisors who can assist students in pointing them to the necessary institutional training facilities and workshops and seminars to increase these skills levels will become increasingly important (McAlpine, 2016).

Addressing the gaps

Address the gaps in how these objectives of strong institutional processes, structure and supervisory support will be attained. Look at the various input requirements of financial, technical and publishing support and the strategies and methodologies used to solve them. Proposed model indicates how the constant interaction of various supervisory, faculty and institutional support strategies can be implemented to support the student through the many challenges. No one model or framework will present a perfect solution for all problems, but represents the range of factors which students must consider prior to embarking in today's research training journey. Strategies and methods will constantly adjust reacting to changes in the HE landscape. Universities should consider this model to improve student support system at the postgraduate level.

The importance of lifelong learning

Critical to the framework is the importance of lifelong learning for all parties concerned. There are multitudes of models and frameworks advanced in the past decade on how best to address these gaps in financial, technical and publishing support. The apparatus, model or conceptual framework capabilities to deal with a lot of these issues exist.

However the methodologies or approaches used tend to vary over time. What seems increasingly clear in the present context of modern higher education is the notion that regardless of the delivery methods, learning environments, all participants within the HE will have to remain flexible, adaptable and be able to motivate themselves to learn new methods of improving the research training experience.

The education landscape is evolving at an alarming pace, precipitated largely by advances in technology and the future of work. Students will have to continuously update their skills sets and motivate themselves how to acquire new knowledge in order to adapt in the 21st century. Faculty supervisors will also have to equip themselves with modern delivery and technology systems, constantly update their educational ecosystems to improve student experience. This will call for exceptional discipline on the part of students, and strong institutional support to enhance this new kind of learning on a continuous basis.

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