Harnessing the Hope: Tapping into the Energy of Emerging Scholars in Cambodian Higher Education

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Abstract:
This study was conducted amongst final stage masters' research students at one Cambodian university. The study reveals a strong self-belief in their capacity to conduct research which will be taken by many of them into their own university teaching. Cambodian masters students have limited opportunities to experience teaching or research skills development from academic staff that has been informed by experience and knowledge gained from outside Cambodia. The danger of recycling into next generations of scholars the current limited research skills learning can be addressed by increased opportunities to experience approaches to learning beyond those currently available. The strongly positive self-belief amongst these future researchers and academics provides an energy that can be the basis for growth and development when paired with expanded learning experiences provided outside the current Cambodian higher education sphere.

Key words: research skills development, Cambodian postgraduates

1. The Cambodian Higher Education Context

Seen as a one of the 'surest and best paid prospects for employment in the country' (MakNgoyEng 2010, 18) employment as an academic at a Cambodian university officially requires an individual to hold a masters level degree. Although there are many who teach in the numerous Cambodian universities without having attained this official minimum qualification, the acquisition of a master's degree is viewed by many as a way of gaining entry to previously inaccessible career opportunities (Walker 2012).

Within universities in the developed nations the professional role of an academic has traditionally consisted of three components - teaching, research, and community service. Changes within the university

sector in developed nations in the recent decades has seen some shifts in this model with some staff being employed as research-only faculty as universities have sought to increase research output, often, but not only, in response to government funding agendas. Academic staff in the rapidly expanding Cambodian university sector, have almost without exception, been focused on teaching(Kwok, Chan, Heng, Kim, Neth& Thon 2010). Payment of university teaching staff is based solely on the number of teaching hours – this payment does not include time for lesson preparation time, marking time or student consultations. With the usual monthly salary as a civil servant at a government university below the level needed for basic living(Howe& Ford 2011)many academic staff will teach at two or more universities to supplement their incomes and to generate a liveable wage.

As a country with rapidly expanding numbers of students enrolling in university Cambodian universities are struggling to staff their classes and as such, masters' graduates can find employment teaching in a classroom with relative ease. Between 1997 and 2006 student enrolment numbers increased more than tenfold (Kwok et al 2010). The need for staff to teach this burgeoning number of students pursuing higher education qualifications has resulted in a large, casualised workforce of staff working for hourly rates of pay. Civil service status with its attractive income security is attained by those employed as fulltime staff at government universities. Those employed in administrative functions within the university can also supplement their income by part time teaching.

1.1. Teaching and Research

The quality of Cambodian university teaching has become an increasing focus amongst international donor organisations with a number of recent reports highlighting a concern over the limited teaching skills of the academic staff who are often replicating less effective ways of teaching due to their own limited classroom experience or exposure to alternative learning and teaching approaches. An issue for those involved in improving teaching quality, especially amongst the new and recently employed academic staff, has been the recognition that universities tend to employ their own graduates rather than staff from other institutions. Whilst such a hiring practice assists a university to provide the needed teachers for their growing numbers of students a limiting effect of such an action is the recycling of teaching practices and approaches to learning acquired from the same institution. When staff are employed by a university who have learned and also maybe worked in other institutions the opportunity exists for a cross-fertilization of ideas and approaches that can both enrich and extend the department or faculty in which the new staff member is working.

A legacy of the Pol Pot regime that compounds challenges faced in the development of a professional higher education sector was the death or forced exile of Cambodia's academic community. One consequence is the absence of a depth of maturity amongst Cambodian academic staff in the teaching, community service and research work of a university. This absence of depth is also found among the leadership and management of institutions of higher learning. The thin layer ofskilled and experienced national academic staff is stretchedsparsely. The absence of significantnumbers of experienced Cambodian academic role models and mentors for the teaching and research staff has an impact at all levels of an institution's operation.

Compounding the challenge of staffing the rapidly expanding university sector with adequately equipped and skilled teaching staff has been increasing pressure from external donor agencies for universities to become generators of new knowledge and not simply transmitters or adaptors of existing knowledge. Chandler (cited in Umakoshi&Altbach 2004) described the research environment in Cambodian universities as being 'like a blind man left to himself who sets out on his way with no one to take his hand' (p.357) .In a recent scoping study by Kwok et al (2010) of the research activities within seven Cambodian universities it was reported that the research output in those surveyed was 'modest and uneven' (p.33). Currently twenty-three million international donor dollars has been provided by the World Bank (WB) and

made available through the Cambodian Department of Higher Education (DoHE) for improvements in higher education, a significant percentage is allocated to support university staff to engage in research that fits within the specific boundaries determined by the donor organisation.To this end 60 scholarships were created for academic staff (government and private university staff) to attend fulltime postgraduate study in Australian universities, two have were given for PhD study, the remainder for coursework masters degrees. (Department of Higher Education 2012; http://www.worldbank.org/projects/P106605/higher-education-quality-capacity-improvement-project?lang=en)

In light of the current situation where masters graduates are frequently employed as teaching staff by their own awarding institutionand with the growing international and nationalfocus on Cambodian universities becoming generators of new knowledge rather than mainly purveyors of existing knowledge, a study surveying current masters students' experiences as research students was conducted at a large city university. A number of these postgraduate students were already employed in the university sector to teach, others will likely seek employment in the years ahead in one or more of the country's universities. Those who are, or will be, working in a Cambodian universitywilllikely find themselves working as academic supervisers of undergraduate and postgraduate research students enrolled in a research project as part of their studies. Theattitudes and experiences of these future academic staff whose thinking about research and teaching has been informed bytheir own experiences as postgraduate students is of immediate relevance. Their skills and attitudes will be taken by them into their own university classrooms and supervision relationships, and are likely to be transmitted to the next generation of students and potential researchers.

2. Development of Research Skills

Bloom's well known taxonomy of learning (1950) proposed that learning occurs within six hierarchical levels from the simple to the most complicated. The six levels of cognitive development he labeled as knowledge, comprehension, application, analysis, synthesis and evaluation (Churches, 2008). His material has been used extensively in educational systems to encourage teaching strategies designed to equip learners to develop skills and knowledge at all levels. His notion of sequential or hierarchical levels for an individual's learning was similar to Piaget's. Differing from the continuum idea developed by Piaget with its chronologically defined sequences, Bloom's taxonomy focuses on the types of learning experiences that will assist a learner develop and they are not confined to any chronological or aging process. The study conducted by Roberson and Blackler (2006) confirmed both theories distinguishedbetween learning development at different stages of learning at school and were operating in the simple level of knowledge, comprehension and application, while university students had higher skills of analysis, synthesis and evaluation.

Educational theories related to cognitive development and learning underpin the development of research skills. Willison and O'Regan (2009) viewed research skill development as being a process that occurred along "a continuum " (p.5). Research students learn to do research or conduct research to construct their knowledge and understanding beyond their current level. They must possess the skills of learning to learn as well as the knowledge of their specific field of study in order to develop their research skills. The two sets of skills, study and research, are parallel each other. The Boyer Commission (cited in Healey and Jenkins, 2009) stated that "the basic idea of learning as inquiry is the same as the idea of research" (p. 15). Willison and O'Regan (2009) developed the Research Skills Development Framework (RSDF) which consists of six facets of the research process:

> students embark on inquiry and so determine the need for knowledge/understanding, find/generate needed information/data using appropriate methodology, critically evaluate information/data and the process to find/generate this information/data, organize information collected/generated, synthesize

and analyse and apply new knowledge, communicate knowledge and the process used to generate it, with an awareness of ethical, social and cultural issues (p. 5).

Research skills are not innate and require systematic learning (i.e. Willison and O'Regan , 2009; Skerritt, 1987). Willison and O'Regan (2009) described five levels of student autonomy in the process of learning and development. Autonomy was identified from the lower level of dependent, closed inquiry to the more advanced level of independent and open inquiry. The divisions they identified were based on the student's ability and skills to carry out research in the specific discipline. This notion was underpinned by the work by Vygotsky (1978) who suggested that the interaction between the external factors and those inside the learner's pre-existing knowledge structures enabled the learning process to occur. He called this the zone of proximal development (ZPD). He added that "Instruction must awaken and bring to life those functions that are in the process of maturing, that is, those in the zone of proximal development" (p.111).

2.1 Factors Impacting Student Research Learning

From this brief review of educational learning theories and the RSD, it is possible to conclude that research knowledge and skills are complicated and demanding. To nurture them, both institutional and individual factors contribute to an individual's research skill development, these dual factors are closely related and interdependent. There are three factors that can influence student research outcome, they are; 'institutional and structural issues', 'individual but non-psychological characteristics', and 'individual factors intrinsic to the students' (Wright & Cochrane, p. 184).

In a survey of the literature, several institutional factors, for example, the research methodology course, workshops, supervisor –supervisee relationship, and the lecturer's involvement in research were found to contribute significantly to a student's research development and growth. Research methodology training courses are the means by which students develop their research knowledge and skills, motivate them to further their study, and increase their interest of their professional field (e.g. Lopatto, 2004; Ishiyama, 2002; Kardash 2000; SERC, 1983). Obviously, students need specific research knowledge and skills prior to conducting their research. These the students generally acquired through being taught through research training modules and/or opportunities to develop skills through assigned learning tasks. Skerritt's (1987) case study of a group of students found that the courses and workshops on research methodology helped a student to learn specific and appropriate skills. Apart from the research methodology course, skills-focused workshops were another factor found to facilitate the development of students' research skills. The essence of the workshops was to help research students learn (1) specific requirements, expectations and standards of methods (2) identify problems in the various research methods (3) explore their metacognition of the research process and of their personal constructs of research (Skerritt, 1987, pp.77-78). A case study designed to evaluate the effectiveness of the workshop to help students build up the specific skills in the problem definition and writing the first draft of the thesis writing gained positive comments from both the students and supervisors. The workshop was usually conducted after identifying the specific student need, "practical guidance and psychological support in workshops is of particular value"(p. 86).

A further factor which may also be considered as the final step to assisting students learn through actually doing research, is the role of the supervisor. The supervisor plays an important role in helping students to accomplish their work (Kian-Woon, et, al., 2010; Krauss & Ismail, 2010; Wright, 2003; Pearson & Brew, 2002). Postgraduate students have acquired research knowledge and skills however they may not know how to relate their pre-existing knowledge and to apply their internal knowledge to a new context. They need guidance or scaffolding to move to a new understanding beyond their current level. In this situation the supervisor role is that of the more advanced or knowledgeable 'other'.

Apart from institutional factors, numerous authors have noted the correlation between individual factors and students studies and research outcome (i.e. Walker, 2012; Wright 2003; Wright and Cochrane,

2000). The study conducted by Wright and Cochrane (2000) with 3579 postgraduate of students found that individual factors such as age, financial support, and background of first degrees were related to their completion rates. They reported the students of a younger age, with adequate financial support, and strong background knowledge in the field were more likely to submit successfully than those outside this category. Further, by comparing the condition of students particularly part time and international students, they suggested that the individual investment in terms of 'money, time, and effort as well as the psychological challenges they faced" (p. 191) partly contributed to research success. Similarly, Wright (2003), summarized from his literature review on poor completion rates that "the quality of the student, personal and individual issues other than study problems, as well as research problem, supervision, and teaching all interconnected and contribute" (p.210). His study found a correlation of several individual factors and students' submission rates which confirmed past findings.

In his study Wright compared final thesis submission with the variables of individual factors: difficulties during the period of study, difficulties with personal life during the period of study, and difficulties with work during the period of study. He reported the high percentage of students with no difficult individual experiences were more successful in submitting their thesis than those who reported having such challenges. Based on students' comments, the challenges of personal life difficulties were found to be: their work and family responsibilities; finding time to invest in their studies and research; and an unsupportive environment either workplace or family. Other than those difficulties, motivation and commitment were other factors that impacted on the likelihood of submission of a completed thesis. Wright found the influence of them receiving an increasein their academic status was an important motivator on students decision to undertake research, which he also saw as a driving force of their successful completion.

Similarly, an exploratory study conducted by Walker (2012) with a group of postgraduate students in a Cambodian university identified some individual factors underlying their decision to enroll in a weekend program of fulltime postgraduate study which included their work and family responsibilities. Consequently, she expressed concern about the quality of learning due to the time constraints of students' lives to invest in deep learning. Those factors may directly affect their study and research outcomes. Conversely in the face of those difficulties, the students had made a considerable financial commitment their graduate study (up to one third of their annual income for fees) because of a widely held view that the degree promised good future career opportunities.

3. Method

A pool of masters students (n=108) across one Cambodian university's seven different programs – the sciences, and humanities and languages – was identified to be in the final stages of their masters study program. They had completed most of their coursework and were conducting a small independent research projected to be submitted for examination. These students were approached through their particular faculty to participate in completing an anonymous survey available in either pen and paper form (in both Khmer and English) or as an online questionnaire(in English). In selecting participants for the study "the participants who can best add to the understanding of the phenomenon under study" (Gay, Mills, &Airasian, 2009, 135) were identified. The location for the sample was a convenience location whilst the sample was purposive, and criteria were employed for this study in which the participants were judged to be "thoughtful, informative, articulate, and experienced with the research topic and setting" (Gay, Mills, &Airasian 2009, 135). A response rate of 40% provided the data for the analysis and discussion below.

The researcher-developed questionnaire included general demographic information, 36 Likert scale statements, and one open-ended question. The Likert scale statements were adopted and adapted with permission from the work of Willison, Schapper, andJinTeo, (2009) and Wright (2003). The statements (see the Tables1,2,3 and 4) focused on the four topics of research skill development identified from a scan of

relevant literature (General Research Skills, Attitude towards Research, Institutional Factors, and Individual Factors). Using a scale of 1 (strongly disagree) to 5 (strongly agree) participants selected their responses to a series of statements indicating their level of agreement prefaced by the phrase 'Based on my recent experiences...' The questionnaire was piloted twice and the final instrument was a refinement of wording and layout based on feedback. The single open-ended question sought the participants' responses to the question 'Based on your recent experiences, what would you say are some of the difficulties for the beginning researchers in learning about how to conduct good quality research?'

Translation from English to Khmer was done by the researcher and the back translation from Khmer to English was by a professional translator. This was done in order to ensure the meaning of the original English statements were as close to the original as possible.

4. Findings

The rate of responses from the different masters programs (Education 18.6%, Development Studies 11.6%, Psychology 23.3%, Sociology 11.6%, TESOL 11.6%, Chemistry 20.9%, and Bio-diversity Conservation 2.3%) were too low for the responses to be meaningfully analysed by program so analysis has been of the total response pool.

Female respondents accounted for 23% of the responses, 67% of respondents were aged between 25 and 34 years, 63% were married, 70% worked 7 – 9 hours a day (ie were fulltime workers), and less than 36% of the respondents had no children.

The responses to the clusters of statements focusing on individual student's perceptions of their own research skills are seen in >TABLE 1<.

The findings in this table underline the existence of a high level of self confidence in the respondents' belief in their own ability to be a researcher. This is added to by the largely positive responses reported in Table 2 which focused on their self-reported attitudes towards research >TABLE 2<.

The table above highlights a generally held positive belief in the value of research for both personal benefit (the belief that having such skills will enhance career opportunities see in S12) as well as the potential contribution of research to outcomes that are considered useful and of some value (S13).

Table 3 reports the responses of the participants to the statements that focused on student perceptions of the role and importance of institutional factors in the development of their skills as a student-researcher. There is a much sharper and more obviously diverse spread of responses in this and Table 4 possibly reflecting the differences between individuals, their life stages, and individual student expectations of institutional support for the individual student >TABLE 3<.

Clearly evident in the responses above was a strongly felt dissatisfaction with the lack of access or provision of internet-based resources identified as necessary by student-researchers to engage fully in a process of inquiry. Consistent with other reports that have highlighted the resource challenges facing Cambodian universities these students reported negatively on their limited internet access, e-journal access, and access to books.

Table 4 reports on a range of individual factors and the respondents' belief about the role that they had in their experiences as a student-researcher. Of interest is the self-reported belief in their capacity to conduct individual research (S25). Of note is that just over half of the participants reported having the required level of English language skills to effectively engage in their research (S29). As the international language amongst researchers and in much of the research literature English language competence clearly is needed for researchers to be able engage with the wider research communities >TABLE 4<.

4.1 Findings and Discussion

One challenge in analysing this data is the difficulty of interpretation of the responses labelled 'UNSURE'. The relatively high numbers of responses in this category for many of the statements identifies areas for future inquiry using data collection methods that will permit more detailed analysis, for example face to face interviews.

The demonstrated research skilfulness of individual participants as may be measured, for example, by the grade awarded a final research paper or a report of progress from a superviser is unknown but clearly the participants held strongly positive views of their own skills and abilities in the research process (Table 1). These attitudes have been shaped by a wide range of experiences including the type and amount of feedback from their peers and university academic staff.

4.1.1 Open-Ended Question Analysis

The written responses to the open-ended question were analysed for emerging patterns and three major themes were identified; Skills and Knowledge; Resources; and Graduate Program. In contrast to the positive self-confident responses to the Likert scale statements on their personal sense of skilfulness and knowledge (S1- S9), comments made to the open-ended question revealed patterns of concern with individual's understanding and managing the research process. Comments that revealed disquiet included 'lack of knowledge and skills for conducting research', 'questionnaire development, analytical methods and research design' and, 'hard to synthesis (sic) literature'. A range of specific research skills were named in the written responses including individual's expressing an awareness of their lack of skills in conducting literature reviews, reading the literature, statistical analysis, identifying a clear research objective, using appropriate referencing, and writing the discussion section of a paper.

The sequence and the structure of the formal study program were features that attracted comments from the participants. Comments about the timing of the research methods course were made indicating a preference for an earlier introduction to the various research methods. Opportunities to rehearse the various skills that make up the portfolio of a researcher was also identified, and the opportunity to practice and receive feedback in small steps before being faced with the daunting task of an individually designed and driven research and the generation of a thesis was mentioned.

> The course of research methodology is not just theory but had no practice. It means that the students should be trained on how to do small research with small selection technique data generation, analyse before conducting full research for thesis. (Master's participant)

A further focus of respondents' comment was the nature of the supervisor-student relationship and supervisor availability. Several positive comments were made about supervisor-student experiences. The majority of comments were negative and focused on two key features of the supervisor role: time and availability; and supervisor support. The role of the supervisor as a motivator and encourager of the research student was identified by a number of respondents as a valued skill and one they had not experienced in the course of their own research. Lack of supervisor time and skill in working with a research student was a repeated pattern in the written responses illustrated by the following comment.

> ...supervisor do not have enough time to guide student, he only tell us that is not enough you need to revise. (Master's participant)

One written comment was made about the lack of research-active academic staff and the resultant perceived impact of this on the staff members' ability to teach and supervise well. The timeliness and accuracy of information from the different departments about the form of the thesis and the assessment demands of the research paper was a source of anxiety for a number of respondents. Information dissemination to students in a timely manner by the various departments that also recognises masters students are usually full time workers with limited time flexibility was commented upon.

Consistent with the response in the Institutional factors (S16 – S22) were negative comments about the resources made available to assist the students in their research. The focus of students' comments was largely on the lack of internet and journal access, supportive of the results from the Likert scale responses.

A minor theme of students self-perceived English competency - paired with the responses to the statement (S29) - raises an important issue for further inquiry. Student awareness of the demands on a person's English language competency in the development of a research proposal, literature review, and thesis writing is evident in comments from several of the respondents. This raises topics beyond the scope of this report but that include the debate about the language medium of teaching and learning especially, but not only, in higher education, and the impact of internationalisation of education on decisions about the language of instruction.

The study revealed high levels of self confidence amongst those who will make up the next generation of university academic staff. There is a widely held self-belief that they can conduct research and that they value research.

The finer details revealed in the individual responses to the open ended questions provided some insights into experiences that have been unhelpful in their growth and development as researchers. For example, the comments about the lack of supervisor time and inadequate skills in motivating a student-researcher may, in part at least, be explained by the reality of an academic's work life where payment is for teaching hours, and one-on-one academic supervision does not, in most cases, fit within the institution's definition of 'teaching'. Those providing the supervision have, in most likelihood, been supervised by another Cambodian academic who likewise works under the financial necessity of generating teaching hours for a liveable income and have little time or energy to commit to developing productive skills in supervision. It is easy to see how a cycle of ineffective practice is reinforced by external forces (in this case economic) as well as ignorance based on limited experience.

Most evident from this study is the positive self belief amongst those who will make up the future academic staff of Cambodia's expanding university sector. This self belief can be a useful source of energy to tap into and channel as universities attempt to become places where new knowledge is generated. One obvious limitation of a positive self-belief, especially one founded on limited experience and information, can be an unwillingness to change or challenge a currently held view. This can be altered with opportunities for staff to have experiences in institutions in other countries, for example, through participation in professional development workshops, and through attendance and participation at conferences.

A challenge facing Cambodian universities and their staff as they seek to enter and gain a foothold in the international arena of research will be the capacity to review and amend previous understandings about individual and institutional research capacity after exposure to broader experience and knowledge. Howes and Ford (2011) in writing about one large government Cambodian university wrote that

> ... Cambodia remains relatively isolated from the rest of the world. The staff and students of (university name) are on the periphery of the global knowledge systems. The growth of private sector higher institutions that attempt to attract the best and brightest of Cambodian students away from their national universities only accelerates that peripheralization. The connection of Cambodian institutions such as (university name) to the global ocean of knowledge is a very small stream that is both slow and expensive to navigate. This is true in both an actual as well as figurative sense. Cambodia has one of the lowest rates of Internet connectivity with one of the highest pricing structures to access such connectivity. (p.168)

Isolation from the broader academic communities is a major impediment to aspiring researchers and academic-researchers. Compounded by the absence of mature, experienced Cambodian researchers and academics there are dangers that this youthful enthusiasm will fail to mature into an informed, considered and broadly experienced energy needed for the country's development.

Tapping into the youthful energy and enthusiasm amongst her young emerging scholars is a vital task for Cambodian policy makers, higher education leaders and senior management. Tempering the positive self belief amongst many young academic staff with wisdom gained by broadening an individual's experience through opportunities for engagement with the international community of researchers and writers can only be of positive benefit to both the university sector as well as the broader nation. This will be of most benefit to the country as issues of institutional independence, academic freedom, and researcher autonomy are addressed.

Even more important for Cambodia is the provision of opportunities for young scholars to meet and be mentored by older, experienced scholars within their own sphere of study – such opportunities being largely absent from the Cambodian higher education sector due to the historical events of 30 years ago. This absence of an experienced, matured layer of academics within the higher education sector leaves a void of wisdom and historical memory the impact of such a deficit has been little understood by most other countries' higher education sectors.

The findings of this survey point ahead to a range of strategies that would better equip Cambodia's young emerging academics and researchers. Whilst few of the findings are new, with most being reported in similar studies, the positive picture of the energy, self-belief and interest of the next generation of Cambodian researchers in research as a benefit to the country is heartening and provides a fertile foundation for growth and development.

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TABLE 1

Summary of students' perceptions of their own research skills.

Statements	Broad Disagreement	Not Sure	Broad Agreement
S1. My general research skills are good	7.2% (3)	28.6% (12)	64.3% (27)
S2. I am able to do research in my subject area at the university	0.0% (0)	16.3% (7)	83.8% (36)
S3. I am able to ask clear, researchable questions in my subject area	4.8% (2)	14.3% (6)	80.9% (34)
S4. I am able to design research that provides useful information	4.8% (2)	21.4% (9)	73.8% (31)
S5. I am able to make good judgments about the usefulness of my research	4.7% (2)	18.6% (8)	76.7% (33)
S6. I am able to effectively evaluate the quality of data that I generate	4.8% (2)	23.8% (10)	71.4% (30)
S7. I am able to write my research results clearly	4.7% (2)	25.6% (11)	69.7% (30)
S8. I am able to organize information from different sources	2.5% (1)	20.0% (8)	77.5% (31)
S9. I am able to orally present my research results clearly	2.4% (1)	19.5% (8)	78.1% (32)

TABLE 2

Summary of students' attitudes toward research.

Statements	Broad Disagreement	Not Sure	Broad Agreement
S10. Research is an activity that I am happy to be doing.	5.0% (2)	12.5% (5)	82.5%(33)
S11. The ability to research is important for my current master's study.	2.5% (1)	0.0% (0)	97.5% (39)
S12. Having the ability to do research will be important to job opportunities.	5.0% (2)	7.5% (3)	87.5% (35)
S13. Research is an activity that has useful outcomes.	5.0% (2)	2.5% (1)	92.5% (37)
S14. Research is an activity that has trustworthy outcomes.	5.2% (2)	26.3% (10)	68.4% (26)
S15. Research is an activity that helps me to understand the world.	2.5% (1)	10.0% (4)	87.5% (35)

TABLE 3.

Summary of institutional factors.

Statements	Broad Disagreement	Not Sure	Broad Agreement	N/A
S16. I received enough training in research methods in my masters program.	14.6% (6)	26.8% (11)	58.6%(24)	
S17. I received appropriate encouragement from my supervisor.	12.2% (5)	22.0% (9)	65.8% (27)	
S18. I felt encouraged by my fellow students.	7.5% (3)	32.5% (13)	60.0% (24)	
S19. I received skilful supervision for my research project.	7.5% (3)	25.0% (10)	67.5% (27)	
S20. The internet resources at the university were adequate to my research needs.	51.2% (21)	29.3% (12)	19.5% (8)	5.4% (2)
S21. The research seminars offered by my program were useful for my development as a researcher.	26.8% (11)	14.6% (6)	58.6% (24)	5.1% (2)
S22. I had adequate access to resources at the university for conducting research.				
S22(i)e-journals	35.1% (13)	29.7% (11)	29.7% (11)	10.8% (4)
S22(ii) reading materials (books, hard copy journals, reports, etc)	12.8% (5)	23.1% (9)	59.0% (23)	21.6% (8)
S22(iii) photocopying	24.3% (9)	27.0% (10)	37.8% (14)	
S22(iv) laboratories (if applicable)	29.7% (11)	27.0% (10)	21.6% (8)	

TABLE 4

Summary of individual factors

Statements	Broad Disagreement	Not Sure	Broad Agreement	N/A
S23. I had adequate access to my own resources for conducting research.				
S23(i) e-journals	25.0% (9)	13.9% (5)	61.1% (22)	0.0% (0)
S23(ii) reading materials (books, hard copy journals, reports, etc)	8.1% (3)	16.2% (6)	73% (27)	2.7% (1)
S23(iii) photocopying	15.8% (6)	23.7% (9)	57.9% (22)	2.6% (1)
S23(iv) laboratories (if applicable)	28.9% (11)	26.3% (10)	23.7% (9)	21.1% (8)
S24. I managed my work & personal time well to have adequate time to conduct my research.	10.3% (4)	25.6% (10)	64.1% (25)	
S25. I am motivated to find out new information independently.	7.3% (3)	7.7% (3)	84.6% (33)	
S26. My research will contribute to my field of study.	2.5% (1)	12.5% (5)	85.0% (34)	
S27. My family has been supportive of my study and research.	5.1% (2)	7.7% (3)	87.1% (34)	
S28. My health has been good for me to study and conduct my research.	7.5% (23)	20.0% (8)	72.5% (29)	
S29. My level of English skills was adequate for my study and research.	5.0% (2)	37.5% (15)	57.5% (23)	
S30. My working experiences were relevant to my postgraduate study.	5.0% (2)	15.0% (6)	80.0% (32)	
S31. My working experiences were relevant to the field of my research.	7.7% (3)	12.8% (5)	78.7% (31)	
S32. My hours of employment have not affected my ability to study and research.	15.0% (4)	45.0% (18)	40.0% (16)	
S33. I could afford to meet the costs involved in conducting research.	17.5% (7)	25.0% (10)	57.5% (23)	
S34. I was encouraged by my work colleagues.	20.5% (8)	33.3% (13)	46.1% (18)	
S35. My supervisor was very encouraging of me.	12.9% (5)	20.5% (8)	66.6% (26)	
S36. I am very interested to find out new knowledge independently.	2.5% (1)	5.0% (2)	92.5% (37)	