



CHALLENGES AND OPPORTUNITIES ASSOCIATED WITH SUPERVISING GRADUATE STUDENTS ENROLLED IN AFRICAN UNIVERSITIES

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ABSTRACT

In a globalizing economy, education is key to competitiveness and economic growth. Sub-Saharan Africa (SSA) is playing catch up in terms of investing in the human capital needed to participate effectively in the world economy. The Sub-Saharan region is currently engaged in what has been termed as a “catch-up” period as is reflected in rapid growth in investment in education at all levels, with an increased recognition over the last decade of the need for increased number of graduates at the tertiary level. This expansion has implications on the quality of training and research. Key among the factors that can help enhance quality is supervision. Currently, in many countries in SSA, graduate training and research is largely self-paid and students make significant sacrifices to obtain advanced degrees with the expectation that they would finish on time and secure lucrative careers. With this expectation, supervisors have an enormous task of ensuring quality mentoring. It is a privilege to hold a faculty position and supervise students; nonetheless, this comes with a great responsibility associated with great expectations from the students. The expectations are targeted to supervisors and the institutions of learning. Although there is still an imbalance on power relationships between supervisors and students, especially in developing countries, supervisors still need to understand and know the student expectations. This way, they can build professionally and healthy long lasting relationships than can spread beyond the supervision period. This paper discusses the issue of supervision, with a focus on different approaches to delivering quality supervision, students’ needs and expectations, and how these can be addressed based on authors’ experiences working at universities from a developing country perspective.

Keywords: Africa, Economic growth, Graduate training, Mentoring, Student supervision, University education.

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This paper presents an extensive review that faculty and students will find handy as part of quality graduate training. With the increasing number of graduate students, higher education institutions must hone their role and provide both ethical and leadership to mold excellence in graduate students.

1. INTRODUCTION

Achieving transformational change in the smallholder economy such as that of sub-Saharan Africa (SSA) countries requires effective institutions, appropriate policies, well supported research and development (R & D), a vibrant private sector, and the translation of knowledge into sustained growth within the context of a national innovation system (Romero, 1995; Filho, 2011). Central to social economic development is a creative, problem solving human resource, particularly important for driving innovation and research to smallholder farming

systems. This would result in an expanding private sector, increasing smallholder productivity through the products of effective research and development capacity, and achieving impact of scale through expanded capacity in non-governmental organization (NGO's) and their support to the private sector. From historical accounts, creative problem solving has emanated from successful graduate student – supervisor relationships. The classic example being that of the DNA Watson-Crick model (Venter, 2007) and more recently ICT enabled applications.

With the realization of the need for quality human-resource to drive the rural and development agenda that is sustainable, African governments have created an environment that has in the last two decades promoted expansion in university education. In a globalizing economy, education is key to competitiveness and economic growth. Sub-Saharan Africa is playing catch up (World-Bank, 2008) in terms of investing in the human capital needed to participate effectively in the world economy (as is shown in Figure 1 and Figure 2) explaining the differences between the economic performance of South Korea and Ghana since 1960, and Africa's economic performance compared to the rest of the world remains abysmal. This period of catch up is reflected in rapid growth in investment in education at all levels, with an increased recognition over the last decade of the need for increased number of graduates. Several countries in Africa have embraced innovative approaches to accelerate the catch-up process. For instance, Rwanda is portraying its economic development as based on a knowledge economy (Rubagiza et al., 2011). Two striking examples in the higher education sector that provide a good representation of trends in Africa are Kenya and Ethiopia. Both Kenya and Ethiopia had only 2 public universities by 1984 and Ethiopia up to 1991. By 2007 Ethiopia had 22 and by 2013 Kenya had 22, adding 15 public universities in that year. In Kenya, there was a university enrolment of about 6800 students in 1983. This grew to 60,000 by 2002 and to 200,000 by 2012. This extraordinary growth reflects a similar growth in graduates from primary and secondary education institutions, the associated demand created, and the higher private returns to a degree at the tertiary level (Table 1).

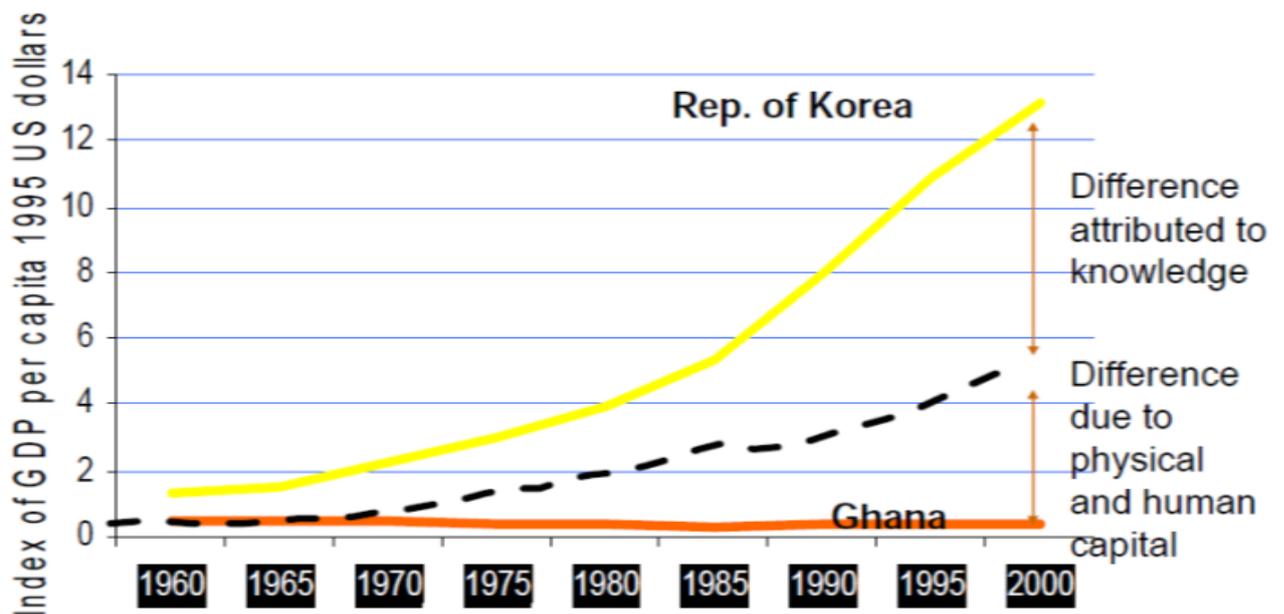


Figure-1. Economic Growth as Determined by Knowledge and Skills

Source: World-Bank (2008)

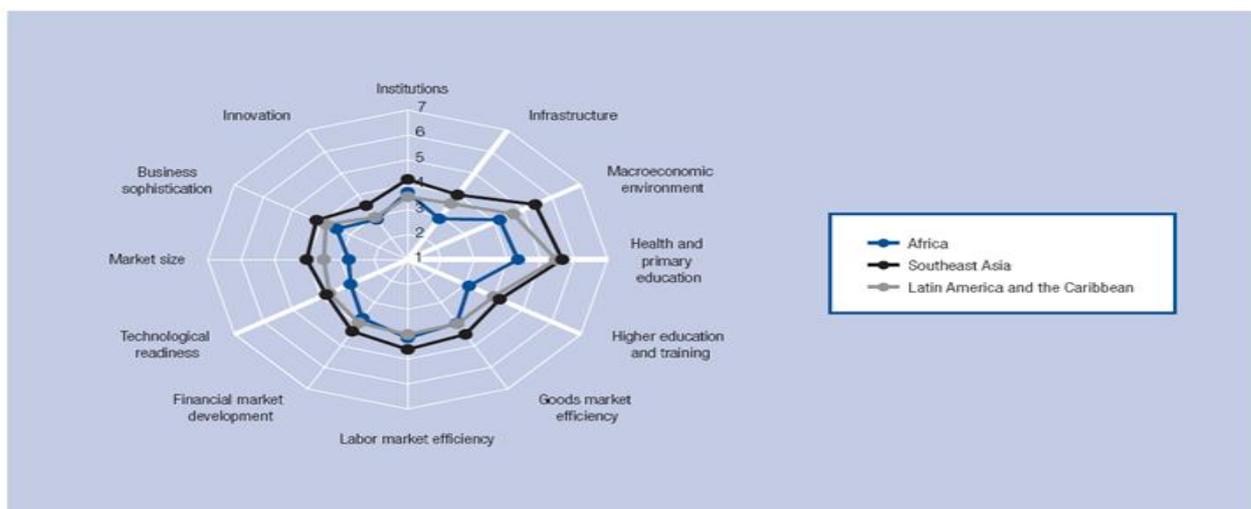


Figure-2. Africa's performance in regional comparison

Source: World-Bank (2013)

Table-1. Private Returns to Investing in Primary vs Tertiary Education

Private Returns to			
Country/region	Primary education	Tertiary education	Authors
World	26.6%	19.0%	Psacharopoulos and Patrinos 2004
Papua New Guinea	6.0%	9.2%	Gibson and Fatai 2006
Philippines	9-10%	17.0%	Schady 2003
India	2.4%	10.3%	Dutta 2006
Kenya	7.7%	25.1%	Kimenyi, Mwabu, and Munda 2006
Nigeria	2-3%	10-15%	Aromolaran 2006
Ethiopia	25.0%	27.0%	World Bank 2003

Source: World-Bank (2008)

The rapid expansion in the number of universities and student enrolments has led to what many term as a crisis of quality in higher education (Oanda and Jowi, 2013). Declining quality of educational outcomes is primarily driven by rising student to staff ratios which in practical terms implies poor mentorship and supervision of particularly graduate students. In Kenya there are 5,186 lecturers for the 160,000 students in public universities, indicating 1 lecturer for 70 students compared to the international standard of 1 to 25 or 30. The situation is summarized in the World Bank report on tertiary education in Africa (World-Bank, 2010). The problem of quality is being exacerbated by the rapid expansion of tertiary education without increasing resources in the same institutions to accommodate such an increase.

An indicative picture of university staffing is a study of private universities and 10 of the older, public universities in Ethiopia (Table 2). Only about 15% of staff in public universities hold doctoral qualifications (and this does not include the newer universities) and as in the rest of East and Southern Africa, a significant proportion of these are nearing retirement (Lyman et al., 2013). The percentage of lecturers who hold Masters Degrees is lower in comparison to those who hold undergraduate degrees; in positions of teaching assistants. The low percentage of PhDs among the academic staff has a number of implications for the overall quality of degree programs. The ability to mount effective post-graduate degree programs is compromised, both in terms of teaching quality, and also the ability to design and undertake quality research. The latter is also related to the ability to establish international linkages and thus to participate in scientific fora and conferences (Lyman et al., 2013). It also limits the ability of departments to carry out quality research, which in turn is critical to the quality of post-graduate degree programs. Finally, and most critically, because universities and other national research institutes are dependent on elite national universities to produce the graduate degree holders to fill the expanding demand for post graduates (MSc

and PhD), declining quality in terms of mentoring and supervision of research and training graduates is perpetuated into the future.

Table-2. Degrees held by teaching staff in 10 public universities in Ethiopia and all private higher education institutions, 2008

Qualification	Total	Female	Total percentage
<i>Public HEIs^b</i>			
Undergraduate	2,159	243	42.3
Masters	1,880	135	36.8
MD/DVM ^c	317	14	6.2
PhD or equivalent	749	45	14.7
Total	5,105 (474)^d	437 (8.6%)	100.0
<i>Private HEIs</i>			
Undergraduate	624	77	56.5
Graduate	409	44	36.9
PhD or equivalent	75	7	6.8
Total	1,108	128	100.0

Source: Semela (2011)

Graduate supervision is a noble activity undertaken by someone in an institution of learning with explicit expectations and accountability to the student and the institution that provides the supervisory relationship (Chiappetta-Swanson and Watt, 2011). The relationship and quality control measures are defined by the university in context based on internationally acceptable standards. Accepting to supervise a graduate student in a research and training program is a great responsibility that has potential to create lifelong friendships. It is therefore, important for the supervisor to understand the student expectations (Mokhtar, 2012). University education is now demand driven. To attract good students, universities have to endeavour to meet the student needs and expectations. This makes the student-supervisor relationships very important. For the supervisors to be able to satisfy the needs and interests of the students, it is important to know what these needs and interests are. At times, there can be serious imbalances in the supremacy relationship between supervisors and students (Chiappetta-Swanson and Watt, 2011). If the expectations of the students must be met fully, then the rules of the relationship should be in the interest of the student who is a key client for the university. Graduate students have different expectations and needs (Cartier, 2011; Çiftçi et al., 2015) and it is not always the case that these expectations are met; it still remains a challenge from the stakeholders point of view (Baneviciute and Kudinoviene, 2015).

2. TYPES OF SUPERVISION

Supervisors assigned to graduate students play an important role in graduate training and research (Halse and Malfroy, 2010). The graduate research underscores the link between the quality of supervision and student progression. The work of graduate research/training supervision has emerged as an international issue in higher education (Halse and Malfroy, 2010). For example, the 'crucial role of graduate supervision' was recognized in a ministerial agreement on the 'Ten Salzburg Principles on the Doctorate' as part of Europe's Bologna Process, and also, at the inaugural meeting of the European University Association Council for Doctoral Education. Better training and monitoring of supervisors has been identified as one of the training areas in Europe to supervision of graduate students (Halse and Malfroy, 2010) and in Australia, increased regulations of supervisory process have altered the role and responsibilities of supervisors. Despite increasing attention to university education and training, there is limited focus on the role of supervisors and a systematic approach of how supervision is done at African universities. Different forms/approaches are used depending on the assigned supervisor and it is possible that this is based on the way they were also supervised during their graduate training and research.

The first form and/or approach to graduate supervision is the hands on approach. Here the supervisors interacts with the students all the time. It often involves collaborative knowledge-sharing activities such as group

supervision, supervision panels, and peer groups (Halse and Malfroy, 2010) and it is common in scientific laboratories. The research work is done in groups consisting of lecturers, teaching assistants, and the students; supervision in such groups tends to be embedded in the research process. The student's research work may be closely linked to the supervisor's research (Chiappetta-Swanson and Watt, 2011). The groups regularly meet to plan the experiments, analyse/interpret data and discuss the dissemination of the knowledge generated. Also, periodically, the students and supervisors meet to discuss on research and study progress (Walsh, 1996). The times when they meet changes as the research progresses, but there is still regular contact between the student and the supervisor. The supervisor gets to read and critically comment on the student's written work and the final drafts are carefully read and the supervisor provides constructive criticism.

The second form of supervision is the hands off approach which is increasingly becoming less common where the students are expected to work independently. The supervisor meets with the students at the beginning of the research process to discuss possible topics for research, after which the students is expected to research on their own. The supervisor only meets with the students on an irregular basis and the students write their theses on their own, though the level of thoroughness remains low (Spear, 2004). Increasingly most African universities have adopted an approach of holding the supervisor more accountable and with this, the hands off approach has fallen out of favor.

Another key form of supervision is what is called "the learning alliance". Here, the supervisor and the student agree on common goals for the research and work towards achieving them (Halse and Malfroy, 2010). It is based on responsibility and relationships rather than rights and rules. This kind of alliance is akin to a contract that stipulates how the supervisor and the student should work together to come up with a researchable topic, research on it, and together help each other in writing the thesis. This form views the supervisor and the student as being interdependent and have the responsibility of promoting the specific interests of each other. However, a cordial working relationship between the students and the supervisors is central to the learning alliance. And while graduate supervision is based on a contractual relationship between the supervisor and the student, its function is to achieve the academic goals of the university in preparing advanced level researchers (Chiappetta-Swanson and Watt, 2011).

3. STUDENT EXPECTATIONS OF SUPERVISORS

3.1. Students expect to be supervised

This may sound simplistic, though it is not as obvious as it sounds; research has revealed that there is a widespread feeling among students that they are not being supervised (Kibwika *et al.*, 2013). For instance, most graduating students are adamant that they receive very little help from the supervisors. This includes supervisors not being readily available to guide the students. The communication between the supervisor and the students is inadequate; often times they feel that they do not have regular meetings with their supervisors and when the meetings do happen, the resulting discussions are less detailed in content and form to enable the students adequately cover their work (Spear, 2004). The supervisor's responsibilities include being available to support the student at all stages in the research process (Chiappetta-Swanson and Watt, 2011). The supervisory relationship between the supervisor and the student has a role in effecting and shaping the emotional and professional developments of the student (Doğan and Bıkmaz, 2015).

3.2. Academic Competence and Enthusiasm

Ideally, supervisors should be academically competent and enthusiastic about the student's research area to be able to guide them properly (Chiappetta-Swanson and Watt, 2011). However, it is sufficient that the supervisor be competent in the general area of the student's research (Spear, 2004) and let the students be free to approach experts in their fields of research. The students need assurance that the supervisor will not get offended if they seek

help from others. The supervisors should support students to get help in those areas where they are not competent; this kind of support may include suggesting to the students the possible experts in the areas the students need to seek help. Most African Universities have taken good practice from universities in the western world and have minimum qualifications for graduate student supervision. For instance, a student at Masters' level can only be supervised by a PhD scholar and a PhD graduate can only be supervised by a team of senior faculty with not less than five years working experience after PhD completion. Nonetheless, with the increasing enrolments of graduate students in institutions of higher learning, there are few faculty members that can meet these requirements in some colleges and universities. This is increasingly becoming more challenging in fields such as climate change, information and communication technologies, and nanotechnology for which Africa has fewer and/or less experienced expertise. This in part contributes to the delays in student completion with faculty carrying heavy loads with reference to student supervision and mentoring. Some supervisors who hold PhD's end up being overloaded by student supervision and do not give their students sufficient direction in their area of expertise.

3.3. Be Available when Needed

The students expect the supervisor to be available when needed for consultation and discussion of academic progress and research (Chiappetta-Swanson and Watt, 2011). Sometimes supervisors maybe too busy with either teaching or administrative work making it difficult for them to attend to students and for students to access them at their convenience. In some cases, supervisors may be allocated too many students to supervise and the supervisors may often be away from the university making it difficult for students to contact them. This may leave students with a feeling of being neglected and not getting enough help from the supervisors as expected. This makes students often complain that they never get to talk to their supervisors. The supervisors have a role and responsibility in bridging this gap. One of the best ways to bridge this gap is to schedule regular meetings with the students. Also, the supervisors can dedicate one day in a week, when they can meet with the students. These regular meetings are recommended at the initial stages of research when students need guidance. Gradually, the meetings can become fewer and irregular as the student progresses and becomes more independent (Spear, 2004). The high student supervisor ratios in many African universities make this ideal difficult to implement however. The supervisor may not be able to fit all the allocated students in their schedule. Many have resorted to meeting their students in groups and discussing their work at group level rather than on individual basis.

3.4. Help in Topic Selection

The expectation for the students to receive guidance on research topics is common. Supervisors often times will guide students to select topics in areas of interest where they (the supervisors) have competence and sufficient intellectual depth (Halse and Malfroy, 2010). Students are keen to complete their studies on time and expect the supervisors to guide them on possible topics to complete within the time limit stipulated by the university (Chiappetta-Swanson and Watt, 2011). Supervisors should strive to approve topics which they know will take the students the stipulated time to complete. Inherently, the students expect the supervisor to tell them feasible research topics and to guide them on how to make the research work manageable. Additionally, students need to be advised on how long they are expected to work on the research, and so the supervisors need to know the university regulations regarding times for submission of dissertations and these need to be communicated to students at the onset so that they can plan their time accordingly. Many universities have written guidelines for students and supervisors. However, these regulations tend to be flouted because of the lack of sufficient numbers of academic staff to do supervision. The practice for example to have two supervisors for graduate students is a guideline that is more often than not ignored because of the constraints.

3.5. Information Regarding University Requirements

Different universities have formal guidelines on research. Besides the existence of handbooks and induction programmes which students do not pay attention to, new students need and expect guidance on university requirements from the supervisors. They expect the supervisors to give them initial advice on formal university requirements for research (Chiappetta-Swanson and Watt, 2011). The supervisors can help the students by advising them about the policies and regulations of their various departments with regard to coursework, thesis and research work, requirements for thesis preparation, and procedures for extending their course, and even suspending it. This requires that the supervisors also know what the university requirements for research are. University should make it a point to provide supervisors with the university regulations and research requirements. It is also not surprising that for most universities there are no explicit guidelines for postgraduates and this is largely in part because universities in Africa were designed to train undergraduate programs. The postgraduate programs are less institutionalized compared to undergraduate programs. The system relies heavily on graduate supervisors to provide guidance with regard to university requirements beyond admission.

3.6. Read Work Well in Advance and Provide Critical Feedback

Students expect timely critical feedback on their research from the supervisors (Chiappetta-Swanson and Watt, 2011). The way in which the feedback information is relayed is very important (Doğan and Bıkmaz, 2015). For instance, some students may feel that they are being criticised harshly and as such maybe discouraged. It is important for the supervisors to provide positive and negative feedback to the students. The students need to be affirmed when their work is good, just the same way they expect to be informed on areas their work requires improvement (Phillips and Pugh, 1994). The criticism given is expected to be constructive; giving students constructive criticism is an essential element of their intellectual development (Spear, 2004). Student often complain of their supervisors being slow in reading their written work, including thesis drafts. In many cases, the dissertation gives a student their first opportunity to write extensively and the supervisors have a role of helping their students develop writing skills, analytical and synthesizing skills (Doğan and Bıkmaz, 2015). Students should be encouraged to submit their work early for proof reading and correction of writing problems. Additionally, the students expect the supervisors to give them written comments and offer an overall evaluation of their writing. Most supervisors tend to focus their comments on specific aspects of the student's work, especially the areas where they feel that the student needs to improve and make little or no comment on those aspects where they are satisfied. Supervisors who are satisfied with students' written work ought to let them know as this serves as a way of re-affirming their efforts. The most common complaints from students about supervisors is that they are not exactly sure what is wrong with their writing or where they are doing it right. Some supervisors only make sweeping comments that do not guide students on which areas of their writing they need to work on. It is important for communication between the student and supervisor to be clear.

3.7. Non-Discrimination

Students expect their supervisors to treat them fairly and equally irrespective of their gender, tribe or disability (Doğan and Bıkmaz, 2015). Supervisors need to be aware that the close contact with students and sharing academic interests with them can easily end up in a relationship with sexual overtones and ensure that this does not result in sexually inappropriate behaviour on either side. If a relationship of this nature occurs with one student, there is likelihood of other students to assume that this student is favoured over the others. It can also become quite challenging when the relationship ends as this is likely to make the student vulnerable.

3.8. Pastoral Care

Most students will expect their supervisors to provide them with some pastoral care, guidance, and counselling (Chiappetta-Swanson and Watt, 2011). They may expect them to give them advice and encouragement in areas that are not strictly academic or related to the research project (Doğan and Bıkmaz, 2015). However, supervisors need to approach this with care; getting involved with the personal problems of the students can get out of hand and some supervisors lack the professional counselling skills to handle such situation competently. It is advisable for supervisors to sympathize but not empathize and know where to refer students if their personal problems are interfering with their dissertation; for example, the university counselling services that are able to help students with some of their challenges in life.

3.9. Friendly and Supportive Supervision

Students expect supervisors to create time for them; they expect supervisors to be friendly and open (Chiappetta-Swanson and Watt, 2011). Especially, during the supervisory meeting, students expect to have an atmosphere where they can easily share their ideas freely (Doğan and Bıkmaz, 2015). However, it is difficult for students to feel free and easy with their supervisors. This is because of different perceptions between the students and their supervisors; supervisors may assume that they are easy and approachable, when the students perceive them to be busy and unapproachable. This is particularly true in African universities where student-teacher relationships are often characterised by deference to teachers. The culture to defer to elders and those perceived to be of higher status tends to stand in the way of the relationship between supervisors and their graduate students. Supervisors have the responsibility of creating a friendly atmosphere when they can interact freely with the students e.g., organising research seminars where all their students get together to talk about their work in a relaxed manner. Also, sometimes students expect that their supervisors understand what they are trying to say yet the contrary maybe true (Phillips and Pugh, 1994). The research seminars provide the opportunity for probing further on what the students are doing and gives an impression that the supervisor values the students' time and makes them free to share their ideas openly.

3.10. Show Interest in their Research and Give Input

Some students have interest in specific research areas much the same way as supervisors have (Felder and Brent, 2005). Supervisors need to help students identify their interests and pursue them. Students need guidance on the kind of books or journal articles to read. That way the students will feel that the supervisor has interest in their work and is giving vital input. Additionally, supervisors can share relevant books and materials with students including conference papers in their respective research areas. The supervisors can also introduce the students to specialists who can provide additional information to the students. This provides the students with professional networks within which they can share their research work. Supervisors who are too busy to know the current topics in their discipline do a disservice to students under their tutelage.

3.11. Be sufficiently involved in their Success and Help them get a Job

Lastly, students expect their supervisors to help them attain their degree and also to get good jobs (Banciu *et al.*, 2015). They expect the supervisors to introduce them to people at the top of their profession (Alberts *et al.*, 2014). They also hope to get personal references from the supervisors (Beaudin *et al.*, 2016). Though, some academics favour helping their students get jobs, others feel that the supervisor's role ends when the student has been awarded a degree.

4. HOW DO WE ADDRESS THESE NUMEROUS EXPECTATIONS?

The response of the supervisors is largely determined by the objectives of the research. In case of masters and undergraduate students, one of the objectives is to train students in research methodology and techniques, and another is to train them in research and writing. Apart from these general objectives, other factors include the student's personality, background and ability, the nature of their research, the supervisor's own circumstances and workload and the stage at which the student is at. It is essential that supervisors and students clarify their mutual expectations at the beginning of the research process (Halse and Malfroy, 2010). In particular, emphasis should be put on the frequency and nature of the supervisory meetings, what kind of written work a supervisor expects from the student, and the amount of time a supervisor needs to respond to the written material. Having these expectations in writing is sometimes necessary as it can be a guide (Spear, 2004).

One of the most important requirement for a successful supervisory process is effective communication between pertinent parties; communication is crucial for good supervisor-student relationships (Bui, 2014). With effective communication, supervisors and students would be able to freely talk to each other without feeling intimidated or embarrassed. Also, as part of effective communication, it is important that supervisors inform the students the criteria against which their work is measured. This serves to help students evaluate their work without heavily relying on the feedback from the supervisor. Students will learn to judge their work with confidence only when they have been exposed to constructive criticism by a supervisor. Also forming groups on related research or interdisciplinary topics brings the students together into formal groups through which the students can supervise each other (Maura and Newswander, 2010). Additionally, institutions can intensify pressures on academics to perform increasingly at high levels in both teaching and research (Halse and Malfroy, 2010). Perhaps, this can prompt supervisors to become more disciplined in how they manage time and interactions with students.

Supervisors need to take responsibility for good supervision (Krogman, 2014). For the students, it is a privilege to attend university (graduate school), and for the faculty, it is a privilege to supervise students. The supervisory privilege accords the supervisors more power than the students; that power should come with responsibility for good supervision. Universities in developing countries can also take advantage of exit interviews (which are hardly done in developing countries) for graduating students to gather information on areas that need improvement to cultivate better supervision. The exit interview could focus, for example, on areas like student experiences with supervision.

Institutions should follow-up on the progress of each student with the supervisor(s). This requires reviewing the progress of a student registered under any supervisor (Krogman, 2014). This can help universities identify patterns among their faculty pertaining to student progress and completion. Any supervisory problems noted can be addressed in good time and measures put in place to avoid such challenges from recurring again. In the long run, university departments can enforce processes to correct recurring poor supervisory performance. For instance, most universities in developing countries have procedures for students to change to other supervisors in case there is a supervisory problem. But, often times these procedures are just documented and never enforced for a number of reasons including victimization of the student.

For purposes of securing quality graduate training and research programs as well as impactful research, universities in Africa must pay particular attention to the issue of effective graduate supervision. It is important to contextualize models adopted from elsewhere. As highlighted by Hoyt (1969) the future of higher education depends on choice, involvement and commitment and not extrapolative thinking. Without meaningful interventions, the future of higher education in Africa is indeed depressing, but that this should not be accepted as a likely future will depend on committed and necessary interventions by all actors to support development of quality postgraduate programs in Africa.

5. CONCLUSION

Supervising student research is a privilege; and the preparation of this paper was largely inspired by authors experience interacting with graduate students as well as available literature on the subject. The contribution made by students to academic research enterprise worldwide is enormous and predates back to the most significant inventions which arose through student supervisor relations. In Africa, where research support and particularly that related to financing researchers to design and implement innovative studies of any kind has dwindled, graduate supervised research makes a major contribution to advancing knowledge.

To be a supervisor is also a great responsibility and when a student accepts you to supervise their research, they are entrusting you with a crucial stage of their development as this experience can have a great impact on their life. Some students have lost enthusiasm for research because of their experience with supervisors, while others have become great researchers because of their experience. This means that addressing students' needs, interests and expectations is very important and lecturers who are not ready to take student expectations seriously and respond to them appropriately should not become supervisors. Supervisors are only able to be effective by keeping their students informed about their progress and this is possible if they continue to have regular meetings and are giving honest feedback about the work. It is clear that graduate training and research has become a very topical issue in Africa largely because of the rapid expansion of the higher education space. The legacy of establishment of higher education institutions in Africa focused more on vocational education and undergraduate training with limited attention (if any) to graduate and postgraduate training. The assumption was that postgraduates and graduate studies would continue to be conducted overseas. Managing the transition from more training of African graduates at overseas universities to capacitating African universities to train Masters and PhDs to meet the demand will thus entail institutionalization of postgraduate training programs. Building intellectual leaders also necessitates creating opportunities for exposure and it would be a mistake to assume that all human capital investment for African governments targeting training Masters and PhDs in relevant fields will be done solely within Africa. The other difficult and needed investment is to strengthen infrastructural capacity for quality research by higher education institutions within Africa. This task should be treated as part and parcel of components towards strengthening graduate training in Africa to meet demands in Africa but also open for academic mobility with graduates coming from elsewhere to study in Africa.

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