

TRENDS IN GRADUATE STUDIES: LESSONS FOR AFRICAN NEW AND EMERGING UNIVERSITIES

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Abstract

Creating knowledge is the most fundamental role of a university. All other roles like preserving, disseminating (through teaching and publications), and applying knowledge for community services, depend on this function. The creation of utilizable knowledge is the main concern of graduate studies. While several trends in these functions and in the administration of graduate studies have been instigated by changes in students' demographics and attitudes, and by economics, social and technological changes and demands, almost all new trends in graduate studies are directly or indirectly technology-driven. Therefore in the struggle to emerge or establish their viability, institutions with an internalised research culture and with access to current information and communication technology have a competitive advantage. Such universities must develop, evaluate and apply models of how best to utilise technology to enhance effectiveness at achieving their traditional institutional functions of research and publication, teaching, and providing services to the community, as well in institutional administration.

Introduction

The Role of a University

It was only when I was writing my doctoral dissertation that I came to realize why traditionally the Annang people of South-eastern Nigeria call the university "afe udom ifiök" in their language. It was then that putting together the meaning of each of these words made sense to me: 'Afe' meaning a 'wallless' hall where people from everywhere gather; 'udom' meaning to craft, to smith or to create; and 'ifiök' meaning knowledge. That is, for the Annang, the university is a 'wallless' hall where people from east, west, north and south gather to create knowledge.

From its origin, the university exists to create and custody knowledge, to disseminate this through teaching and publications, and to use this for community services. Traditionally therefore, it has three fundamental roles, to research, teach, and perform community service. The intellectual community expects every university to contribute knowledge to the human knowledge pool, especially knowledge based on, and maybe unique to, the culture, the environment and problems of the society where the university is located. It is the results of research that strengthen teaching and inform community services (Nenty, 1990).

Many countries, even in the developing world, have taken steps to ensure an expansion of their universities' capability to create knowledge and innovations, because they know that knowledge is the most empowering of all human possessions (Nenty, 1992, 2001). Brazil, for example, "expand[ed] the scale of her graduate programs in the 1980s to foster graduate . . . programs as an essential instrument for knowledge creation and 'dissemination'" (NSF, 2000, p.8). Developing countries in Latin America are motivated by a desire to have more of their university faculty trained to the doctoral level, and Mexico particularly has aimed at upgrading the quality

of lecturers in the 'licenciaturas' in order to improve the quality of the 'licenciaturas' degree (NSF, 2000).

Clarification of Terms

Graduate studies are those undertaken after the first or baccalaureate degree. This might involve studies undertaken to acquire professional qualifications in an area different from that in which the baccalaureate degree was obtained, or in a more specialised field within the same area in which one acquired the baccalaureate degree. While the former most often leads to what is called graduate or postgraduate diploma, the latter often leads to a masters or doctorate degree.

There are many 'new' universities that, variously, are or are not and may never be classified as 'emerging'. There are also many old universities that have never, and may never 'emerge'. To 'emerge', to be seen as making a mark in the academic world as well as in more widely, an institution has to achieve some level of eminence in fulfilling each of the three roles of a university. Fundamental to these three roles is the creation of knowledge and innovations, which has to be disseminated through teaching and publication and which also has to be applied in community services. According to the Virginia Polytechnic Institute and State University (VPISU) (nd.), "... the processes of discovery, scientific inquiry, and scholarship inform all aspects of the educational enterprise" (p.2). And "a major expansion of the research enterprise is necessary to become one of the nation's leading universities" (VPISU, p. 3). To provide a motivation for the creation of knowledge among its faculty, a university must create, internalise, maintain and strengthen the culture of research and publication. This is an important and a necessary requirement for a sustainable university education. Academics and their universities are rated primarily on the basis of the quantity and quality of their research products followed then by the quantity and quality of their human products and community services.

Owing to their inability to create and maintain a research culture and hence to achieve significant original research and publication, some institutions have resorted to disseminating, through teaching, only knowledge created by others. Such institutions call themselves "teaching universities"; a problematic term, since, properly speaking, there is nothing like a teaching university, only possibly, teaching or training colleges or schools. Any institution whose prime aim is to facilitate learning cannot really be classified as a university. New universities have to find ways of 'emerging' and staying afloat, or be drowned through self-identification as 'teaching universities'. A university can emerge only by developing and internalising the culture and practice of research and publication among its staff and students. The excitement that follows the discovery of something new, the contribution to the solution of society's pressing problem, creates an urge to share with others and to apply what one has found out through research and instigates and empowers teaching, publication and community service among researchers. It is important to note that in the struggle to emerge, schools that have access to 'timely and accurate' information have a 'competitive advantage' (O'Donoghue, 1998).

Every university has been established by society for a purpose and its effectiveness is determined by how well it has satisfied that purpose. Such a purpose implies the realization of local, national, regional and international needs through the creation, dissemination and application of relevant knowledge and innovations principally for the solution of human problems. Hence each

university should have a vision and a mission. A vision is a statement of one's imagination of what ideally the future should be. By visioning, the university creates and documents an ideal future the achievement of which its administration will strive. This is followed by a mission statement or a statement that reflects a vision-driven intention of the school. The world, whether we like it or not, is going technological, our societies are going technological; some societies may resist this but cannot stop it. Technology is fast becoming a way of life for even the world's most 'primitive' societies. It is obvious then that as technology permeates our way of life, universities of technology become more relevant, and according to VPISU (nd.), more "connected to mainstream societal issues ... than before". For today's world, technology is an indispensable institution on its own, it is the surest and the most efficient tool humans have ever developed with which to improve themselves and enhance their quality of life.

Technology transforms scientific knowledge (results from scientific research which include information, ideas and facts) through development into innovations using the process of ideation. This involves a critical and intensive analysis, synthesis and evaluation of scientific ideas resulting in creating an innovation. Hence, technology is scientific knowledge operationalized, the intangible into the tangible, and the verbal/numerical into the concrete, that which can be directly applied. It is the single most important input into industrial and economic productions and services. It converts the intangible products of science into innovations that are applied in industries, business and by entrepreneurs to bring about tangible products and services. A university therefore is by its nature assigned with the task of harnessing human brainpower in a direction of empowering or fuelling tangible growth and development of the society. Its mandate is to create, disseminate and "put knowledge to work" (VPIST, nd.)

Technology and humans have a perpetually regenerative cyclic relationship. We invent and develop technology, and technology in turn, helps us to develop and improve ourselves towards improving our quality of life to the best it can ever be. During the process, technology creates several problems most of which we apply technology to solve, and we create several problems which technology helps us solve. Our relationship with technology is therefore mutually beneficial but technology exists for humanity, not humanity for technology. Technology is not an end by itself but a means for enhancing our quality of life. Hence while we cannot stop technology, we should always be in its driving seat, not the other way round.

New Trends in Graduate Studies

According to National Science Foundation (NSF) (2000), forces for graduate education expansion and reform include demographic, economic, technological, and social changes. These factors have instigated new demands and trends in the academic contents, methods and processes as well as in the administrative functioning of universities. Higher education is said to be in transition because of changing worldwide trends and issues (Dulfer, 2001). In summarizing such trends Curry School of Education (nd.) indicates that "twenty-first-century schools . . . must be technological, sophisticated, inclusionary in nature, global in outlook, and interdisciplinary in approach" (p.1)

Trends Based on Students' Demographic and Attitude Changes

Changes in students' demography and attitudes in terms of age, residence, family structure, and the needs and behaviour of different demographic groups, have set trends which graduate

education cannot ignore. The most effective graduate schools are finding the most efficient ways of dealing with changes in student type and their varying educational needs. Improvement in the provision of access to educational opportunity at the undergraduate level, and the notion of life-long learning, have led to an increase in the recruitment pools for graduate education. The notion of life-long learning has been embraced by all including corporations and professionals who see the need to continually upgrade the knowledge and skills of their employees (University of Michigan, 1998; Dulfer, 2001). Related to this is the growing appetite for distance education participation from any place at any time. These trends, coupled with the strong need for access to education with equity especially for women and minorities have created an eager population of adult learners, some of who register for graduate studies even after retirement as a means of achieving self-actualisation. In an attempt to equalize access to learning opportunities, the trend is for graduate education to provide for bridging courses as prerequisites to full registration into graduate programmes. It has also emphasized the need for part-time arrangements in the offering of graduate education as well as a diversification of method and modes of delivery.

Although AAUP (2000) still sees graduate programmes in universities as existing “for the discovery and transmission of knowledge, the education of students, the training of future faculty, and the general well-being of society” (p. 1), there is a general change in attitude towards graduate education. It is no more seen solely as a means for preparing students with very good undergraduate results for teaching and research careers in universities, but more as a means of upgrading the knowledge and skills of employees and training students for different careers. This view has strengthened the trend of an increase in registration in graduate schools.

Trends Based on Economic Changes

There is a general intensification of the view of education as an economic enterprise that is accountable to its stakeholders in terms of the quantity and quality of its products and services. There is an increasing demand for relevance and market orientation in graduate education (NSF, 2000; Dulfer, 2001). This has resulted in terms adoption of terms such as accountability, quality assurance, and added value, which are often used in the consideration of the economic returns of education. It is apparent that the development of a nation is not dependent on its size or on the amount of material resources available to it, but on how well its is able to identify, develop and utilize its available human resources especially in the area of science and technology for her economic growth (Nenty, 1998). The conviction that economic growth is dependent especially on science and technology and the connection between education and production have increased the need for and enrolment into graduate education especially in areas related to science and technology.

This conviction has also increased the pressure on education to produce graduate students who are better trained to contribute to local, national and global industrial and economic development. For example, according to NSF (2000):

As in Brazil, within Asian developing countries, reforms are motivated by the belief that universities could be the engines of economic growth through research and innovation Reforms are focused on establishing quality graduate schools, building university facilities and research infrastructure, and acquiring highly trained . . . professors, . . . This effort at expansion of graduate

education is more accelerated in Asia than in Latin America, and involves the building of whole new science and technology universities Chinese research universities are expanding through more self-support from close alliances with, or ownership of, high-technology industries, and through international loans. In Japan, the government is funding the upgrading of graduate programs. . . . industry for the most part trained its own doctorate-level researchers. Japan is now concerned that such industrially formed scientists and engineers are not contributing breakthrough research for new and emerging industries (p. 8).

In developing countries, there is no strong tradition of industry involvement in research. This tends to limit the degree to which the industries see the need to hire individuals with advanced degrees, as well as representing a barrier to interaction with university-based research. Countries such as Brazil seek to encourage such interaction through tax incentives and shared support for research projects. Thus, in some countries, industry does not represent a significant stimulus for the reform or expansion of graduate education in science and technology and the major spur comes from government or international programmes, such as support from international development banks. In some others, industry is investing in graduate education in order to have access to some of the best brains and encourage them into careers in industry (NSF, 2000). Generally, according to NSF (2000),

. . . . the trend is one of growing interest on the part of the industrial sector. As efforts to develop knowledge-based economies and an increasingly high tech industrial base are pursued, the market for technically trained people with advanced degrees increases. Growing numbers of such graduates are going into industry in countries such as China and Taiwan. . . . In other countries, such as Japan and Brazil, industry's growing interest in graduate education takes the form of increasing support for university-based research. Changing education practices in Japan that places greater emphasis on course-based doctoral degrees as opposed to career-based degrees means that such support is increasingly related to graduate education (p .8)

This trend is of interest mostly to a university of technology, which stands to gain academically, and economically in a well-developed university-industry relationship. Such a relationship if properly conceived, nurtured and operationalised might lead to some financial fallout which could supplement public contribution to the funding of graduate education and research and contribute a solution to the highly vocal demand for universities to do more with less, to cut public cost and attain self-sufficiency (Dulfer, 2001).

In the face of austerities, especially in developing countries, universities are under pressure to cut costs. They are under-funded but face escalating demands. Generally there is diminishing trend in the funding and financing of graduate studies and research. This has resulted on the other hand in poor remuneration for, poor motivation and under-qualification of staff, lack of facilities, and poor infrastructure (Dulfer, 2001). On the other hand, there exists a need for and hence a trend of increasing budgets for university research in these countries. Running a university is an expensive business that needs a very liberal financial allocation and very prudent management to succeed.

Stemming from the view of graduate education as an economic enterprise within the input-process-output model, universities compete among themselves for the best students and staff in order to ensure quality inputs for their production process; they also compete for support from industries and other non-public sources. Qualified and experienced staff coupled with good curricula and material resources are fundamental for the success of any graduate studies. Quality staff and of graduate students and availability of funds support research and scholarship which are necessary for a new university to emerge and achieve eminence.

According to the National Science Foundation (2000) the criticism by industry of the traditional graduate programme as being too long, too narrow, and too campus-centred has been severally expressed, and

“ . . . discussions for reform call for doctoral training (previously focused on specialized research) to be broadened in a variety of ways . . . providing off-campus internships, opportunity for interdisciplinary research experience, teaching and mentoring skills, complementary course work, and awareness of changing career opportunities and emerging employment categories (p.9)

Strengthening the educational and research functions of graduate studies demands funds. According to the NSF (2000) “the rising cost of research-based education and the impact of the enlarging pool of university graduate resulting from ‘massification’ that seeks access to graduate degrees has placed particular stress on government support of education” (p. 5). To reduce such stress, the trend among universities is to turn to alternative means of funding graduate studies and research. Some of these include imposing tuition and other fees on individual students, seeking partnership with and hence support from business and industry, seeking support from international organizations and agencies that provide grants and donations, and starting research-based consultancy services. Such consultancy bids for research-based and training-related projects and contracts from government and from national, regional and international organizations and institutions. Every university, especially a university of technology, has a lot to offer its community - local, national and international - in terms of academic, technical and business services through income-generation ventures. Related to this, governments, regional and international organisations, business and industries are showing increasing needs for problem-oriented, development-anchored, problem-solving applied and action research. And hence from these sources there tends to be increased demand for multi-disciplinary proposals and problem-oriented projects. Consultancy services need some qualified and experienced faculty to manage and facilitate such services and develop the capacity of other faculties in related areas like proposal writing and research design and analysis in different fields.

Trends Based on Technological Changes

Almost all emerging trends in graduate studies are directly or indirectly technology-driven. For example, it is technology that has transformed ways of generating and communicating knowledge and information and to this a good graduate education must respond. Similarly, technology has transformed the labour market and has instigated needs to which graduate education must respond. Technology is fast becoming a vehicle for democratisation of knowledge and information (Canadian Council on Social Development, 1999) in that for ‘everybody’ it serves as an enhancing resource for creating, through research; disseminating,

through teaching and publication; preserving, acquiring, through learning; and applying knowledge and innovations in a variety of ways never anticipated before. In each of these areas, the trend among universities is to fall back on technological innovations in their attempt to meet the demands made by demographic, economic, sociological, administrative and academic needs and changes. In other words, technology is an empowerment tool for meeting the needs and solving the several problems that may be faced by an emerging university. It facilitates the development of and allows access to an international pool of knowledge, skills, and information.

Emerging universities are under pressure to develop and evaluate models of how best to utilize the new digital communication and information technologies to enhance their complex institutional missions of research, teaching, publication and community service (Trow, 1997). Generally, the trend is to maximize the use of technology as a tool, not as a master, in the creation or generation; dissemination through teaching, transmission and publication; acquisition through various means including accessing the Internet; preservation or custody, and assessment of knowledge and innovations.

Following the successful results of industry involvement in universities in some developed countries, there is an emerging trend of close ties between universities on one hand, and industry on the other. There is an emerging desire to foster partnerships between education and industry and to produce graduates that are more oriented toward and have education more suitable for careers in industry (NSF, 2000). To augment their innovative capacity, tech-based industries are motivated to partner with graduate research programmes as new innovations and inventions are increasingly linked to public science, and thus industries are increasing their investment in basic research performed in universities. Countries such as Brazil seek to encourage increased interaction with incentives such as tax breaks and shared support for university-based research projects. Similarly, a number of other countries have introduced special programmes aimed at strengthening the links between universities and industry (NSF, 2000). According to this source,

Overall, however, the trend is one of growing interest on the part of the industrial sector. As effort to develop knowledge-based economies and an increasingly high tech industrial base are pursued, the market for technically trained people with advanced degrees increases. Growing numbers of such graduates are going into industry . . . (p. 9)

The involvement of graduate education with industry implies emerging patterns of mobility between graduate education and industry. This may take the form of increased recruitment of students with advanced degrees by modern industry, interactive modes such as seminars, personnel exchange, internship and cooperative research, and industrial involvement in various types of advisory mechanisms (NSF, 2000). Earlier in 1995, in USA, the National Academy of Science (NSF et al, 1995) had made a similar observation based on which it advised that graduate education must diversify its offerings in order to also take care of students other than those who are destined for research and academic positions and must provide internships in government, industry, business and other workplaces.

Developments in the area of information and communication technology have created a revolutionary trend in education technology. This involves the use of technology to enhance traditional modes and methods of instruction that are responsive to the needs of students and

faculty. Expanded use of technology has been made to enhance teaching and learning especially through distance and distributed education. There has been a technology-driven pedagogical revolution which the U.S. News & World Report calls a "high-tech pedagogy" (Curry School of Education, (nd.)). From power-point projection to e-mail based courses and distance education via video-conferencing, to the development of courses for delivery over the web for anytime/anywhere access, technological innovations have changed the way education used to do its business. This has encouraged a trend toward distance graduate education in addition to the part-time arrangement which is the practice in most universities. There is the creation, dissemination and utilization of web-based literature and curricular materials through which web courses that combine face-to-face, faculty-led, web-based instruction are developed and delivered. This format makes it possible for faculty to instruct, coach, motivate, assess and keep students on track toward successful completion of online courses. Many students are enjoying the convenience of anywhere/anytime access to course materials and expanded access through the Internet to their faculty, classmates, and tutors (NAS, et al., 1995; Dulfer, 2001).

It is possible to deliver even the face-to-face component of web-courses through technology which will allow faculty to interact with students at home and at work. Web course materials are being developed by faculties in partnerships with corporate developers and other members of a given knowledge community. There is yet a new emerging trend toward portable, ubiquitous computing and communications wireless network devices. This will result in changes to our baseline technology (NAS, et al., 1995)

Trends Based on Social Changes

The traditional view of graduate education as a means of training future academics has dwindled significantly and is being gradually replaced by the view that graduate education is a means of affording high level training to professionals and would-be professionals in every career. Following from this view, students are demanding adequate career information and broader skills for non-academic employment (NSF, 2000).

There is a growing public demand for social and standard-related accountability, for quality assurance, for provision of access with equity, that is, fairness across gender, race, and so on, in access as well as in opportunity for employment and reward. There is also a clamour for the protection of the rights of graduate students (see for example, AAUP, 2000). Graduate students are given the opportunity to be represented in graduate boards and committees through their graduate students' council. Some people think that the time taken to graduate by students has increased unjustifiably in recent years. For example, "reforms discussed in advance countries also relate to lessening time-to-degree . . . shortening time to degree is required to cut costs. . . ." (NSF, 2000, p.6). While few have questioned the quality of graduate faculty and the relevance of some graduate degrees visa-a-vis the current economic scheme of things, some insist that students are poorly taught and the curricula underdeveloped (Dulfer, 2001). These demands have set off a trend of on-going revisions of the rules and regulations governing the operation of graduate studies in several universities as well as reviews of graduate programmes. To enhance the capacity of graduate faculty, in-service and advance courses, regular capacity-building seminars and workshops on different areas important for the improvement of graduate education are being sponsored or offered.

A combination of demographic and economic trends has some social consequences that are problematic to universities. For example, there is the trend of an increase in public concern about safety of persons and property in the university. The rising cases of crime, drug and alcohol abuse, arson, impersonation, cheating and stealing, cult activities and so on, in universities have raised concerns among staff and students. Universities are falling back on technology-based security systems to stem the tide of crime on campus.

Trends Based on Academic Changes and Demands

Academic-related trends in graduate studies emanate from the need to meet changes and demands originating from the tremendous expansion of knowledge and technology-related changes in society. Generally, it involves finding the best and most efficient ways of creating, disseminating, preserving, and applying knowledge and information from graduate education. Fundamental to such trends is the application of information and communication technology in research and teaching. For Bridgewater State College (nd.), "emerging trends in higher education, many of which are driven by new technology and by the commercial enterprises adapting this technology to the higher education market, will force some decisions about curriculum, college infrastructure and partnerships with off-campus providers" (p. 4). Technology-driven expansion of knowledge implies continuous revision of contents of existing courses and the creation of new courses to accommodate new knowledge.

The author's experience is in total agreement with Trigg (1995) who indicates that "the graduate faculty are the core of our graduate programs. The quality and effectiveness of those individuals determine the corresponding success or failure of the programs themselves" (p.7). Hence several countries have taken steps to provide their universities with more truly qualified and experienced faculty. For example, those in Latin America "are attempting to expand and strengthen their modest graduate programmes to increase the percentage of faculty in higher education with doctorate training" (NSF, 2000, p.8). Mexico, Chile, and Argentina in particular "have recently begun to expand the scale of their doctorate programs . . . are motivated by a desire to have more of their university faculty trained at the doctoral level" (NSF, 2000, p.8)

Experience has shown that fundamental for successful practices by graduates from every field of graduate education are skills in communication, human relations (interpersonal, leadership and teamwork), and management. In response to this, the emerging trend is the mounting of a general multidisciplinary course involving insights from these areas for every in-coming graduate student. The communication aspect of such a course, for example, aims at enabling the student develop skills in effective communication and literacy in, or working knowledge of information and communication technology without trying to make them competent in these areas. Literacy in information and communication technology is fast becoming a basic necessity for any gainful and quality education.

Trends in Knowledge Generation in Graduate Studies

As indicated earlier, changes in academic and industrial job markets have necessitated a shift in the traditional goal and concentration of graduate education to produce future academics to that

of producing professionals for all careers. This has evolved a gradual shift in research orientation from Mode I to Mode II approaches to graduate enrolment and is demanding novel approaches for preparing graduate students. Depending on areas of study, there is also a rising emphasis on qualitative research as an alternative method to quantitative research for some graduate students.

Mostly to meet career demands, increased emphasis is being placed on the acquisition by graduate students of research skills or the skills to create or generate innovations or such knowledge that would contribute to the solution of job-related problems. This has not downsized the importance of skill in pure research especially for students who are not prepared for careers in specific research industries. According to VPIST (nd.), "while there is joy in the discovery of knowledge for its own sake," for a university of technology, there is a "bias toward the beneficial use of knowledge" (p.1). Such an emphasis has increased the need for applied, action and process research as a means of finding possible solution to on-the-job problems.

The world is insatiable when it comes to its appetite for knowledge. Despite exponential growth in knowledge, there are still several human problems that are unsolved, and several of what should be known that are not known hence the need for research tends to be higher than ever. Newly created knowledge serves as an eye opener to researchers and whets their appetite for yet more research. Similarly, the increase in the provision of research facilities through technological innovations tends to empower and whet scholars' appetite for research studies. Increase in available sources and means of literature review and growing public awareness and interest in research findings have increased the impetus and need for graduate research.

Generally there is a trend towards broadening stakeholders' involvement in the search for knowledge. This has arisen from a growing view of knowledge generation as a democratic process that should involve all stakeholders. It is only valid knowledge that provides valid solutions to the problems to which research attempts to contribute a solution. Especially in social research, the resulting findings are valid to the extent that they involve all stakeholders in the problem under consideration. Governments of developing countries are increasing their recognition of the place of research in contributing valid solutions to the many problems facing society today. Following from this recognition, they are increasing their dependence on research results for the formulation of policies and plans on problems addressed by related research (Nenty, 2001). There is a trend of increase in readiness by governments, regional and international organizations to commission studies specifically designed to find or contribute solutions to specific human problems.

To exploit such readiness, the trends in the area of research and development include the development of research profile and agenda based on stakeholders' needs and demands. Stakeholders here include local, national, regional and international organisations; government and her agencies; business, industry and entrepreneurs, and of course the university, as well as its staff and students. Such an agenda could be developed periodically through stakeholders' conferences or symposia. A consolidation of the items on such an agenda into areas of research focus and interest might support the building of client and research networks with the same problems and research concerns. Graduate students might find interest in developing a proposal for their theses on one or the other of the items in the agenda. Besides taking the regular research-related courses in the different departments offering graduate programme, there is always the need to enhance the capacity of graduate students and other researchers through seminars and workshops on different aspects of research.

Trends in Knowledge Dissemination in Graduate Studies - Teaching and Learning

As the size of accumulated knowledge and information increases, there is a gradual shift in emphasis from 'teaching' to 'learning' (Dulfer, 2001). The faculty's capacity is gradually moving from that of an instructor to that of a guide. Technology is taking over as a key resource or mode of acquiring information and learning. Empowered by technology, faculties themselves have imbibed new methods and modes of delivery that are more learner-centred than before. For example, according to Brown (2000),

the convectional model of apprenticeship, whereby faculty mentors groom doctoral students for research careers like their own, is increasingly being called to question. With a dwindling pool of academic jobs and an expanding economy hungry for workers with advanced analytic and research skills, universities are being urged to prepare Ph. D. candidates to communicate and apply their skills in non-academic settings (p.1)

Brown (2000) indicates the yearning for the development of two graduate tracks. One, for teaching geared to provide better preparation to candidates for the breadth and variety of teaching needed for positions that emphasise teaching. And the other for designing a non-academic internships, and university-community projects that encourage graduate students to make connections beyond the university during their graduate training. Hence, just as we have graduate teaching assistants for teaching-oriented tracks, we should also have graduate business research or industrial research assistants for non-academic interns. Brown makes two suggestions that are worth some considerations:

Continuing the graduate school's traditional mission of training future academics deeply in the established disciplines, while findings ways to approach multidisciplinary questions.

Assess careers outside of academia that are likely to allow new scholars to apply theoretical knowledge to practical realms, that is, 'extending the scope of the graduate school' (p.2).

In other words, Brown is suggesting that we retain the best of our present system while making improvements towards the best it can ever be given the current trends in community, business, industrial and technological changes and demands. In the same vein, NAS, et al., (1995) feels that graduate education should prepare students for an increasingly interdisciplinary, collaborative and global job market and should not be viewed only as a by-product of immersion in an intensive research experience. The trend is for graduate education to provide options that allow students to gain a wider variety of academic and career skills and experiences. While encouraging educational and research activities that are related to practical work in business and industry, graduate education should avoid the tendency to make the needs of the research projects rather than the student's educational needs paramount. And furthermore, it should provide greater flexibility and more information in graduate programmes in order to enhance the system's ability to mesh with the job market (NAS, et al., 1995).

The emerging trend demands that graduate education provides better career information and guidance by seeking, securing and analysing information related to students' areas of interest, and supplying it to students. The assignment of graduate supervisors/advisers should have a strong input from the student, and should be based on how well the student's interest and area of

concentration meet those of the advisers. According to NAS, et al. (1995), graduate students tend to be successful with relatively less effort if their research topic and/or internship experience is closely related to their prospective job description.

There is generally a transitional trend in knowledge acquisition and dissemination because of the consequences of technological changes. Teaching methods have to be adjusted in line with changing contents and students' needs and demands. There is a trend towards introduction of multi-disciplinary and problem-oriented teaching methods with more emphasis on learning and less on teaching. To meet the individual needs of students, flexibility in curricular offering is desirable and an open and modular curriculum based on a credit system with various exit levels is desirable (Dulfer, 2001). Innovations in information and communication technology have also enabled the formation of what is popularly known as 'educational consortium'. This is a conglomeration of an increasing number of universities (for example, Consortium of Open Learning, Consortium of Distance Education, etc.) who share internet-based or online courses which they offer for their students. It enables students to access a wider range of courses than their own university could provide. It is economical as it gives students the opportunity to major or study courses or subjects other than those offered in their own universities (University of Pennsylvania, (nd.)).

Trends in Knowledge Dissemination in Graduate Studies – Publications

The need to make the knowledge generated by graduate students publishable underlies the emphasis on quality in graduate school programmes. To many graduate students their thesis is their first intellectual product, and its quality and acceptability provide a strong motivation for future endeavours and achievements. Given the time and energy spent in producing a thesis and the emotion attached to it, one would be disillusioned if one's work were evaluated to be below average. Students should be encouraged to publish papers from their theses along with or without their chief supervisor.

Current trends in technological innovations have increased the avenues through which graduate students could disseminate their work through publication. There has been an increase in the number of local, national, regional and international seminars, symposia, and conferences available for graduate students to present papers that emanate from their research. Graduate schools often organize such in-house seminars on a regular basis as a part of graduate training. This is often the first opportunity for students to have their work peer-reviewed and criticized towards possible revision for eventual publication. Developments in information and communication technology have made it possible for graduate students of the same interest and professional inclinations to get together via the web to chat over professional issues including reading and reviewing colleagues' papers. In addition to existing traditional media of publishing academic products, there is also an emerging trend in publication of articles via the web in one of the increasing numbers of online journals.

Increase in graduate enrolment, especially when it is not followed by corresponding increase in the number of qualified graduate staff, tends to bring about the problem of effective supervision, management and control of graduate research products. This tends to affect the quality of such products as well as increase in the incidence of plagiarism among students. While possible solution to the first problem has been presented earlier, copyright registration of all products of

graduate education coupled with effective electronic storage of such products for ease of retrieval and comparison could enhance the solution of the second problem.

Trends in Preserving and Accessing of Knowledge in Graduate Studies

The university library no more has a monopoly of being the custodian of, and an access provider for the knowledge generated by graduate education and other sources. Technology-driven Internet, which is now claimed to be the biggest library in the world (Kisly, 1999), and which could be accessed almost anywhere at anytime by anybody is successfully playing these same roles. But since access to the new technology is not yet evenly distributed, the library will continue to be a means of ensuring some equity of access to knowledge. Several technology-based innovations have been and are being adapted by the library to enhance its role as a custodian and access provider to knowledge in the universities. According to Kisly (1999),

Along the way, libraries will benefit from the increasing competition between traditional library systems and other vendors, and the pressure to develop open source systems that enable library catalogs to be mounted and searched via the web, manage fulltext and multimedia content, . . . own set of current awareness strategies for staying abreast with changes to/on the Internet can be quite effective, particularly when librarians (or whoever) have a knowledge base to build upon (p.12)

Trends Based on Administrative Changes and Demands

One way through which the universities are meeting the demands for efficiency, accountability and cost cutting is by utilizing strategic planning for both academic and administrative functioning in order to increase effectiveness in attaining academic and administrative aims and objectives. Budgeting is programme- or activity-driven, that is, costs are assigned to activities specified and detailed in the strategic plan. A university administration must be seen to be dynamic, fair, transparent and with an apparent sense of direction.

For a properly focused and effective graduate school administration, current trends demand that the unit develops and states its vision and a matching mission statement, followed by its aims and objectives. These are then backed up by statements of aims and objectives for the school. Based on such statements, the school's strategic plan for a specified period is developed. A strategic plan involves a detailed specification of each unit's aims or objectives, and for each of these, specific objectives, activities to be undertaken in order to realise them, strategies that will be used are developed and stated. In such plans, quality control in terms of how well each objective is met and standards maintained in an on-going fashion are ensured through the provision for monitoring, continuous assessment and feedback during the process of implementation. To guide the implementation of such a plan, a periodic or an on-going implementation plan is developed for an academic year or so. A strategic plan is not cast in stone but is subject to revision as stakeholders' needs and other institutional variables change.

The administration of graduate education is changing significantly, with greater involvement being assumed by the different stakeholders. The number and nature of the stakeholders are changing especially for a technological university for which the community involved includes new and emerging businesses, industries and entrepreneurs. The trend in graduate school administration is tending towards an inclusive style planning and implementation of school

activities. It involves a dynamic administration that is focused on the mission of the unit and guided by a well-developed strategic plan. An administration carries the students and staff along by exercising a bottom-up rather than top-down policy formulation and implementation strategies.

The aims and objectives of the unit are drawn up by a consensus between staff and administration. This will enhance the sense of ownership among staff and administration, and hence during the process of trying to meet these goals the feelings among staff and administration would be that of striving to meet 'our' not the administration's aims and objectives. Staff must have the opportunity to discuss, provide input, and understand the strategic focus or direction of the university as this underlies the intention of the strategic plan. Strategic planning should be an opportunity for every staff to indicate what he/she can/will do within the next plan period and how well he/she can do it given the aims and objectives of the unit. Everybody contributes and failure to meet any of the objectives set by consensus is not blamed on the administration or staff, but on 'us' and success is also attributed to the effort of everybody.

Staff training and retraining is an essential aspect of an effective and achievement-seeking administration. Given the technology-driven rapid changes in administrative practices and tools, there is a trend of regular update of staff knowledge, attitude and skills through in-service training, short courses, seminars and workshops in order to enhance their capacity.

Current trends in school administration seem to favour a managerial style in which the heads of units are executive heads appointed for a specific period of time based on the results of competitive interview. Application to such positions is open to both internal and external candidates who meet some basic qualifications. Appointment is based on how well a candidate is deemed to be the most likely to achieve the aims of the unit as specified in the strategic plan. How well the incumbent has done this during his/her previous term of office is likely to influence his/her reappointment over other competitors. Each member of university staff is hired based on how relevant he/she is, given the aims and objectives of the institution and is retained only if he/she effort continues to be relevant.

Implications for an Emerging University

Any university in Africa has a mandate that emphasizes creation and dissemination of utilizable knowledge. Given this mandate, a university seeks to intensify its efforts at building and fostering a research culture among all staff and graduate students at a time in which technology is what underlies most of the changes and new trends in graduate studies and research. It is therefore necessary that such university make technology a very close partner in the progress of its efforts at emerging as a university. The backbone for such emergence is the acquisition and application of research skills by staff and graduate students as a means of generating knowledge and hence contributing solutions to the several problems facing the local, national, regional and international societies. Such skills are not only cognitive, but also affective because the attitude one has towards research influences significantly one's willingness to carry out or get involved in research. Research is a disciplined inquiry that demands not only one's cognitive dispositions but also his/her

persistent affective commitment. In any institution, research culture cannot be developed let alone fostered and sustained if the staff and students do not have a favourable attitude towards, appreciation of, and commitment to research including the right incentive to be involved in it. Creating a conducive research culture begins with the provision of the right cognitive and affective environments as well as the necessary facilities to encourage and strengthen the willingness among staff and graduate students to be involved in, or carry out research. Knowledge creation is a self-sustaining exercise as the result brings a sense of satisfaction to the researcher and whets his/her appetite for more attempts at research.

In addition to the several suggestions stated or implied in the analyses and discussions presented in this and the previous sections, the following general suggestions are presented for considerations by the university. A university should:

1. Maximize the application of technology in all its forms, especially information and communication technology, in enhancing staff and students' efforts at research, teaching and learning, publication and community services; in the collection, processing, preserving and disseminating of knowledge and information; as well as in the planning and administration of the university
2. Given social and demographic changes and demands and also given the fact that diversity of people enriches learning experience the university should create (or improve on) an academic and social campus environment that is inviting, welcoming and conducive to teaching and learning by people from all demographic groups and social backgrounds.
3. Mount regular seminar/workshop/forum aimed at redefining or re-emphasising staff roles and priorities, values for and attitudes towards research as academics and the expectations placed on them in an emerging university especially on the creation and use of knowledge and innovations in finding solutions to existing and emerging community problems.
4. Create, internalise, maintain and strengthen the culture of research and publication as a means of ensuring sustainability in graduate education
5. Encourage and empower staff and graduate students to increase research output and develop a system of reward of staff for research-based productivity and publications. Such an encouragement and reward system should strike a balance among research, teaching and community services.
6. Define, establish and strengthen links and networks between graduate education and the public and private productive sectors, as well as with institutions and professional bodies, locally, regionally and internationally.
7. Maintain a minimum necessary length of time it takes to graduate by encouraging and ensuring proper supervision/advisement of graduate students and proper focus and seriousness of purpose by graduate students.

8. Provide for an on-going process of building and improving various and especially research capacity among staff.
9. Provide for bottom-up managerial administration using strategic planning that provides for activity-based budgeting and quality control and meets the needs of accountability and effective university administration, with a provision for performance administrators.

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