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University Education and the Foundations of Academic Leadership

I joined Rutgers University, College of Agriculture and Environmental Sciences (CAES) in 1970. As new intakes, we were all welcomed, given orientation tours and made to listen to pretty speeches by a number of senior students and administrators. I recall vividly being introduced to my academic advisor, Tom Concanon. He was the equivalent of a deputy registrar in Kenya's university system. Mr Concanon was my advisor for all the undergraduate courses that I took until I graduated. This is not the case in our universities, hence poor student-staff relationships and poor responses to the alumni calls.

Our campus, College of Agriculture and Environmental Sciences (CAES) was adjacent to a girls' boarding college, Douglas. One could not tell the boundaries of the two campuses. The main campus was spread over New Brunswick town, a university city, which relied almost entirely on the student population for business.

My advisor, Tom, gave me a very detailed talk on the academic courses to take, life at the campus, dining halls and, most importantly, my conduct as a foreign student. He was going to be my academic advisor for all my undergraduate courses. He had over fifty students to advise and always had time for us. Many of our universities lack this service. This may be part of the cause of the falling academic standards.

We became such good friends that my social or academic issues were readily tackled by him. In addition to this service, all foreign students were again introduced to the International Students' Centre. The centre handled issues concerning all foreign students from all over the world and we used to have monthly meetings in addition to special tea parties for networking. We spent most of our weekends hanging out at the International House.

My academic dean was basically involved in course advice and selection. He would also hold evening get-togethers for us mostly at the end of the semesters, holidays and long weekends. This interaction made life easier for the foreign students

who had no families to visit during such breaks. This kind of arrangement is not available in most African universities. It was therefore easy to settle at Rutgers than in NYC because of student interactions. This was one of several extra-curricular activities.

I chose first-year courses which were common for all first years. They included Chemistry, Biology, Calculus, Physics and a History unit. We formed study groups and assisted each other in homework and practicals. I was familiar with group study and I had no difficulties adjusting to the exercise. The halls of residence were bigger and were fitted with larger cubicles than those in Kisii High School. The food we got in the dining halls constituted of different menus depending on the day of the week. I adjusted to the menu and strictly followed the timetable.

First-year courses were conducted in Douglas Campus by staff from both colleges. Some lecture halls were so big that lecturers were forced to use public address systems and mounted wall screens to deliver lectures. There were very well-arranged tutorials which were conducted by graduate students, mostly those pursuing their Masters and PhD degrees. I remember that close-circuit television sets were used for lectures. This was in the 1970s when these provisions were considered very advanced. The main duties of tutorial fellows were to review what the main professors had taught earlier in the day or week and add value to the lectures. Students were divided into groups of 20 or 30 at most. We gained a lot from this arrangement which was compulsory for all students.

Although this teaching arrangement also obtained in our local universities, it did not work due to lack of tutorial fellows. The difference in delivery of lectures in Kenyan universities and that in the US was the manner of conduct. The system of conducting tutorials by engaging graduate students could not be overemphasized. There was a semblance of the same in the early 1980s but the practice did not continue. This system trained young professionals early, as they progressed in the pursuit of their higher degrees.

If there were any academic gains I made during my undergraduate courses, it was when I was taught by a tutorial fellow. They reviewed what was taught by their professors and allowed for free interactions and critical thinking which lacked during large lecture meetings. I was able to ask questions because of the small numbers of my group. We were normally 20 to 30 in number. Under normal circumstances, a typical class could have 150 to 300 or more students in a lecture hall. Marking of examinations would be a nightmare for lecturers just like it is in Kenya.

In my former university, and I am sure in others in the US and the UK as well, tutorial fellows assisted in conducting practical lessons. The scenario in Kenyan universities is different. The numbers are high, lecturers are overworked and there are no tutorial fellows to assist. Few practical lessons are conducted as prescribed in the syllabus and students rarely have an opportunity to interrogate their professors. There is little, if any, interaction between staff and students during the delivery of a

lecture. This is the exact opposite in some Western universities. The situation in our Kenyan and many African universities is hampered by lack of finances and soaring numbers of students. We adequately plan for the future generations. Students therefore attend lectures and want to get out of the lecture halls as soon the lecture period is over. Many do not show up altogether.

The Kenyan students, therefore, develop other ways of bonding and not through tutorials. They meet in games, dances, churches, mosques, choirs and other campus activities. This is great but there is the need to meet in subject clusters as this will improve the quality of education. My undergraduate and graduate training exposed me to life-long learning experience. I knew how to relate to my peers engaged in scholarly discourses, and appreciated other people's views during academic debates. We bonded well and made long-lasting linkages through this arrangement.

I recall that post-graduate students were provided with study cubicles which were labelled with their names. We also had consultation hours visibly placed on the doors for easy accessibility to your supervisors or student colleagues. We regrettably lack this kind of arrangement in most Africa universities. I hope that someday, these anomalies will be addressed to allow for more peer consultations!

My first year was mainly an academic exploration. I had no problems with class work since I started scoring good grades. My classes had very few black students, less than 0.5 per cent. In some courses, I could be the only black African student. Rutgers University during my time was dominated primarily by white students and a few African-Americans.

I experienced an incident which evoked some ugly memories. I took an Animal Science course with a Ghanaian student, Charles Mensah. The lecturer, whom I recall very well, Dr Ralph Mitchell, taught the course. We were about 100 students. During the final-term examinations, Charles and I scored the highest score of over 70, an 'A' mark.

The lecturer had the audacity to lower both our grades to 68 marks so that we did not get a grade 'A' in our transcripts. The answers were displayed and it was evident we got most of them right. Charles and I took him on and argued for our rightful grade. Charles was very vocal and I joined him. The Dean of the College finally intervened and we got our correct grades. Only two of us were blacks in the class and we considered this act racist. Charles continued taking courses in Animal Sciences, while I started specializing in Plant Sciences.

There were other small racial incidents that I encountered, but no so pronounced since human rights activists had created enough awareness on the rights of black people. From what I was told, the State of New Jersey was not affected by major racial uprisings like other southern state. However, there were pockets of racial discrimination.

I resolved to concentrate on my studies and make good grades to allow me join graduate school. At this point, I had set my mind on how to attain good marks,

strive for a Master's Degree and finally attain a PhD. My undergraduate courses were more biased towards Plant and Environmental Sciences than Arts or Animal Science courses. The courses I took had many practical and tangible results.

Rutgers University had most of the good world-class renowned plant scientists. Some of the professors who taught us had been involved in crop science programmes across the world. They had worked in maize programmes in CIMMYT in Mexico, rice programmes which brought in green revolution at International Rice Research Institute (IRRI) and the International Institute of Tropical Agriculture (IITA) in Ibadan, Nigeria. I therefore had enough success stories to emulate from these exposures.

My first, second and third years of study went on smoothly despite encountering some hurdles along the way. Nothing, however, deterred my resolve to do well in my papers. I used to visit my brother and his wife in the Bronx, NY, every weekend and holidays. I moved to a special residential house for Agriculture students who performed well and were accorded the privilege of community residence.

Community Living at Helyar House, New Brunswick, New Jersey, USA

Universities worldwide recognize talented and needy students and accord them certain privileges. My desire for quality education made me score good grades and enabled me to be considered a special needy student to be accommodated in Helyar House. The 40-room one-storey building was donated by Rutgers alumni for special needy students who performed well.

I applied to join the group there and my advisor recommended me. I was given a room where students did not pay rent but were allocated some campus responsibilities. We were also totally responsible for all the food, clean-ups and purchase of household equipment. It was a well-organized, self-help students' club. I compared it to the one we formed during my primary school days, Nyamagesa Educational Club (NEC), back in Kisii, Kenya.

The communal living in Helyar House exposed me to the American culture and gave me an opportunity to save money to pay fees and use for other expenses. Most importantly, I had an opportunity to secure campus part-time employment given only to students. All the 40 of us were engaged in part-time work as research assistants, library attendants, in the dining halls and even fieldwork.

One had to do well in class for one to be given part-time employment. We did not pay for the accommodation and so the money we got was used to purchase food and other dormitory expenses.

I was able to save for other needs like books and clothing. I was grateful to the house master, who was also my lecturer, in one of the Environmental Science courses. Incidentally, Helyar House had alumni trustees who oversaw the smooth community existence. We also had a management committee which was responsible for various house needs. I was a member of one of the committees of the house.

The house was an all-male dormitory at the time, but I understand that later it accommodated both male and female students.

My part-time job was as a laboratory assistant in the entomology building. I was assigned to an Indian graduate student called Yesu Das. He was also a tutorial fellow in the university. Both of us were responsible to Dr Gupta, who was an entomology lecturer and researcher at Rutgers University. My work, therefore, was overseen by Yesu Das under the general guidance of Dr Gupta, who authorized our weekly pay. It was easy to work with both of them. Incidentally, our payments came from research grants and the college. My primary responsibility was to work in a vivarium rearing cockroaches for research.

Research on Cockroaches

A vivarium is a special laboratory for insects' culture. It was about three kilometres down the road from Helyar House. I worked during my free hours, weekends, holidays and in the evenings. I was paid US\$2 per hour without any benefits, of course. My main responsibility was to ensure that the cockroaches lived well, got water and food pellets to survive and be ready for experimentation. The insects were for research and had to be reared specifically for this purpose.

Dr Gupta had received a state grant to investigate the best chemicals to use in the control of German cockroaches which were a menace in American kitchens. Nobody liked them. And Gupta's task was to discover, develop, research on the best insecticide to kill the roaches. I found this engagement exciting and was able to acquire experimentation designs and methodologies as I worked and earned my small salary. Mr Yesu Das, a PhD candidate, was also assisting Gupta in data collection and analyses. There were two other American students with whom we alternated during the weekends, but they accumulated fewer hours than me.

Dr Gupta liked me because I was reliable and very time-conscious. I never missed to attend to my duties, and reported to him or Yesu Das any incidents which could affect our experiments. I knew that the research we were conducting was beneficial to me and my bosses. I considered the research as my own pride and any good results would be equally beneficial to me. I knew I would be quoted in the acknowledgement page of any publication which would emanate from our work.

Cockroaches are very sensitive insects; if they lack water they will die through dehydration. I learnt a lot about insect biology during my involvement. We all know that cockroaches are the ultimate survivors with enough evolutionary tricks. Research shows that they have lived for over 350 million years and have completely adapted to the human species (*The New York Times*, 24 May 2013).

The nature of adaptation is impressive even for such an ancient, ineradicable lineage. Their feeding habits are strange. They can switch their internal chemistry as an evolutionary mechanism to avoid a poison. Their quick evolutionary change in behaviour offers controlling mechanisms a big challenge to researchers and the

multi-billion-dollar pest control industry. It is through these evolutionary trends that developing chemical control baits becomes difficult to synthesize in the research laboratories. My work was to spray poison baits to kill cockroaches. The industry would always develop new compounds for insects and humans too. Cockroaches had the capacity to sense a poison and evade it. They have no taste buds but have taste hairs on many parts of their bodies to detect a killer poison.

My question here is whether mosquitoes have similar characteristics like cockroaches! They are uncontrolled and keep on causing continuous human suffering all over the world. They become resistant to drugs so quickly and one wonders how they acquired their superiority in evolutionary trends. They may be comparable in their survival traits to cockroaches. For example, studies have shown that mosquitoes change their behaviour; they don't rest on the walls that are treated with insecticides. This is an interesting comparison.

In the race for world domination or just survival for the fittest, cockroaches have scored the highest in adaptive capacity. They are superior to human beings, scientists claim. What is interesting is that cockroaches have been around since the time of dinosaurs, they can live for almost a month without food, and two weeks without water. Female cockroaches mate only once and stay pregnant for life. A cockroach can live for one week without its head, it can hold its breath for up to 40 minutes; and can also run up to three miles an hour non-stop (*The Standard*, June 14, 2013). Cockroaches are most active in the darkness. That is why they are so difficult to control.

Perhaps a comparison between the human behaviour and that of cockroaches may be appropriate here. Human beings commit most crimes at night. They also deal with matters of secrecy at night. This is the part of the day when all systems slow down. This is true for both humans and cockroaches.

Cockroaches come out during the night and cause havoc in the kitchens and food storage stores, whereas man waits until the late hours of the night to effect and or cause mischief of all types, notwithstanding that some other human decisions are also made at night. What is noteworthy is that both animates are nocturnal in causing havoc. This may, however, not be true to legalized human engagement or activities. Is there any psychological semblance in the nocturnal behaviour of roaches?

My exposure to laboratory research was the beginning of dedicated discipline. This was where I had to persevere for long hours and late nights to study the behaviour, eating habits, and survival mechanisms of roaches. Basically, my role was to apply basic research techniques to determine how long cockroaches could survive if they were not provided with certain foods and adequate conditions as needed.

I counted the number of nymphs one ovipositor could hatch, the duration they took to mature from one instar to another and conducive environmental conditions. I discovered that small cockroaches go through several metamorphosis stages before they reached adult life. Cockroaches survive under the most difficult environmental

situations. They adjust to weather changes and seek appropriate niches for hiding and survival. They can survive on very little water and food droppings. They do not like light, and come out of the crevices only when it was dark and quiet.

They are intelligent insects which look for the smallest secure inaccessible places to hide. I was able to determine the cockroach sexes early usually during the second metamorphosis stage. This is within a few hours of their hatching. It was easy for me to give the approximate age of the young cockroach. All these research procedures were significant in allowing my colleagues and me to determine the best stage and method to kill them. I had to consider several variables before we designed an experiment.

The consideration for the provision of water, food pellets, optimum temperatures, lighting regimes, hiding crevices, noise, metamorphosis stages, and the sex dictated the kind of research we had to conduct. I thoroughly enjoyed sitting in the vivarium for long hours to observe the behaviour of these small insects which were considered the oldest in the world. I was able to discover that ovipositors (egg-cases) were deposited by female cockroaches elsewhere and the 'egg' hatched by itself, giving an average of 20-30 small nymphs. I was hardened in research procedures and patience during this whole period. I was also making a few dollars during this learning engagement.

The lessons learnt from my laboratory experiments were trust, patience, accurate data collection, data analysis and appropriate environmental conditions for cockroaches to survive. My two supervisors from India were so open with me that any publication which came out included my name. We carried field trials in several kitchens, smoking out cockroaches as we applied chemicals to control them. We were able to analyse the results of the chemicals which were potentially effective in killing cockroaches. We made conclusions on the efficacy of the compounds and forwarded our findings to the Drugs and Poisons Administration for onward consideration and registration.

The USA Food and Drug Administration is responsible for ensuring that any pesticides registered for use has been tested over and over again for its efficacy and environmental safety. Multiple testing sites are recommended and results are compared across the country. We wrote papers and made conclusions citing appropriate chemicals safe for use in the control of the cockroaches in American kitchens. The insects were certainly a menace and survived on dirt and squalid conditions. The cockroaches could shun all baits and adapt to the most complicated survival tactics.

Field and Laboratory Research

After my undergraduate course at Rutgers, I was enrolled for my Master's Degree course in Vocational Technical Agriculture in the Graduate School of Education. I had sat for a four-hour Graduate Records Examination which I passed well and was

registered for the Master's degree course. I opted for course work and comprehensive examinations rather than thesis writing. The choice was risky, but shorter. My other friends opted for coursework and thesis which would normally take 2 to 3 years. My option took one and half years and I obtained my Master of Science degree. I had to put in extra hours and hard work to compensate for the thesis. My two great professors, Dr Charles Drawbaugh and William Smith (now deceased), supervised me until I completed the course.

We used to have day and evening lectures. I did my practicals for reports and fieldwork survey during the weekends and a few days of the week. Education courses were many and included tests and measurements, statistics, pedagogy, advanced courses in lecture designs and delivery, among others. I enjoyed the units and found them useful even after the course. I also took a few agricultural engineering courses, crop sciences and environment. I considered this approach all-encompassing and covering areas which I later found useful in my teaching career.

After completing the courses, I was expected to sit for a comprehensive examination which took four hours. All materials I had covered during the coursework were examined. I recall that we were four and locked in a room to answer all types of searching questions on topics in taught courses. It took a while to get the results but one of my supervisors called me to his office and informed me that I had done well and had passed. I was very happy that I had risked opting for the courses and examination. There were two failures from our group and the consequence was that they had to wait for the whole year to re-take the comprehensives or quit altogether.

During my BSc courses, I took several units in Crop and Environment Sciences. They gave me an excellent grounding for the Masters and PhD degrees. I was good in Crop Science units and we used to conduct greenhouse and field experiments. This was important for my future career progression. I started to consider enrolling in the PhD programme. The Master's in Vocational Technical Agriculture exposed me to communication skills and public engagement, extension service and teaching.

A combined training in plant sciences, soils, environment and botany made me feel competent in enrolling for a PhD. I applied for it and asked Dr Richard Ilnicki (now deceased) if I could work under him. I saw him once and he never commented much. He told me to go and return to see him another day. He was a well-known weed scientist who received a lot of research grants from chemical industries. He was a strict member of staff and worked only with those who could withstand his short temper as I was advised by my classmates. He was, however, a very clean-hearted professor who loved his students. He was particularly good in working with foreign students.

After a week, I went back to his office and reminded him that I desired to work under him for my PhD programme. It was at this time that I realized he wanted to know whether I was serious or not. He already had two PhD students with him, a Japanese and a Mexican. I would be the third.

My persistence finally bore fruits and he took me under his wing for my PhD. We had a lengthy discussion whereby he advised me on what to expect. He gave me a run-down on the need for research, the research grant entitled to me as a graduate student and the working conditions in the Department of Crops and Soil Science. For one to graduate with a PhD, one had to take some taught courses amounting to 48 hours, conduct research at the same time and write a dissertation. I had to pass the course-work first, conduct field trials, collect data to write a dissertation and defend it. All the work was to be done concurrently.

This was where time planning and management was vital. My stipend was for a period of three and not more than four years. As a foreign student, I had to meet all other obligations to legitimize my stay in the USA. We had two sites for carrying out field experiments: Adelphi, and on the campus. Adelphi was one hour away from my campus, Cook College, the then CAES. The bulk of my research was conducted here.

I therefore had classes for either two or three days and fieldwork for the remaining days of the week. Dr Ilnicki had a team comprising myself, three technicians (Jan Somody, Cathleen Napoli and Kathleen Smowensky), Carol Napoli an MSc student, and two other PhD students who were a year ahead of me. We always hired summer help to assist in field design and data collection. In total, my professor had about eight to ten workers specifically assigned for Weed Science Section at any given time.

In addition to my field experiments designed for writing a thesis, we also had several herbicide trials which were paid for testing their efficacy. These were very important because all our stipends were paid through them. I remember getting new products from companies like Monsanto, Dow Chemicals, Stauffer, Ciba Geigy, Elanco, and Diamond Shamrock for evaluation. Each company expected a well-researched protocol to allow or disqualify it for registration. We were doing these experiments concurrently with other agricultural universities so that the results could be compared.

We had to be very careful in the manner we carried out the research. The findings were supposed to be comparable to those from other research institutions. We could then go to various weed science conferences and report the findings on the new product. Those national and international weed science conferences enabled me to publish several papers and later write a book on weed identification. It is therefore extremely vital to stress here the importance of research at graduate-level training. This is what we gravely lack in our African universities.

The conferences were held in several USA cities and they usually lasted for one week. That is how we became exposed in research and were able to interact in academic circles. We were also able to network and make local and international contacts.

My professor and I published several papers each year which was a credit to his and my curriculum vitae. Universities like Cornell, University of Florida, Texas

A&M, Virginia Tech, Pennsylvania State, among others, collaborated in research and student programmes.

Professor Ilnicki believed in one philosophy: work very hard during the week and then take it easy during weekends. Summer time was the most productive season for our experiments. We worked for five days, Mondays to Fridays, analysed data half-day on Saturday and all day on Sunday. The professor would invite us to his house for a weekend or we would go to the Atlantic City Beach where he owned a beach house. Life as a graduate student was the most important period for me in academic development. The brief experience I had gained in the vivarium was useful.

Prof Ilnicki's family knew all of us, the graduate students, and his caring wife, Helen, was very receptive. She would occasionally bring packed lunches to the field where we worked.

My second supervisor, Dr Roger Locandro, was equally pleasant. He also used to invite us to his house for weekends and public holidays. His family was always ready to receive me and share Kenyan tea or coffee. He taught us a course on Medicinal Herbs and Plants.

Another lecturer Dr. Jorge Berkowitz, took me for several environmental courses and covered important topics which included: Environmental water and land pollution, Chemicals and electronic pollution, Federal Laws of the USA on environmental pollution, The role of the Environmental Pollution Agency (EPA), Littering penalties, and Public participation on the protection and enhancement of natural resources. I found these courses useful when I joined NEMA and kept on referring to them.

What were the merits and demerits of field and laboratory research? The comparison between the two research methodologies was interesting. Basically, the laboratory research was continuous and persistent. The researcher had to endure long hours of sitting or standing to observe and collect data. One had to prepare to sit and observe experiments for as long as it took to get results. The process could at times be tiring and straining. One got fatigued but eventually became happy with the unfolding results.

Fieldwork is fun, laborious and very unpredictable at times. The researcher walks about, observes experiments, records data and can get results within one season. Fieldwork is usually outside in the open and no one can predict the weather patterns once an experiment is laid out. A researcher can lose data and either start afresh or discontinue the work altogether.

Once the results are obtained, the researcher becomes contented and continues to analyse and compare data. All experiments are unpredictable at times; it is like intelligent gambling. The hypotheses one makes should lead the researcher into making predictable conclusions as he or she conducts the experiment.

Researchers are generally reserved individuals. They think about their work and wonder if their hypotheses would prove true or false. The work I did during my

undergraduate courses built on to the subsequent programmes. The many hours I spent in the cockroach laboratory gave me early confidence of collecting and analysing biological data. The mistakes I made in the vivarium became lessons for the fieldwork research trials that I later undertook. There is nothing small when it comes to practical training. I have come to believe strongly that persistence in any work usually pays off.

My interaction with industries, other students and professors across the US gave me confidence in paper writing, slides presentation, and eventually interviewing techniques. Graduate School was the ultimate academic challenge that any student ever enjoyed. It was tough, demanding, tormenting, and called for unparalleled endurance. One could easily give up and call it a day if one could not get along with one's supervisor. I once wrote an article on this subject which is reproduced elsewhere. I highlighted the route to achieving a PhD and how one became a professor of a university.

After collecting data for my PhD dissertation for three years, I had to compile and analyse it. I worked on the competition between soybeans and *pennisetum purpureum* using various chemical and manual control methods. Prior to starting the field experiments, I had to take some courses as part of the requirement for the PhD degree. They were high-level courses which were taught by various specialized lecturers on different topics. Most of my courses covered chemical reactions of herbicides in the environment, herbicide metabolism, environmental pollution and degradation, herbicide formulations, plant physiology, weed identification/taxonomy research methodology and statistical analyses.

I also did a course in computer science to help me analyse my data using COBOL programme then. The courses were common for PhD standard requirements for all students. I remember spending many hours in the library for references after lectures.

Farm Produce: After every harvesting season and having taken all the data needed from the experiment, any products which were considered safe for consumption were stored and used by us. We took home all that we could carry. Our experiments tested new products from all types of vegetables, field crops and horticultural crops grown in New Jersey. We could therefore harvest baskets and gunny bags of edible foods for our friends and own use.

Some of the foods needed deep freezers which I did not have. I instead donated them to my neighbours and friends. In some cases, I made juices and tomato puree from the excess quantities. I could readily store the finished products. We enjoyed the end of summer harvesting season and I was able to deliver products such as sweet corn, tomatoes, onions, water melons and strawberries to my brother and friends in New York City whenever I went there during the weekends. My friends still remind me of my generosity whenever we meet. It also reminds me of the time I was a kitchen/dining hall prefect at Kisii High School in the late 1960s.

All Masters and PhD students had their special study cubicles. The carrels were equipped with lighting lamps, sockets for calculators and book holders. Our offices had thirty such study facilities and a large coffee area. We used to meet there to discuss research progress and assist one another in social or academic matters. It was in the common room where we planned for seminars, prepared slides and practiced presentations. This was usually done in the evenings. I probably used the graduate room more often than anyone else. Our lecturers knew where to get us in case they needed us.

In Kenyan universities, a professor would call or leave a note for the graduate student to make an appointment. They generally do not have a designated meeting place. We also used to assist the lecturers in preparing for the practicals. It is very difficult to trace graduate students in many African universities since they do not have a central meeting place. At this level, social gathering and networking helped us to scout for jobs, discuss research progress and plan for any forthcoming conferences. We need more of these in developing nations to keep pace with the rest of the world.

Lately, however, many graduate schools in Africa are equipping their graduate students with the latest available laptops. Kenyatta University in Kenya, for example, is at an advanced stage of constructing a Graduate School block with all the modern amenities. This will enable closer supervision and interaction between the lecturers and students.

Seminars were conducted every week, usually on Mondays between 10 am and 12 noon. This was a pre-scheduled engagement and all of us had to present our research findings. I remember delivering over twelve presentations during my MSc and PhD training. They covered areas of my academic interest, guided by my supervisor. My best approach in delivery was to practice alone before presentation. My supervisor always made time for me to rehearse before him or with other graduate students. He timed me, took note of my mispronunciations and advised me on the delivery rate and I adjusted accordingly. This was the best practice I ever went through.

The practice became handy when I was a Vice-Chancellor at JKUAT in 1994 to 2003, charged with the responsibility of delivering several speeches in front of dignitaries, staff and students particularly during the graduation ceremonies. I indeed cherished my supervisors' constructive criticisms. I knew very well that some lecturers never accorded time to their students. My main supervisor at Rutgers made all his graduate students do presentations in front of him in a large theatre and he would sit at the far end taking notes. The practice was compulsory for all of his students. It enabled me become a confident public speaker, cautious of my pace in speech delivery and word pronunciations.

Travels within the USA

As students, we used to plan events. The events involved all of us, whether foreigners or Americans. I became popular in planning events like games, sports, public debates and even weekend retreats. Most people travelled during the summer with their families and we could be left behind taking care of field experiments or tending experimental animals in the farm.

I recall a trip we made to St. Paul's City, Minnesota, with my brother Onami and his family. We had been invited to attend the wedding of our sister-in-law, Barbara, and decided to drive there to enjoy the scenery. We left New York City on a Thursday afternoon to attend the wedding on Saturday morning. St. Paul's City is close to 3,000 kilometres north-west of New York City.

The two of us considered ourselves good drivers who could move across the States within 18 to 24 hours. This was during the hot summer month of August 1976. We had a rather beaten up but hardy car. My brother and I drove in turns all night without any rest but for short breaks. My sister-in-law, Eleese, and the three kids, Mogaka, Mora and Onger, just took it easy. Our first enquiry about the distance remaining to get to Minnesota made the sheriff we asked wonder whether we knew where we were going!

We had done an eighth of the trip by midnight of Thursday. I appreciated the road signs and highway patrols. We drove through the Great Plains, seeing fields of wheat and maize throughout the trip. I honestly wished we had flown. Indeed, we debated on flying out of JFK but decided against it just to do some sightseeing across the Midwest plains. We drove through South side Chicago and had a glimpse of a great sprawling city with numerous skyscrapers.

It never occurred to us that the 46th US President, Barrack Obama, would come from that city, Chicago. We arrived at St. Paul's City in Minnesota on the morning of Saturday when the wedding was about to take place. I hit the bed, so did Joel and Eleese. We were woken up to find the groom and bridegroom ready to match. We took a quick shower and joined them.

We witnessed excellent wedding vows, attended the reception and had a memorable Saturday afternoon. Deep down in me, I was worried about the trip back to New York City. The long arduous, monotonous drive across several states in the Midwest bothered me. We had to hit the road back having had a very brief tour of St. Paul's City and its environs. Indeed, we were in for another long drive. This demanded determination and perseverance of the highest order. We actually set out for the East Coast on Sunday morning with an aim of reaching NYC the following day, Monday. I had to be in the field to join my team and our professor to harvest potatoes in an experiment where we were testing pre-emergence herbicides for weed control.

I vividly remember telling Joel that I had to attend to this important duty as I had to collect data for my paper. We had several flat tires which would be repaired

and replaced along the highway. The delay for my fieldwork was imminent; I had no alternative but to stop at a petrol station, gain courage and make a call to my professor that I would be reporting to work late. I knew my professor so well that I could predict his reaction to such a message. The phone went through and I told him that I would be late. He quickly asked where I was and I told him I was around Ohio State, near a university he had attended.

He asked me what I was doing there. I explained and he told me to take my time and report the following day. This was a big relief to me.

We arrived in New York State via George Washington Bridge and went straight to my brother's apartment. The vehicle we used was all beaten beyond repair. The exhaust pipe was gone. Most tyres were worn out and the car itself was falling apart. We later gave it to the junkyard for recycling.

I took my car from Joel's place and drove to New Brunswick on Monday evening to attend to my field work on Tuesday. It was a hot August month when field crops were being harvested. I just could not comprehend why we drove such a long distance for such a short visit! My sister-in-law and Joel were on vacation then. I would have taken a few days off, if not for the pressure of work.

I made one conclusion after the trip; where there is a will there is a way. We were able to attend my sister-in-law Yvonne Barbara's wedding and returned to the Bronx safely, having covered over two thousand kilometres across the north-west states.

I recalled a book I read during my secondary school days, *Around the World in Eighty Days* by Jules Verne, published in 1873. In this book, several characters like Phileas Fogg, Jean Passepartout went around the world in actually eighty days using every means necessary to meet the deadline. Phileas Fogg bet his entire fortune that he could go around the world in eighty days with no special arrangement. He narrowly missed making it.

When I reflect on the trip we made to the Mid-West and compare it with those I made later in other countries, I see a big difference. I made extensive travels in Japan during my visits there. I also travelled a few times to France and the UK on various occasions.

Public transport by trains in Japan is so modern that one cannot compare it to other developed countries. One can comfortably traverse the whole of Japan within a short period and meet deadlines. The Japanese Bullet trains are so precise in timing, and reliable that mass transport system is so superb and convenient for everybody. A comparison between the US mass transit systems and that of Japan finds the former slow and at times unreliable. The transport system in the UK is comparable to that of the USA mass transport.

Timeliness in mass communication is so significant for the country's development. Our trip to Minnesota was by road and took three agonizing days. I later learned that students drove across the states for leisure and sightseeing, but they planned better. After a few years, a friend and I drove about the same distance in a new car

and made several stops en route. It was my first time of seeing the Niagara Falls. We had made elaborate travel arrangements before setting off. This was my second long-distance trip while studying in the US. It was more leisurely than the earlier one.

Student Life and Entertainment

Life for students and young faculty staff is fast-moving. The greatest activities are witnessed during spring and summer months. Students plan and save money for the various activities. I recall many occasions when we teamed up to attend big concerts in various cities and parks. Cities on the East Coast are closely connected. We could move from New Brunswick to Princeton to Philadelphia over a weekend. Or move north-east to Jersey City, New York, Boston and spend the weekend there. Parks and public entertainment places would be fully packed with social activities.

I recall a group of us travelling to Atlantic City when it was first opened for gambling. All types of world celebrities attended the opening ceremony. We saw the world's renowned musicians, actors, actresses, singers and entertainers from all over the US. From Atlantic City, there are several beautiful coastal towns with various attractions. We also visited Asbury Park for live music performance by Cool and the Gang band. In another town were the Bee-Gees, also performing, and the Commodores in another city. Other weekends were spent in New York City where everybody wanted to visit. People particularly longed to tour Broadway, Times Square, China Town, Apollo Theatre, Central Manhattan Park, the UN Centre and many theatres spread all over the city.

One place I frequented after reading Malcolm X's *Autobiography* was the Apollo Theatre in Harlem where he used to meet the Black American Activists. The theatre is centrally located in Harlem which has a high African-American concentration. I enjoyed attending and listening to all sorts of speeches and plays primarily performed by the Black Americans. Nobody could notice that I was an African and a Kenyan national until I spoke.

Entertainment during summer in Western countries is so popular that everybody would save for it. People travel and spend their vacations in other cities. Local tourism for the young people is very popular in the USA. One cannot compare it with that of Kenya. It is cheap and affordable for every class of workers. Those who travel to Kenya are well-to-do senior citizens. I learnt one lesson about the youths in the USA and how they spend their days. They plan according to seasons rather than days. They save to accomplish their travel plans. They know what they want to do in a particular season yet I planned mine in terms of days and weeks!

In Africa, Kenya in particular, planning for certain activities is difficult because of less pronounced seasons. Our focus is somewhat limited and short-lived. People tend to assume a continuum in fulfilling all activities. They do not regard small

monthly variations in the weather as important and hence time is not a factor in planning. 'It can be done tomorrow', as we normally say. We therefore waste a lot of time as if it was static.

Time management is not a priority to many of us. Deadlines are set but hardly met. How then can we ever move forward progressively, either as individuals or as a country if we have no sense of time management? My student colleagues always told me their plans for the following season or year. I adopted that notion and also planned for a year or seasons. College activities were obviously pre-determined but extra-curricular ones were not. The freedom of planning and the privilege of decision-making makes a young American college graduate more independent and mature than a typical Kenyan BSc graduate. That has been my conclusion.

Graduation Ceremonies and the Deepening of my Intellectual Horizons

Rutgers University is one of the oldest institutions of higher learning in the USA. It attracts prominent people during its functions. During my first degree graduation ceremony, we were honoured to have one of the most vocal US senators, Ted Kennedy, as a guest speaker. The Kennedy family had respected politicians and the fact that Ted accepted to officiate at our graduation ceremony was an honour. Grandiose preparation were made for his visit, and the President of the University, Dr Edward Bloustein, a lawyer by training, would not leave anything to chance. Security details were upped; rehearsals perfected and general university cleanliness was enhanced.

As usual, parking became a nightmare! Senator Kennedy landed at our campus with a chopper. He delivered a speech on equal opportunity to Americans which I still recall. He was straightforward in telling the Americans that everybody there was struggling and had an equal probability in becoming a great guy. Nobody was born with fortunes, but fortunes were struggled for. Survival of individuals depended on how hard and shrewdly one worked. He told us graduating students that the US was open to new ideas because research made that country what it was. The government would continue to inject research money into this important sector. He gave examples of research undertakings which Rutgers University had successfully accomplished. He further advised us not to stop at the first degree as this was the beginning of scholarly work. He completed his 25 minutes speech by encouraging the institution to enhance equal opportunities to all the Americans regardless of race or creed. The graduation ceremony was attended by all types of dignitaries from across the country.

The speech had emphasized research, academic continuity, the country's support for research funding and equality to all. This opened my mind for greater things ahead. Unfortunately, I lost my copy of this inspiring speech which had added value to my academic endeavours. Senator Ted Kennedy was a great, intelligent speaker. He intermingled with all the graduating students of my class and we eventually had lunch together in an open lawn next to the Passion Paddle, a clean water swamp on campus. I had a rare opportunity to shake his hand and exchange a few pleasantries.

He asked me where I came from and I quickly said Kenya. He was quick to comment on the great safari opportunities that exist in the country. The interaction lasted for about a minute and I returned to my seat.

After two years, during my Master's graduation ceremony, a Rutgers Alumnus of Medicine delivered yet another great speech. Unfortunately, I cannot recall his name. The gentleman was working as a medical doctor in California and he had flown in to grace the occasion. He was one of the best surgeons in the State of California. I remember the title of his speech was 'Integrity and Racial Equality'. This was a powerful speech which covered the values of human beings notwithstanding colour, race, creed, origin, sex, and religious affiliation.

The doctor took the pain of defining integrity and even referred to the *New Webster Dictionary*: that integrity is an unimpaired moral principle; honesty, soundness and the quality of being whole or undivided, original perfect state. He further expounded on this topic by citing other researchers who argued that integrity 'was like the weather everybody talks about but nobody knows what to do about it'. He further elaborated on what the concept embodied. When he referred to integrity, he had something very simple and very specific in mind. He stressed on respect for values and people.

Integrity requires three steps as pointed out by other writers: (1) discerning what is right and what is wrong; (2) acting on what you have discerned even at personal cost; and (3) saying openly that you are acting on your understanding of right from wrong" Stephen L. Carter, quoted from *The Daily Nation* of February, 25th 2013 by Rasna Warah. The writer concluded that integrity is about having the courage of convictions and the willingness to act and speak on behalf of what is right. This was the kind of courage which many people lack. Most people lack the integrity required to make far-reaching decisions for the benefit of an institution or country. Instead, they are short of ideology or conviction.

The speaker during my second graduation ceremony had encountered racial discrimination in the US as a medical doctor. Although he was a well-to-do white doctor, he was not ready to discriminate awarding practicing certificates to the blacks who had qualified to practice in the profession. His colleagues in the medical fraternity had unfairly refused to register qualified doctors from minority communities and he vowed to change such racial prejudices. He fought the war and succeeded in being fair to all as long as they met the required qualifications.

A quick reflection on the two most powerful speeches during my academic career taught me several lessons later in my career. First as a vice-chancellor, I had to prepare well for graduation speeches and pick topics relevant to the nation, audience and university community; and second, as a head of an institution, I had to encourage the young graduating students to proceed further because first and second degrees were not enough in the competitive world. I keep on stressing the same to my three sons and daughter.

The late senator's speech on equality and survival of the fittest made me realize that working hard and choosing a career in life was dictated by the quality and demand of the discipline. Each country had enough resources to cater for all if accessed and shared equitably. In his speech, he also stressed on integrity as a prerequisite for a fair and just nation. Without integrity, the people would suffer, and class conflicts would persist.

Corruption and other vices become endemic in communities. The divide between the rich and poor is widened and societies live in fear, development is hampered with and countries are left poor and experience slow industrialization.

I used these pieces of advice later in my academic and administrative roles. The speeches manifested well during students' agitations, riots, and admissions. The Kenyan Joint Admissions Board (JAB) was so well planned and fair in its roles that as its chair in 1998, I was proud to participate in fair admission exercises. Integrity therefore played a major role in my management of the administrative duties which I undertook as I carried on in my academic pursuits.

I always stress to my students that research, data collection and reporting are crucial stages which demand integrity. There are no shortcuts to good work. The many universities we now have in Africa, and especially East Africa, have to ensure that quality training is enshrined in their philosophy and their staff is of high integrity responsible for sustaining quality services. My summation on integrity is about the prize one pays for doing what is right and justifiable to society as courageously as possible, no matter the consequences. This virtue is rare in our midst.

The convocation speeches were educative and I had the opportunity to listen to several powerful special guests on other fora. I was able to translate them to my future management skills. My academic achievements and administrative duties borrowed a lot from the two speakers. I later realized that any formal speeches I made must have a component of integrity and fair play as far as Kenyan tribes were concerned. Tribalism and lack of honesty are cancers in our society today.

Choice of a Guest Speaker

How do we choose the guest speaker for a specific graduation ceremony in an African university? Who selects the speakers? Is it the council, the vice-chancellor, top management, senate, faculty members or the graduating class? This is controversial debate which has affected the speakers-to-be in some western universities. Commencement speeches are usually free when they are delivered on campuses.

That is referred to as freedom of speech in the academia. The notable speakers who are invited have the freedom to raise controversial issues which affect society. Cases have been cited in US universities where students from over 10 campuses protested against speakers invited to commencement events. The reason was simple, that the rejected individuals were people of little or no integrity.

One of those rejected was a World Bank personality whom students accused through face book as the architect of the Iraq war and a war criminal. Another renowned neurosurgeon and a conservatism icon dropped out as a commencement speaker in a great US university after students protested against comments he had made lumping together homosexuality, paedophilia and bestiality.

A similar case involved the US President Barrack Obama as a subject of controversy. He had been invited to deliver a speech at Morehouse College as a guest speaker. The college had earlier invited a Philadelphia pastor, Rev Kevin Johnson, to speak the day before Mr Obama. The pastor, who had written an article in *The Philadelphia Tribune* criticizing Mr Obama for not appointing African-Americans to cabinet positions refused to attend the commencement as he wanted to be the sole speaker during the event.

He was advised that the university wanted to provide a broad spectrum of views from both speakers. (*The New York Times*, Sunday, May 12, 2013). Another case was reported in Ottawa pitting one conservative commentator, Ms Ann Coulter. She made a comment about Muslims which angered about 2,000 students who demonstrated against her appearance. She cancelled her appearance.

Cases of environmental and human rights abuse have also featured on individuals' standing on the matter. Students have even demonstrated against the recipients of honorary degrees. The protests have taken various forms and have been largely used to portray one's image, standing in society and integrity.

Whose graduation ceremony is it? Those graduating at that point in time own the show. They should have a say on who can be their chief speaker during this occasion. Currently, students are not involved in the selection of speakers during graduation ceremonies. A mechanism can be found on how to engage students.

It is the students' commencement, not the staff, not the management. Many African universities may wish to consider mainstreaming integrity when choosing dignitaries for various university functions and awards. Universities are meant to be bastions of open-mindedness and free speech. They should not therefore deny the students their right to hear controversial opinions and draw their own conclusions about those opinions. The aim of these controversies and protests is to have a hand in choosing the guests

My PhD Defence (Viva)

My weed control research was complete when I harvested my last season crop and collected data on my experimental treatments. I analysed data and made informed conclusions. I wrote the dissertation and submitted it for examination. My main supervisor and two other examiners read the thesis and wrote reports to enable me attend an oral defence examination.

In the US, the public is allowed to attend any viva and ask questions. I was aware of this openness and prepared well in case a question came from a non-scientific stakeholder. My board of examiners included Dr Richard Ilnicki, Dr Cecil Still, Dr Roger Locandro and Dr Motto. These examiners had taught me at some stage during my Master's and PhD courses. Dr Still taught me Plant Biochemistry, Dr Locandro taught me a course in Plant Ecology and Dr Ilnicki, my supervisor, took me through Chemical Weed Control and Herbicide Metabolism units. I was therefore familiar with the members of the Board of Examiners. I prepared well for my defence which commenced at 9 am ended at 12 noon. I was asked several questions some of which touched on the Kenyan economy and tourism. I was able to answer most of the questions although some of them were outside my research mandate.

After about three hours of grilling, I was informed by the main supervisor that I had done well and was to be awarded a doctorate degree in Weed Science. I was elated. There had been cases of repeats or outright failures. I called my brother and his wife Eleese to tell them the good news. They too were most grateful and congratulated me. I became Dr. Ratemo Waya Michieka on the day I passed my defence which was on 8 July 1978.

I recall that date vividly because Dr Cecil Still's wife, Delores, gave me a wristwatch inscribed with my name and the date which I keep as a memento. This was a moment to remember and it seemed to be the beginning of good tidings. My fellow PhD students were also preparing for their defences. My friends organized a party for me and I had to plan for my next move.

Several companies whose chemicals we were testing wanted me to join them for employment, but I turned down the offers due to several reasons. I was not convinced that I wanted to stay in the USA after my studies. USA is a great place for one to work in and make a career, but future advancement could be limited no matter how hard one works. There was still that stigma of a black boy, a Kenyan boy, an African boy.

I was very much welcome to work and stay in the US, but opportunities elsewhere in Africa were brighter than those in the USA. I kept on thinking and considering whether to apply and continue my stay or seek other openings abroad. The latter prevailed.