Challenges, Way Forward for Quality Postgraduate Supervision

Teaching, research and extension services constitute the tripod mandate approved for the establishment of the Nigerian university system by the National Universities Commission(NUC). Typically, research encourages the development and application of critical and systematic methods for problem-solving, thereby producing knowledge for national growth and development. Every student is expected to conduct a research before the completion of an academic programme. In the case of postgraduate programmes such as Postgraduate Diploma (PGD), Master's Degree (MA/MSc) and Doctoral Degree (PhD), students are usually assigned to supervisors, who oversee the conduct of the various researches. Supervisors can be major, co-supervisor, or chosen from outside the student's department.

Supervisor, supervisee or both of them often face some challenges. Most times, the complaints come from students (supervisees) about their supervisors; a development that has been found to be a world-wide trend. At the University of Otego, New Zealand, a research was conducted on 40 groups of graduate students on their challenges, and results show that critical problems were often faced by students. These include lack of commitments and busy schedules by supervisors, poor feedbacks from supervisors, conflicting perspectives from the supervisory team, poor communication and disagreement on research work, selfishness and disrespectfulness from supervisors, among others. It is, therefore, a call to duty as teachers, supervisors and mentors to analyse these challenges and proffer solutions that would enhance quality research by students.

Firstly, great support and encouragement is required by these students. It is highly necessary to build good relationships with our research students. Our availability

Prof. Olusegun Folorunso,
Head, Department of Computer Science

would be greatly cherished by the students. Good communication can be enhanced by using online media such as Skype, Whathsapp and the like, to reduce face-to-face conversation. Open, honest and constructive feedbacks should regularly be given to the students. It is also of paramount importance to show interest and enthusiasm in the progress of research students, as this serves as great motivation to them. A supervisor should be an expert, be up-to-date in his/her the research field and should show interest in the student's career.

A good supervisor should assist in networking students to bench-work at local and overseas institutions, attend conferences and seminars, source for grants, and facilitate publications in reputable and high-impact factor journals. There may be other reasons that could limit postgraduate supervision but human factors are very critical if things are going to work out, as expected. In a nutshell, supervisors must have great passion for this important assignment. A great passion would certainly influence quality research from our postgraduate students - **Prof. Olusegun Folorunso, Head, Department of Computer Science**

A cross section of students using Computers for Research purpose

Making Computer Science Graduates Marketable, Employable

A computer science graduate from any institution of learning must have registered and passed many computing courses - quantitative and analytical subjects - such as mathematics and statistics, as well as undergone Industrial Attachment (IT), aimed at enhancing practical and administrative areas in computing. The choice of IT placement greatly influences the future of computer science graduates. A good placement, which exposes students to real life practical problems, could increase their marketability and employability level after graduation.

Group of Department of Computer Science, FUNAAB final year 2018/2019 graduating students

Computer science involves problem-solving while developing practical solutions to scientific and business-related issues. Consequently, its graduates must be up to the task in addition to graduating with good grades from the university, to be engaged by reputable organisations. Top skills that graduate recruiters seek for among employees includes logical and analytical thinking, business intelligence, excellent communication skills, good interpersonal skills, excellent team spirit, high leadership skills, time management, and self-motivation, among others.

A logical and analytical approach to solving problems and resolving issues is highly needed as a computer scientist. Team spirit is one of the major qualities that make computer science students marketable and employable, as most computing tasks require teamwork to achieve good output. Time management is also very important as deadlines for achieving tasks must always be met. Conclusively, computer science students are encouraged to develop analytical and entrepreneurial skills, which can improve their employability after graduation - **Prof. Olusegun Folorunso, Head, Department of Computer Science**

Aligning Information Technology to Support SDGs

In 2015, all the member states of the United Nations provided a shared 17 Sustainable Development Goals (SDGs) blueprint for peace and prosperity for the people and the world, both now and in the future. As part of efforts by the Department of Computer Science, Federal University of Agriculture, Abeokuta (FUNAAB) in aligning Information Technology towards the realisation of 17 SDGs, each of the goals would be discussed in our monthly editions of the CSC Newsletter as well as available opportunities, where IT would be of relevance in solving some of the emerging and global problems. Furthermore, this could also serve as a source of inter and multi-disciplinary research for both staff and students of the university. In this edition, articles are presented for SDGs 3 and 7.

Driving SDG 3 with ICTs

Good health and well-being are essential to sustainable development. It cannot be over-emphasised that creating a sustainable world and achieving economic, environmental and social goals depend on a thriving and healthy population. Hence, access to essential and quality healthcare services, safe and affordable medicines and vaccines are of utmost necessity. Information and Communication Technologies (ICTs) have huge potentials for accelerating progress towards the attainment of the United Nations Sustainable Development Goals (SDGs) on health and well-being. The utilisation of technology for healthcare services has become obligatory. Artificial Intelligence (AI), block-chain technology, sensors and biotechnology can advance human medicine along with healthcare information, services and access. AI-augmented computing can help doctors reduce medical mistakes. AI systems can be adopted for high-performance diagnostics for disease detections. Also, AI-enabled wearable devices can be utilised to detect early signs of diseases such as diabetics.

With mobile technologies, healthcare and medical information become easily accessible as patients track their health status via an app. Mobile health apps offer great flexibility to all parties. Such apps can provide better health awareness and facilitate communication between patients and care-providers. Mobile health care is applicable for chronic care management, medication management, medical referral, diagnostics, fitness and weight loss as well as mental health. Telemonitoring technology such as telemedicine and tele-health, can monitor vital signs, symptoms and blood levels from a remote location. The implementation of these telemedicine options can increase access to healthcare services in rural areas and reduce the waiting times of patients.

Digitalisation of health records also has great impact on the quality of healthcare services. Electronic health records can increase accessibility to patient's medical history, improve patient's care, improve public health and ease workflow. Enormous data collected from health records can be stored, processed and used for analytics. Big data analytics for healthcare can influence the development of new drugs and treatments, predict epidemics, limit healthcare costs, reduce healthcare waste, avoid preventable deaths, and improve the quality of life - **Carolyn Tinubu, Lecturer, Department of Computer Science**

What SDG 7 can offer with ICT

Information Technology can be a key catalyst to realising the Sustainable Development Goals (SDGs). Although none of the 17 SDGs particularly refers to Information and Communications Technologies (ICTs), the 2030 Agenda for Sustainable Development can experience accelerated progress when revolved around ICTs. The SDGs fundamentally target "5P", which include the People, Prosperity, Partnership, Peace and Planet.

Lack of access to clean and sustainable energy constrains human and economic development. Fossil fuels, which are the largest producers of greenhouse gases, have devastating health, social and environmental consequences and should be greatly avoided. SDG 7 aims at ensuring access to affordable, reliable, sustainable and modern energy from clean sources such as solar, wind and thermal for all by 2030. The deployment of technology for affordable and clean energy (SDG 7) is highly important for the achievement of this goal.

Research and development in computing focuses on improving technological challenges, such as storage capacity, computing speed, computing capabilities, communications and networking. Some 25 years ago, attitudes concerning renewable energy started to change as environmental concerns became more apparent. Technological advancements made a large push to creating new and more convenient ways of obtaining renewable energy like wind power, hydroelectric power, or solar power for personal and community uses. Technology solutions such as those innovated by Intel® and its partner; Axiomtek have increased the popularity of renewable energy consumption while less expensive, accessible and reliable energy alternatives have been developed.

Embedded controllers and Internet of Things (IoT) gateway devices with Intel® processor options are being designed for solar energy power and other renewable energy alternatives. These embedded controllers can be programmed to prevent overcharging, monitor operational functions, communicate key data and status and optimise energy utilisation based on usage patterns and setting preferences. The IoT gateway devices are pre-tested and pre-validated with software stacks to ensure great connectivity, security and manageability. Smart grid technology can enhance sustainable energy services. A typical example of using technology to enhance efficiency of renewable energy is with microgrids; which support the delivery of power to users by connecting buildings and homes to power sources that may include solar energy, and wind farms.

This is programmed to automatically perform backup functions in case of emergencies, and to prevent interruptions or outages. This would ensure efficient and cost-effective production of renewable energy. Artificial Neural Networks (ANN), an artificial intelligence concept can be used to estimate solar radiation in the development of efficient solar radiation models. In summary, technology can deliver convenient and cost-saving measures for renewable power as well as eradicate greenhouse effectsin our environment - **Morenikeji Kareem, Graduate Assistant, Department of Computer Science**

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