



Challenges a Graduate Engineer Faces in the field in Uganda

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ABSTRACT

Young engineers in the country battle with various tests of finishing school life and transitioning into the work environment. However, it is not as fast as they expect it to be because they have to go through various training to append on their theoretical knowledge obtained from the university. That is how the majority first adapt to having graduate training which, however, is a big test to them. Nevertheless, there are some remedies that can be embraced by various regulating bodies to ensure that some of these challenges are minimized and the future great engineers of the country are not left in despair.

1.0 INTRODUCTION

Education is the key to the future. That saying has been used a million times while we go through school right from nursery till the day, we finish formal studies. Career guidance is one thing that does not miss from this exciting journey because we go through numerous counselling throughout the education journey that sets off from nursery, primary, secondary and university that is supposed to mould and shape us up fully. The construction industry is diverse with a range of ages groups including the young generation like those in Figure 1.

The work opportunities are available out in the field but the reverse is true. The guidance and counselling given to students, such as those in the engineering field is not easy. This is because a lot of hardships are there along the way.



Figure 1: Graduate interns on site levelling concrete

In fact, the end of university is also the beginning of another journey into an engineering course of its own that is not for the faint-hearted because it requires a lot of patience and resilience since it is tougher out there in the field than in the walls of schools.

Uganda has only 942 registered engineers collectively where 874 are Ugandan nationals with full operational licenses and 68 are foreigners with temporary registration (ERB website, 2020). Despite the fact that over 600 engineers graduate from different universities all over Uganda (Observer, 2019), the registration process and number of engineers issued with licences to practice are still alarm-

ingly low set side by side to our East African neighbours under the mutual recognition agreement arrangement (MRA) (Odong, 2022). In addition, 95 of the 136 districts that make up Uganda do not have registered engineers. Uganda has more than five organizations regulating engineers in the country and other engineer-related fields. The most commonly known being the Engineers Registration Board (ERB), Uganda Institution of Professional Engineers (UIPE), Uganda Association of Consulting Engineers (UACE), Uganda National Association of Building and Civil Contractors (UNABCEC), the Institution of Surveyors of Uganda and the Uganda Society of Architects (USA) to see the performance of engineering in Uganda blossom. ERB is mandated with regulating the practice of engineering in Uganda and advise the government on all engineering matters with jurisdiction obtained from the Engineering Regulatory Act of 1969 (ERB, 2020).

The Uganda Institution of Professional Engineers (UIPE) is also on the forefront of regulating engineering activities in the country and has various roles and responsibilities but the catchy one to a graduate is to co-operate with universities, institutions and educational centres for the furtherance of education and training in engineering, science and practice. UNABCEC is a contractor regulatory body that is dedicated to fostering improved performance in the construction sector by presenting genuine contractors in the field. UNABCEC is in the limelight for graduate engineers because it offers graduate training programmes to these champs and this program is known by almost half of the graduate engineers especially those from public universities. With all these regulatory bodies in place, graduate engineers are lucky to graduate because they will find guidance waiting in the field.

2.0 CHALLENGES FACED BY GRADUATE ENGINEERS IN FIELD

This chapter breaks down in detail some of the challenges faced by graduate engineers as regards to the information collected from the internet, papers and informal personal conversations.

2.1 Insufficient practical experience

A university equips students with skills of research and having intense self-driven reading skills because most of the times they will develop their personal reading material and take control of their learning. However, the practical experience is neglected which affects students especially those from practical courses like engineering. Engineering students are given some practical field experience through recess and internship but it is usually just a sneak peek of what the actual field requires; they

end up having just the general knowledge about what needs to be done in field. This affects them when they get to the field because they are practically not competent enough for the on-site jobs.

2.2 Work without training assistants

Often most graduates realize they do not have practical skills so they cut back on the pressure of searching for jobs and decide to first get the practical skills through a programme called graduate training. Usually, students apply for this training from different companies and one of the problems they face while training is that some of them go to sites where there are no engineers or tutors to nurture them. The challenge is that they just have to find their way and look for personal training while at sites.

2.3 Limited training places

Graduate training is the first activity that students have adopted to undertake after university and most of them are eager to have it because it gives them the practical skills they missed while at university. But this does not come to everyone easily because it is as hard as getting a job after university. Some students miss out on the training and find themselves in other fields that are not related to the engineering field.

2.4 Lack of Personal Protective Equipment (PPEs)

Construction sites usually provide their workers with personal protective equipment for their safety but they find it hard to provide for graduate students reasoning that the equipment is for company workers only; graduate students should facilitate themselves with safety gear yet some of the students cannot even afford some gear like safety shoes.

2.5 Inadequate financial support

Some construction companies don't consider graduate students especially on graduate training as their workers since they are more of learning the practical skills; they do not even pay them. In fact, some companies go ahead and ask for some money from the students claiming that they are equipping them with skills just like how they pay tuition or school fees to institutions. This affects the graduate students since they have to cater for their lunch and transport as some of them might not be in position still to get financial support from their parents. This demoralizes them from working and some resort to quitting graduate training before they actually fully attain the necessary practical training because they are struggling to keep afloat.

2.6 Shortage of employment even after training

Some construction companies can retain some of the graduate trainees who work with them during their training period and those are the lucky ones but to get to the other side, some graduates don't attain employment especially with the companies they have worked with and end up with the engineering skills but working in other fields that are not engineering-related.

2.7 Lack of trust from some engineers in the activities carried out by graduates individually

Usually, graduates are eager to acquire knowledge and practical skills and as soon as they get an opportunity at site and those that are well conversant with the practical skills want to

hit the ground running while carrying out the various tasks that they have learnt. However, it is discouraging when they put in a lot of effort and hardwork to deliver what is supposed to be done but then the engineer at site does not appreciate their toil even when they have made some mistakes which are unforgivable.

2.8 Demoralization from some professions in the field

Construction sites face the challenge of where every profession believes their accomplishments are better than others. Comments like "your course is not of much importance in the engineering field." This is a big challenge that graduates of construction management face, making them think they are not of any importance in the engineering field.

2.9 Monetary Exploitation

Most graduates fresh from university and other institutions are usually excited to practice the profession they've just graduated in. Sadly, this often challenges them in a way that some organisations or individuals exploit this desperation by seeking money from the graduates for them to practice in their organisations. This money is usually covered with the excuse of being used to facilitate the graduates and also fix the mistakes they are likely to make while practicing.

2.10 Language Barrier in the field

The engineering field has a variety of levels responsible for different roles in the field. These different levels can include, artisans, technicians, technologists and engineers. There is a general language that joins these levels together to ensure proper communication essentially for proper supervision (Border States, 2020). This language is often not taught in institutions or universities

but rather learnt in the field. Most graduates get into the field without having properly grasped the language and this makes it complicated for them to carry out proper supervision and comments on work in the field.

3.0 RECOMMENDATIONS

Despite the fact that these challenges may seem heavy, they can also be solved if the institutions and work environment work together to support the graduates. Some of the recommended ways forward are explained below.

The university can equip students with basic skills needed to face the professional world but more practical skills need to be imparted so that they hit the ground running while they are done with school.

The college of engineering can partner with different companies so that these companies employ graduate engineers after university through graduate training as they get the practical skills to combat the challenge of some students missing out on obtaining graduate placement due to the various problems that the country is facing including the "gamba nogu issue."

Different engineering regulatory bodies like UNABCEC have tried to establish graduate training programs but some eligible students end up not benefiting because of the unawareness disease that is with the program therefore these organizations need to widely inform students about these opportunities to facilitate young engineers.

Universities should establish a university company made of students but regulated by their lecturers to also participate in bids and winning contracts while they have partnered with other construction companies that have delayed in the engineering field.

The engineering regulatory bodies in the country should establish and enforce sensitization of their roles through carrying out seminars, workshops and other means of getting closer to these young engineers while they are still at universities.

Students should create an initiative amongst themselves as a group of small numbers or individually and visit sites regular during holidays and any free time they get off campus to instill more practical knowledge to them and as well be familiar with the whole construction process before they are out of campus.

The regulating bodies should also encourage their subordinates like contractors under UNABCEC to provide to students who come for training with supervisors who trains them one on one on the practical skills in the field and also monitors their assessment through-

out the training period. Also, these companies shouldn't bounce back the students from their sites due to safety reasons otherwise they should just provide PPEs to the students.

4.0 CONCLUSION

University students are believed to be grown-ups who can handle and face challenges in the world on their own; but they need more professional support, especially just after campus because most of the times they do not actually know what they need to do especially in fields that are broad like engineering. Some students do not even know about these regulatory bodies like UIPE, ERB, UACE, among others, yet they can actually help the graduate engineers during their professional development. This implies that these bodies are not doing enough to reach out to the graduates. yet this should be done while the students are still at university, perhaps even in their first year so that they get a bigger and better picture of the professional world ahead of them. How are they are going to face it to minimize issues of engineers getting lost in thin air with the aim of keeping themselves afloat in a country short of engineers? While students acquire all the necessary theory

necessary for engineering, the practical skills are of very much importance to them to enable them contemplate and make meaning of everything that they are taught in class. While the saying that the young generation is the future of tomorrow, the regulating bodies in the country should endeavour not only to put emphasis on engineers practicing in the field, but also consider monitoring young engineers and thoughtfully grooming them into superior engineers who are far from offering shoddy works to the country and the world at large.

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