

Template for Impact Case Studies Submission

Title of the Impact Case Study: Beyond Mentorship: An Engineering Graphics and Design society of student teachers.

Submitting University: Tshwane University of Technology, Engineering Graphics and Design unit, Department of Technology and Vocational Education, Faculty of Humanities [mtshaliti@tut.ac.za]

Summary of the impact:

This is a society of students who are helping others to learn drawing concepts that are most challenging. These students come from different levels of education with an aim of equipping student teachers teaching skills of the subject matter and also assist Grade 12 learners who are doing Engineering Graphics and Design in some schools in the Gauteng Province. Most students come to universities without background knowledge and skills of drawing and so, this society comes to help their peers whenever they are free.

The society goes beyond the mentorship in the university but also reaches out to a wider community through its TikTok page. In the page, students get various strategies to draw and ask for help wherever they need. This was because most young people are on TikTok for various reasons and this society saw a need to use it for educational purposes. Our primary page can be found here: https://www.tiktok.com/@egd_society? t=ZS-90D3Z7Y0hKE& r=1

The society, through its leader also began a movement where the members of the society are coached on how to teach, using various teaching methods. A comparative study was carried out to help other universities on how they could leverage on each other to teach graphical communication skills. The results of this movement was presented at an international conference and a publication was achieved and can be accessed here: https://www.researchgate.net/publication/393631376_LEARNING_TO_TEACH_ORTHOGRAPHIC_DRAWING_SKETCHING_BY_PRESERVICE_TEACHERS_A_PROBLEM_INTO_A_METHOD_THAT_WORKS_FOR_STUDENTS_IN_ENGINEERING_GRAPHICS_AND_DESIGN

Underpinning academic work:

Before undertaking this project, it was important to explore its viability and so, Dr Thokozani Mtshali undertook a study using TikTok platform with a group of 16 student teachers to investigate the impact of TikTok videos in creative designs of house plans. The study found that some TikTok videos had opened doors for creativity in designing house plans and granny flats which were activities aligned to the Curriculum Assessment Policy Statement (CAPS) in South Africa. As a result, this allowed many students to explore various online learning platforms in search of expanded knowledge

and skills. The link below shows one of the active members on the society and a participant of the initial project. https://www.tiktok.com/@egd_explore? t=ZS-90D0g4UF7to& r=1

Ultimately, the EGD society TikTok page was created to add its value under the STEM filter which was dominated by science and mathematics content only. This society has impacted on the composition of STEM content on TikTok where students from various universities across the globe can watch step by step how to draw various engineering designs. The following shows the publication that was achieved before the EGD society was formed and the second one is a publication achieved through the continuing project.

- *Mtshali, T. I. (2023). The impact of TikTok videos in creative designs of house plans in civil technology's practical assessment tasks. INSANIA: Jurnal Pemikiran Alternatif Kependidikan, 28(1).*
- Mtshali, T., & Sephokgole, D. (2025). Learning to teach orthographic drawing (sketching) by preservice teachers: a probe into a method that works for students in engineering graphics and design. In *EDULEARN25 Proceedings* (pp. 3185-3189). IATED.

Narrative description of the impact:

For a long period of time, engineering graphics and design has been taught in a selected few numbers of schools in South Africa. Yet more students are accepted to teach these skills. The challenge is that these student teachers bare no background of it and are expected to teach this subject during work-based learning program known as teaching practice.

Through this society, students get quick hacks on how to teach it with confidence. The society was aware of research by some south African scholars who said that student teachers lack confidence in teaching EGD subject. As such, we took it upon ourselves to reach out to any student on social media who may need help so that they can teach confidently. Our community outreach program also involves taking few students into a nearby school to teach and motivate Grade 12 to take seriously all the Technical and Vocational subjects for their future. This involves giving those students an opportunity to teach through peer teaching in order to assist them on how to effectively teach the subject. One of such schools is Ekangala Engineering school of specialization into mining studies. The proof of such a visit is presented in the next segment.

Evidence and sources to corroborate the impact:

- **17th International Conference on Education and New Learning Technologies in Spain (2025):**
<https://library.iated.org/view/MTSHALI2025LEA>
- **EGD Society TikTok page:** https://www.tiktok.com/@egd_society? t=ZS-

90D3Z7Y0hKE& r=1

- High schools drive: This is Nkangala School of specialization, where we assist Grade 12 students in preparing for their examinations, this is testimonial from the Deputy principal of the school.



Ekangala
Engineering School of Specialisation - Mining



DATE: 20 June 2025

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Re: Student Engagement with the school

To: Whom it may concern

This serves as proof that **Dr Thokozani Isaac Mtshali** visited our school **20.06.2025** as part of his community engagement project. His visit to the school was to present to Grade 12 learners who are doing Technical Subjects about the career opportunities, skills scarcity and the advocacy for Technical and Vocational Schools of Specialisation. We thank him for his valuable contribution to our learners as they prepare for tertiary life from 2026 onwards.

Please feel free to visit our school again

Kind regards

Mrs Tjiana C.Z

Principal



Office of the Principal: Ekangala Engineering SOS

Principal: Mrs Tjiana C.Z

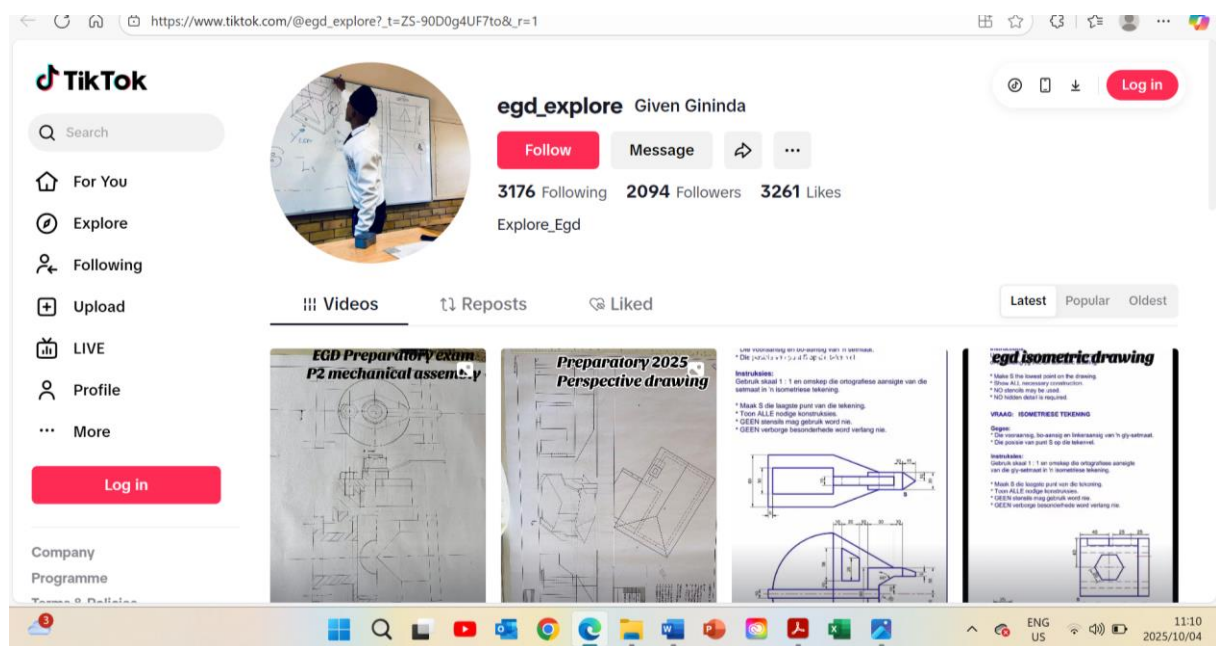
Office: 013 170 5453

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Email: 700920186@gdeschools.gov.za or cztjiana@gmail.com

Any other information considered relevant:

The following shows the EGD society in action and the Tiktok page where a larger community can reach us.



Signed off on behalf of the University by:

A handwritten signature in black ink, appearing to read 'T De Jager', with a stylized flourish at the end.

Prof T De Jager

Assistant Dean research Innovation and Engagement

Date:6/10/2025