

# AccessEd ZA 2020



AccessEd ZA  
Impact Report  
2020



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The adapted programme for me remains a very pivotal and fundamental approach to having an early preparation and awareness of the importance of tertiary education for younger learners. High school learners do not always comprehend what it means to excel at a higher educational point and this programme helps with exactly that.

– T. Chingosho, Tutor at LEAP 3



# Executive Summary

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Katie Booth

Director of Programmes, AccessEd

We are pleased to present the third AccessEd ZA programme summary and impact report. This outlines the programme partnership and outcomes.

Our third year saw us deliver a programme amidst the global Covid-19 pandemic, working with 53 students at 2 LEAP Schools in Gauteng. We are proud to have reached students in some of the worst affected communities, safely delivering the programme through an adapted in-person and digital delivery hybrid model. We recruited and trained 4 PhD tutors, each of whom created course handbooks based on their research.

There have been a number of successes from this year's booster programme, which you can read about further in this report. To give a few highlights:

- We successfully adapted our delivery to cater to schools in the wake of Covid-19;
- We successfully introduced a truncated programme that comprised of 4 tutorials;
- We observed students increase evaluation scores across our four key competencies: university readiness, self-efficacy, motivation and meta-cognition;
- We worked with four researchers from two universities in South Africa;
- We saw researchers develop and refine their pedagogical skills through their involvement in the programme; and
- We observed teachers endorse the programme.

We greatly value hearing feedback and receiving input from our partners into the evaluation of our third year AccessEd programme. We believe the programme is more important than ever in supporting students during this time, whilst helping to bridge the educational gap exacerbated by the pandemic.

We look forward to continuing the conversation on how we can improve the programme in the future to best support pupils to increase fair access to higher education.

Yours sincerely,  
Katie Booth  
Director of Programmes

# About

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AccessEd is a charity that exists to increase access to university and higher education for young people from under-served backgrounds around the world.

AccessEd has a global network of partner organisations committed to this mission, sharing with them our expertise, resources and support. AccessEd also works as a capacity building and co-design partner charity collaborating with global education entrepreneurs in South Africa, Botswana, Malaysia, Hong Kong and Ireland.

We are scaling up a university access solution that grew out of the UK education system and started with The Brilliant Club.



## University Access

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A university education can be transformative. Graduates have better employment prospects and earning power, better health and wellbeing, and better civic engagement.

Indeed, UNESCO aims that by 2030, all men and women will have equal access to high quality, affordable technical, vocational and tertiary education, including university education.

Despite the benefits for individuals and societies, inequalities in university access are pervasive across both the developed and developing world.

We believe that addressing this problem is both an economic imperative and a matter of social justice: all economies strive to maximise the potential of their human capital; and justice demands that any society develops engaged citizens and provides fair access to opportunity.

The national lockdown in response to Covid-19 has further exposed inequalities associated with education and progression to higher education in South Africa.

More students from the wealthiest 10% of households in South Africa attend university than from the poorest 80% of households.

**6.4%**

of 19-year-olds in South Africa are attending or are enrolled at university.

**12 in 100**

students in South Africa progress to university.

**45.7%**

of the youth have dropped out of the education system by the age of 19.

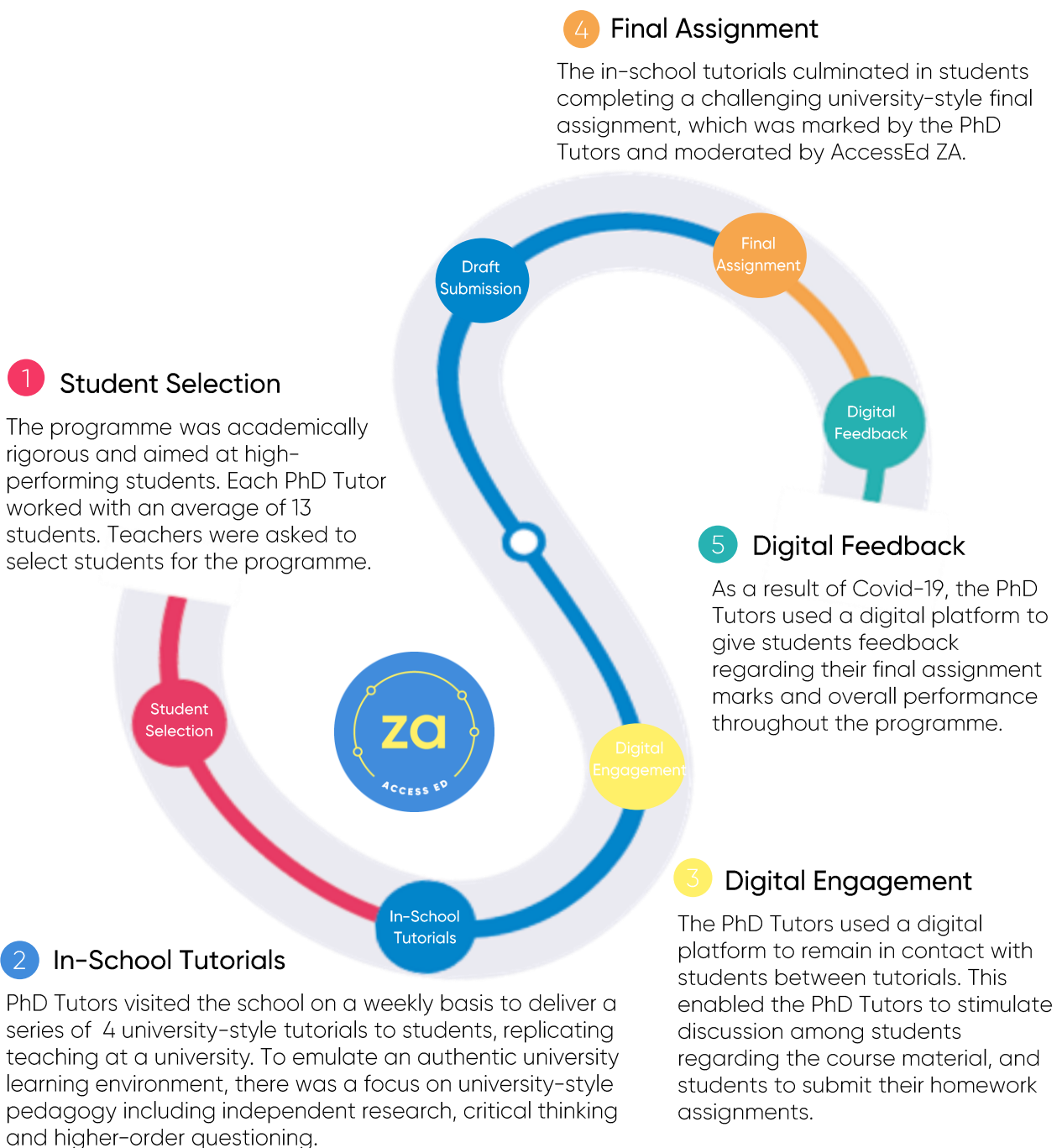


# Student Journey

The AccessEd ZA programme is designed to give students an authentic experience of university. From being taught by PhD tutors, to studying undergraduate-style topics, the programme aims to break down barriers to university.

Students across the world are struggling with the impact that Covid-19 has had and continues to have on their education. To avoid missing out an opportunity to break down barriers to university as a result of the pandemic, the AccessEd ZA programme was successfully adapted in 2020. It comprised of 4 university-style tutorials and a new hybrid model of in-person and digital learning.

The diagram below shows the 'student journey' through an AccessEd ZA programme.



# Researcher Development

We invited PhD tutors from previous years, who have demonstrated the skills and values that we think are essential to deliver excellent academic tutorials, to be involved in the AccessEd ZA 2020 programme.

All PhD tutors completed an online refresher researcher development training. The training was designed to cater for students' needs, and to make the most of tutors' unique passion for their field of research and their academic knowledge. It addressed aspects of course design, core pedagogy (e.g. planning and questioning), classroom management and codes of professional conduct in the school context.



4

PhD tutors from previous years returned to facilitate university-style tutorials



3

nationalities were represented among the PhD tutors



2

universities where the PhD tutors completed their doctoral studies

## Data Snapshot

The data below offers a snapshot of the tutor post-programme questionnaire.

100%

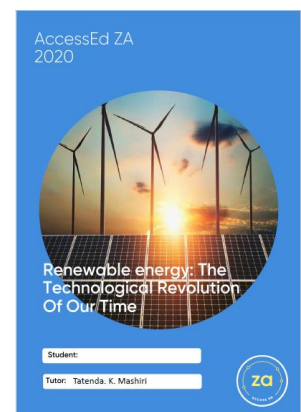
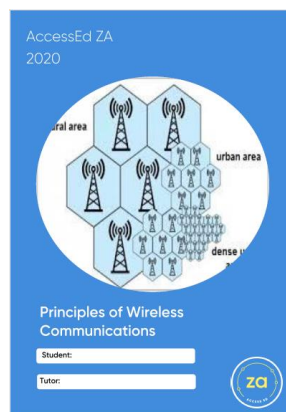
of tutors felt that they are good at helping students map their subject goals to support their journey to higher education after their involvement in the AccessEd ZA programme

100%

of tutors felt capable of suggesting subject resources that help students better understand what is expected at university level following their involvement in the AccessEd programme

# Research-Based Outcomes

Each course was individually designed by the PhD tutors and based on their research. Tutors produced a classroom-ready coursebook in line with our template, which is carefully designed to ensure that students learn effectively and engage with higher-level material.



# Introduction to Students

Despite challenges associated with the Covid-19 pandemic, 53 students from 2 LEAP schools, situated in Diepsloot and Alexandra, were able to participate in the AccessEd ZA programme.



53

students were selected to complete the AccessEd ZA programme



2

schools that located in under-served communities in Gauteng

## Project Evaluation

This section gives an overview of the AccessEd ZA programme for both schools involved in the programme. It includes outcomes of the programme, with data on tutorial attendance, homework submission and student attainment.

When interpreting the data below, the impact that Covid-19 has had on school attendance in South Africa, particularly in under-served communities, must be kept in mind. Against this background, the data indicates that a good amount of students were able to attend tutorials and submit their homework. In addition, the data indicates that students were able to successfully complete their final assignments.



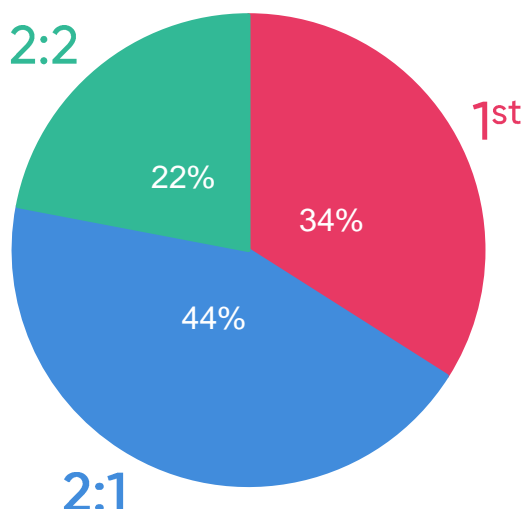
73%

average tutorial attendance



61%

average homework submission



### Student Attainment

Grades for final assignments were given as university-style marks, with students receiving a 1<sup>st</sup>, 2:1, 2:2 or a 3<sup>rd</sup>.

The data on the left reflects the grades that students, who submitted their final assignment, obtained.

34% of students obtained 1<sup>st</sup>, 44% of students obtained 2:1, and 22% of students obtained 2:2. None of the students obtained 3<sup>rd</sup>.





# Impact Data

AccessEd is committed data-driven evaluation. Therefore, students, who participated in the AccessEd ZA programme, were asked to complete a pre- and post-programme self-evaluation questionnaire in order to measure their growth.

The below data reflects the progress of students across the selection of a set of 36 questions intended to measure four competencies that have been shown to support access to university: university readiness, self-efficacy, motivation and meta-cognition.

The change reflects the percentage difference in students answering that they agreed or strongly agreed with the selected statement before and after completing the AccessEd ZA programme.

The data demonstrates the programme was successfully adapted despite challenges associated with the Covid-19 pandemic, and that there is excellent potential for programme growth and development after the pandemic.

	Pre-assessment	Post-assessment	Average change	Percentage change
 <b>University Readiness</b> The knowledge students have around higher education and how they can access it	5.3/7	5.7/7	+ 0.4	+ 6%
 <b>Self-Efficacy</b> The belief that students can achieve future goals	5.9/7	6.1/7	+ 0.2	+ 3%
 <b>Motivation</b> The factors that drive students to behave in a particular way	6/7	6.1/7	+ 0.1	+ 1%
 <b>Meta-Cognition</b> The ability to think explicitly about one's own learning	5.5/7	5.8/7	+ 0.3	+ 4%

## Interpretation notes

The competencies are assessed using a standardised self-report questionnaire from the academic literature called 'The Motivated Strategies for Learning Questionnaire'. It is a highly reliable and valid assessment for university readiness, self-efficacy, motivation and meta-cognition.

The numeric shifts on standardized Likert scales for pre- and post-assessments can often be small (e.g. less than 1.0). This is typical for these types of tests, and in many instances small numeric differences are statistically significant suggesting that there is a real difference in performance between the pre- and post-assessments.



# Impact Data

## Continued

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### University Readiness

I have a good level of knowledge in the subject that my AccessEd ZA Programme.



I know the steps I need to take to apply to university in the future.



I understand why and how people study when they are at university.



I am capable of studying at a university.



### Self-Efficacy

I can understand the ideas taught in my lessons.



I think my study skills are excellent compared with other students in my classes.



### Meta-Cognition

When I study, I copy my notes over and over to help me remember material.



When I study, I say the important facts out loud over and over again to myself.



When I study, I try to connect the things I am reading about with what I already know.



Before I begin studying, I think about the things I will need to do to learn.



# Student Feedback

Tell us about the programme and your tutor...

The AccessEd programme is a good programme that needs to continue spreading knowledge to upcoming scientists.

– I. Dungeni, Grade 9 at LEAP 4



I think my tutor was so motivating. He always gave us hope. He really took his time to come and put more energy in our science space, which we really needed a lot.

– M.L. Kosa, Grade 9 at LEAP 4

Right now I feel...

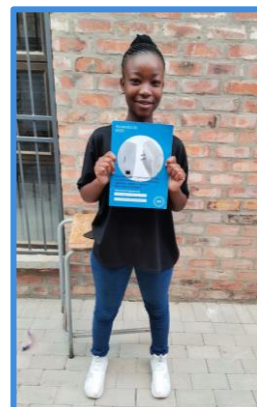
...motivated to work harder in order to pursue my future goals.

– I. Moyo, Grade 10 at LEAP 3



...I have learned new things that will help me build a better career path for myself.

– S. Mpofu, Grade 10 at LEAP 4



...confident enough to face more challenges.

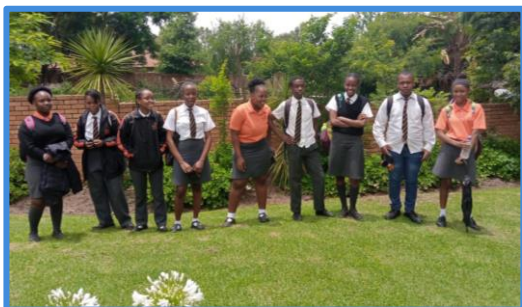
– P. Mokgomo, Grade 9 at LEAP 3

# Tutor Feedback

Tell us what comments you have, positive or constructive, on the set up of the 4-tutorial programme...

I felt the programme was set up in such a way that it drove students to really push hard in a short space of time. I think that was really beneficial.

– T.K. Mashiri, Tutor at LEAP 4



The compressed tutorial programme was still able to achieve the same goal that the 8-tutorial programme achieved in the past.

– A.D. Familua, Tutor at LEAP 4

**What I enjoyed most about the programme was...**

...teaching the kids about new technologies based on my course title, and seeing them motivated and enthusiastic about the subject matter.

– A.D. Familua, Tutor at LEAP 4



...the resilience and zeal of the learners to learn, and how they quickly realized that regardless of how the year turned out, hard work pays off.

– T. Chingosho, Tutor at LEAP 3

Having worked as a Tutor in 2018, helping to compile this impact report was an insightful experience. Based on the data outlined in this report, it is evident that the adapted programme remains invaluable. It had a positive impact on students' learning experience and educational aspirations.

– N. Vermooten, Project Officer at AccessEd



# Teacher Feedback

## Data Snapshot

The data below offers a snapshot of the teacher post-programme questionnaire.

**100%** of teachers felt that students appeared to be more interested in applying to university after their participation in the AccessEd ZA programme

**95%** of teachers felt that students seemed to gain an understanding of advanced subject study through their tutor

**95%** of teachers were eager to run the this type of programme again next year



I have seen more interest in going into tertiary. They are motivated to make sure that they get into tertiary education.

– J. Malope, School Leader at LEAP 4

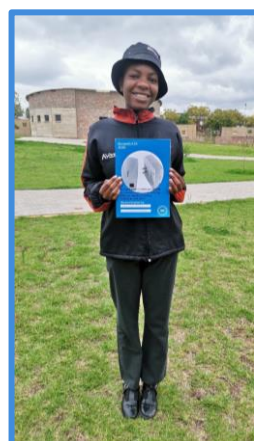


The students pointed out that they learned a lot from the programme and that they will use the knowledge that they received.

– Z. Mpayipheli, Teacher at LEAP 3

The learners learned to work more as a team and focus on motivating each other to get the best results.

– J. Malope, School Leader at LEAP 4



It has improved students' physical sciences skills a lot and they now understand some of the concepts clearly.

– V. Manganye, Teacher at LEAP 3

# Student-Tutor Case Study

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**Student**

T. Sekele

**Age**

16 years old

**Grade and School**

Grade 10 at LEAP 3

**Tutor**

T. Chingosho

**Course**

Thermally Deposited  
Coatings for Reducing  
Effects of Wear?

**From the student's perspective:****How did you feel about taking part in a AccessEd ZA programme?**

I felt capable of doing more in terms of learning, processing and time managing things, because we were learning a topic that I unfamiliar with. Being able to do all that was expected of me made me feel like I am capable of many things.

**What was your favourite part of the course?**

My favorite part of the programme was learning about the hardness test, because I did not think that they literally scratched materials or surfaces on each other to test which was harder. My other favorite part was about compatibility. Before this course, compatibility meant people who were in love and made for each other, but I realized that the term could be applied in many cases, such as a socket and a plug.

**Did you enjoy learning from a university tutor?**

Yes, I enjoyed learning from a university tutor, because I felt like he understood how we need to learn rather than forcing us to learn. From how he was teaching, you could tell that the person genuinely wanted to be there with us and teach us something important in life.

**How did taking part in your tutorials help you build your skills?**

It helped me to better manage my time as we were still writing for end of year reports (exams). It also helped improve my independent research skills, because our tutor would tell us something we did not know and we had to research on it so we could be able to discuss it in the next tutorial. It also helped with my problem-solving skills. I was able to come up with solutions to the examples of real-life problems given by the tutor.



# Student-Tutor Case Study

## Continued

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### **Did the tutorials help, motivate or encourage you in any other way?**

Yes, the tutorials have motivated me to be open to other possible career paths even though I may not want to work in that field. They also made me aware that I should sometimes just research, because in every industry there is always an improvement.

### **How has the AccessEd ZA Programme helped you decide or prepare for what you want to do next?**

It has helped me prepare for my next grade, because I have learned new terms that describe what occurs between the earth (natural factors) and man-made structures, such as abrasive, erosive and adhesive wear.

### **From the tutor's perspective:**

#### **How would you summarise this particular student's learning journey with you?**

From the beginning of this program, he was punctual, attentive and inquisitive, that already put a separation between him and the rest of the class. His questions were appropriate and well-structured, suggesting that he was moving well with the programme and understood the detail. He would also ask questions about tertiary education and life. This shows a student who is eager to grow, excel and better themselves.

#### **What was a highlight of having them in your group?**

The constant engaging discussions. I believe that when a class is lively, it also motivates the tutor.

#### **How do you hope your course will have benefited them?**

My hope is that they have learned the importance of working hard and applying oneself. This is not only important in exceling in studies, but also being a respected and good member of the community. There are younger students who will constantly look up to them for guidance and direction. I also hope they understood the concept of individual learning and being able to solve problems as well as think critically.

# Student-Tutor Case Study

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**Student**

S. Mpofu

**Age**

16 years old

**Grade and School**

Grade 10 in LEAP 4

**Tutor**

A.D. Familua

**Course**

Power Line Communication:  
Is Communication Over  
Existing Electric Cables in  
Home Possible, and How?

**From the student's perspective:****How did you feel about taking part in a AccessEd ZA programme?**

I feel that the programme has made me expand my knowledge and this has enhanced my confidence to a new degree. It also taught me about new emerging technologies that are possible thanks to power line communication like smart homes, which help to control and detect problems in home appliance automated systems to make the life of people easy and enable safer home environment.

**What was your favourite part of the course?**

My favorite part was learning how we can advance technology even further using the current resources that we have. The programme had a theoretical and had a practical side to it which improved my knowledge and understanding of the subject of power line communication. It showed me a visual on the major components of power line communication systems, how they function and operate together to achieve end to end communication.

**Did you enjoy learning from a university tutor?**

Yes, I did. He was very informative and made the lessons rather fun. The tutor gave us time to go find out more about the Power Line Communication and its usefulness individually so that he could evaluate our different views on the subject and correct us where we were wrong as a class. This made our lesson very interactive, which was a wonderful educational sensation.

**How did taking part in your tutorials help you build your skills?**

It taught me how to improve my writing skills when writing reports or assignments so that I know how to construct proper sentences, how to improve my research skills, how to reference information that I take from the internet so that my work is not taken down as plagiarism, and more about technology and how basic communication systems really work and what is needed to make the systems operational.

# Student-Tutor Case Study

## Continued

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### **Did the tutorials help, motivate or encourage you in any other way?**

They helped motivate me into pursuing my career in engineering to try to find even more ways to make communication easier, and to make future inventions to be more effective, more eco-friendly and safer for the environment.

### **How has the AccessEd ZA Programme helped you decide or prepare for what you want to do next?**

The programme has motivated me to want to pursue my career of engineering, invent smarter and more eco-friendly devices, and help encourage smart cities by helping acquire the knowledge and skills needed to help construct systems that will help better the economy and environment in my future ventures as a professional Engineer.



### **From the tutor's perspective:**

#### **How would you summarise this particular student's learning journey with you?**

Sibusiso showed interest in the programme and was eager to learn more by asking questions when in doubt about any particular concept taught during the tutorials. He also demonstrated the keen interest in the subject matter of power line communication as a result of his passion to study engineering. His attitude towards improving his writing skills, research skills and ability to construct good argument on the subject matter was demonstrated in the fact that he was always following up on when he will get a feedback from me about his final assignment.

#### **What was a highlight of having them in your group?**

The group of learners were warm and welcoming. They were all interested and eager to learn about the subject of Power Line Communication despite the tutorials happening during their exams. They were always asking questions to clear their doubt on the subject. They always looked forward to the tutorial, even when they had circumstances that would not make them available.

#### **How do you hope your course will have benefited them?**

I believe the course will not only have benefitted them in learning the basic technicalities of a Power Line Communication system, but it has also helped them improve their critical thinking skills, research skills, report writing skills and their ability to construct an argument based on a given subject matter. It has also motivate them to strive to learn new vocabulary and read beyond the subject matter while also developing the skills needed for their prospective careers.

# Final Assignment Excerpt

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**Student**

V. Moloi

**Grade and School**

Grade 9 at LEAP 3

**Tutor**

M.D. Fanoro

**Course**

Principles of Wireless Communications

**Is it possible to ensure that noise in wireless communication is reduced, while ensuring that information in the signal is clearer and distinct?**

Wireless communications are part radio frequency (RF) technology, part artistry and part magic. How technologically spoiled we have become is apparent when we do not realize that having a cellular teleconference among three people, each driving down an expressway on a different continent. When working with wireless communications, you are entering the RF world of waveforms, but these waveforms, open to the outside world, can succumb to several different problems counting interference, noise, weather, and vibrations.

Yes, I agree. There is a possibility to ensure that noise in wireless communication is reduced while ensuring that information in the signal is understandable and distinct, because we have the signal-to-noise ratio (SNR) and the concept of Low-Noise Amplifier (LNA).

The signal to noise ratio (SNR) is one of the predominant measures for reducing the noise. A technique that uses a linear prediction error filter (LPEF) and an adaptive digital filter (ADF) to achieve noise reduction in a speech and image degraded by additive background noise is proposed. Since a speech signal can be represented as the stationary signal over a short interval of time, most speech signals can be predicted by the LPEF. This estimation is performed by the ADF which, is used as system identification. Noise reduction is achieved by subtracting the reconstructed noise from the speech degraded by additive background noise. Most of the MR image accelerating methods suffer from degradation of acquired images, which is often correlated with the degree of acceleration. However, Wideband MRI is a novel technique that transcends such flaws.



**Grade**  
**= 1st**

# Final Assignment Excerpt

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## **In your own word describe what you understand by changing the world through technology?**

Changing the world through technology means bringing about change for the better. It means an improvement in methods or systems applied or used in our everyday life. We can use an example of a washing machine. Originally we used to wash clothes and blankets with hands but now we have washing machines and that is an improvement because less energy is required to the work but more work is done. Changing the world through technology means less disadvantages and more solutions.

## **Define the term Cold Spray Technology.**

Cold Spray Technology can be applied in many industries by helping with technology challenges and to manufacture cost effective products. Cold spray technology can be defined as the thermal applications of coatings on surfaces exposed to abrasive, erosion and adhesive wear in all kinds of environments. The cold spraying process takes place in an enclosed surrounding to avoid and prevent things like workers getting injured or being predominantly blind.

## **Define the term wear.**

The two phenomenon are connected in the fact that Cold Spray Technology is the solution to the problem of wear. Since wear is a deconstructive process it often brings about unplanned and unbudgeted costs which may cause many companies to go at a loss because they will be having more unbudgeted expenses than the profit they make. For individuals it is also a problem because they won't be spending money that is suppose to sustain the family to repair these continuous cost.

## **What is the link between cold spray technology and wear? How these two phenomenon are connected?**

In situations where wear is not controlled continuous costs will eventually increase with new machinery manufactured and this could cause the economy to fall back. Many working citizens will be forever paying to repair the zinc, window frame and car surfaces, etc., since they are exposed to wear and it is not controlled. Businesses will get sued for not providing lasting and guarantee products they claim.

### **Student**

T. Sekele

### **Grade and School**

Grade 10 at LEAP 3

### **Tutor**

T. Chingosho

### **Course**

Thermally Deposited Coatings for Reducing Effects of Wear?



**Grade**  
**= 1st**



# Join Us

## Partnership & Support

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### Building our Programme: Next Academic Year

AccessEd has run three successful programme cycles in South Africa since 2017. These programme cycles have reached more than 9 schools and 280 students.

For the upcoming academic year we are aiming to significantly grow the programme by:

- Exploring additional university partnerships to increase subjects covered and expand researcher participation and reach;
- Doubling the number of young people by the end of 2021;
- Reaching more high-need and under-served areas of South Africa; and
- Exploring additional corporate, charity and organisation partnerships.

### Become a Partner or Sponsor

Our partners make our work possible and help us create real impact for young people on their educational journeys.

We are looking for university, corporate, charity and organisation partners to reach more young people from 2021 onwards. The benefits for your organisation supporting the AccessEd ZA programme are:

- ✓ Opportunities to explore how we can further target strategic support that aligns with your outreach or Access agenda, particularly in the wake of Covid-19;
- ✓ Opportunities to work with us on shaping the programme in its contribution to education outcomes across South Africa;
- ✓ To receive positive association through recognising of financial support of a growing charitable organisation with a social mission; and
- ✓ Diverse ways to support a whole or part programme to keep it accessible to schools.

### Get in touch

For more information and to discuss opportunities for partnership or support please contact [hello@access-ed.ngo](mailto:hello@access-ed.ngo).

After completing the programme, I feel very good about my education, because without an education I won't be able to make my dreams come true and succeed in life.

– M. Matsemeng, Grade 10 at LEAP 3



# Appendix

## List of Schools, Tutors and Courses

School	Tutor	University	Subject	Course Title
LEAP 3 Linbro Park, Gauteng	Mokesioluwa Fanoro	University of Johannesburg	Electrical and Information Engineering	Principles of Wireless Communications
LEAP 3 Linbro Park, Gauteng	Tatenda Chingosho	University of Witwatersrand	Electrical and Information Engineering	Thermally Deposited Coatings for Reducing Effects of Wear
LEAP 4 Diepsloot, Gauteng	Ayokunle D. Familua	University of Johannesburg	Electrical and Electronic Engineering Science	Power Line Communication: Is Communication Over Existing Electric Cables in Home Possible, and How?
LEAP 4 Diepsloot, Gauteng	Tatenda K. Mashiri	University of Witwatersrand	Electrical Engineering	Renewable Energy: The Technological Revolution of our Time



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England and Wales (#1186355)