

Professor Hartley is on a STEM labs mission for the needy

Prof Shaheed Hartley from Athlone hopes every child will receive the quality education they deserve – in schools and communities where education is valued and teachers are respected.

"I envision safe, secure environments where all children are fed, supported, and given equal opportunities to thrive. As a science educator, I want to see learners from all backgrounds taking the lead in Science, Technology, Engineering and Maths (STEM) fields and providing a first generation of role models from within their own communities.

"Our science laboratories called Science Teaching and Learning Centres (Science TLCs) are an extension of Advancing Knowledge Non-Profit Company AK NPC's support for teachers and learners. They are a reward to committed science teachers, school management teams, and learners. These centres serve as hubs for nurturing a culture of science teaching and learning," he says.

Teachers receive training to improve their confidence and capacity to teach inquiry-based science, while learners engage in stimulating science activities.

"Our aim is to build strong foundational skills, foster curiosity, and prepare learners for the future challenges of STEM. To date, the partnership between Garden Cities Archway Foundation, the Western Cape Education Department and AK NPC have built over 120 Science TLCs at disadvantaged schools in the Western Cape. A further 12 Science TLCs were constructed in the Eastern Cape. Initial impact research on the first 100 Science TLCs shows highly promising outcomes," Hartley says.

His love for maths and science started at the two primary schools he attended.

"I attended Portavue Primary in Manenberg and Primrose Park Primary in Heideveld, and matriculated from Cathkin High in Heideveld. I enjoyed mathematics from primary school and realised early on that with hard work, I could succeed in tests. I found true enjoyment when I began applying mathematical concepts in physics and chemistry. As a teacher at Westridge High, I was immediately tasked with teaching Physical Science, Mathematics, and Biology at matric level.

EXCELLENT TEACHERS

I embraced the challenge and found real fulfilment in teaching the sciences.

"I taught science and mathematics at Westridge High School in Mitchells Plain for 12 years. In 1996 I moved to Stellenbosch University, where I became involved in research development. In 2004, I joined Cape Technikon -- later merged into the Cape Peninsula University of Technology (CPUT) -- initially as



Prof Shaheed Hartley from Athlone. PHOTO: SUPPLIED

Director of Research and eventually as Dean of Research. In 2009, I joined UWC to establish the UWC Science Learning Centre for Africa. There, I trained master's and doctoral students in science education and led various outreach projects to support teachers and learners in science.

"In 2019, I founded the Advancing Knowledge Non-Profit Company (AK NPC), through which I continue my work in STEM education," he says. He completed a BSc at the University of the Western Cape, a BSc Honours from UCT, a Higher Diploma in Education and a BEd Honours at Unisa and a Masters degree at UWC. He completed his Doctorate in Science Education at Curtin University in Perth, Australia.

At Cathkin High he had excellent mathematics and science teachers who understood their subjects well, who were his first mentors -- Mr Yusuf Abrahams and Ms Rita Esau. During his PhD at Curtin University, he was inspired by his doctoral supervisor, Prof David Treagust, whose work on teacher professional development and inquiry-based learning strategies had a profound impact on him.

"To bridge the education gap I am in agreement with Myrtle February, Chairperson of the Garden Cities Archway Foundation, who often says: 'All children are born to be successful'. The key is the opportunities we create for them. I've seen learners succeed against all odds - in rural areas like the Cape Winelands, Overberg, and West Coast, and across the Northern and Eastern Cape. When learners are appreciated, challenged, and supported, they thrive. At AK NPC, we create such opportunities through science activities, clubs, competitions, quizzes, and role modelling. We aim to inspire that "aha" moment - that sense of "I can do this".

"Not all teachers currently teaching these subjects have formal training in them, especially in schools with limited staffing. That's why continuous professional development is crucial. AK NPC offers SACE-endorsed short courses that allow teachers to earn professional development (PD) points. These courses help educators improve their subject knowledge and gain new teaching strategies. Principals should actively seek opportunities for their teachers to upskill in maths and science," Hartley says.

On a question on why learners in poorer communities struggle with maths and science, he has the following to say.

INQUIRY-BASED LEARNING

"Several social factors - such as poverty, unsafe environments, and absent parents - affect learners' ability to focus and succeed. Overcrowded classrooms, particularly in primary schools, add to the challenge. Additionally, the myth that maths and science are only for "clever" students discourages many. But when children are exposed to hands-on, inquiry-based learning in a safe and encouraging environment, they thrive. We must demystify these subjects, start building inquiry skills from an early age, and normalise persistence and resilience in problem-solving.

"My advice to matriculants writing their final exams are: Your future will be shaped in large part by how you perform in these exams. Give it your all. Stay focused, trust your abilities, and remember how far you've already come. Create a realistic study schedule, balance study and rest, and minimize distractions. Don't just memorise - strive to understand. During the exams, stay calm and manage your time wisely. Once a paper is done, move on and concentrate on doing better in the next one. Surround yourself with positive, supportive people," Hartley says.

When he is not a professor, he is a husband, father, and grandfather. His grandchildren keep him busy and bring him joy.

"I'm also a keen sports fan - whether watch-

ing rugby in Surrey Estate or Green Point, or enjoying football, cricket, and rugby on TV. I am deeply grateful to my family - especially my wife, Ayesha, who has been incredibly patient and supportive. My 95-year-old mother, Fatima Hartley, in Surrey Estate, remains my anchor, and my grandchildren continue to bring me both joy and perspective. My father, Mujtaba Hartley, who passed away a few years ago, was my hero and he was unshaken by the challenges we faced and simply got on with life - one step at a time. I learned that quiet resilience from him," he says.

Hartley received a number of national and international awards for his contribution to science education.

"In 2009, I was honoured with the prestigious NSTF Award as the National Science Communicator for Public Awareness, recognising my five-year contribution to science, mathematics, and technology education. At UWC, I received the Special Academic Achiever's Award for excellence in teaching, learning, and scholarly engagement. In 2017, I was awarded the UWC Chancellor's Award - the highest recognition by the university - for exemplary service and for making a significant contribution to higher education and nation-building. In 2018, I was featured in the prestigious South African Leadership magazine, which honoured me as "a leader with not only the vision for STEM Education but the ability to implement that vision through various accomplishments." My research papers on innovation in science education have also received "Best Paper" awards at four international science education research conferences.

"A poster in my office reads: 'I won't be afraid to stand for what I believe in, even if it means standing alone.' That's a principle I try to live by. It's also the mindset that helped us overcome the naysayers when we first launched the science laboratory project, despite the concerns about the costs involved," Hartley says.

If he wins R100 million, apart from considering retirement, he would continue his work in science education.

"There's still so much to be done to support learners in underserved areas like Manenberg, Heideveld, Gugulethu, and Khayelitsha to access STEM careers.

With R100 million, we could build around 100 new science laboratories. When faced with community challenges walking on the beach helps me clear my mind. I often walk alone, but sometimes with friends or family. It's my way of releasing stress and regaining focus. I enjoy working with fruit trees, and doing work around the house - though I've had less time recently. Watching sports remains a favourite pastime," he says.