



## Bringing science to life virtually

Research-based online learning and visual models could reduce the impact of the COVID-19 pandemic if adequate resources are made available.

**Professor Lindelani Mnguni** is an associate professor and school director in teacher education at UNISA.

*Nkosi, T. & Mnguni, L. (2020). The impact of physical molecular models on students' visuo-semiotic reasoning skills related to the Lewis structure and ball & stick model of ammonia. Journal of Baltic Science Education, 19(4), 594 - 604. <https://doi.org/10.33225/jbse/20.19.594>*

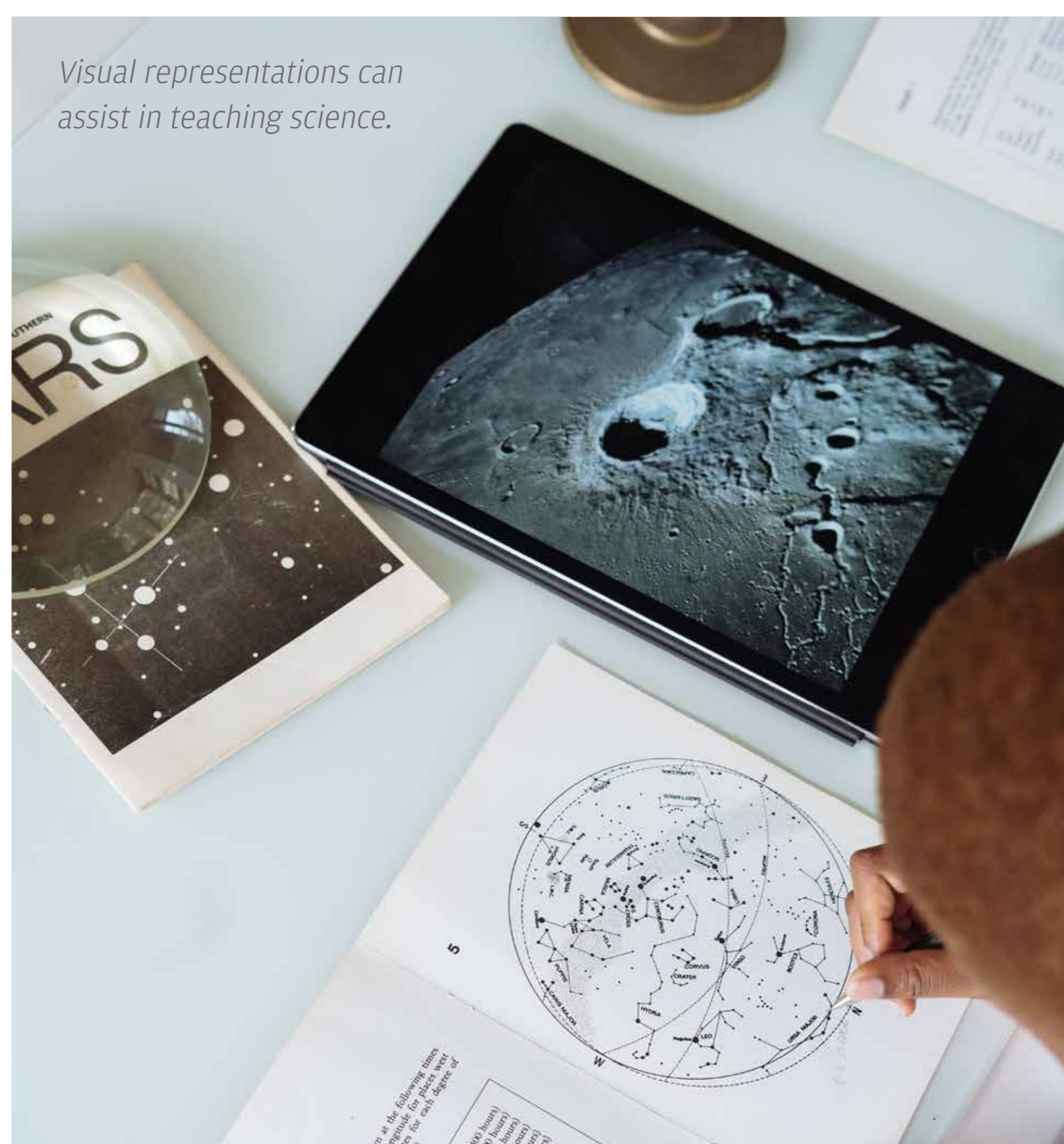
The majority of South African schools do not have the 21st century technologies - such as computers, smart devices and the internet - required to continue teaching and learning during the COVID-19 lockdown.

As a result, there is an increased likelihood that the rate of unemployment may increase due to the high number of learners who will not be able to complete their studies. Additionally, the goals of the national development plan, including reduced unemployment and improving the economy, may not be achieved.

Researchers around the world suggest that online learning could be used to support learning during the COVID-19 lockdown. UNISA's Professor Lindelani Mnguni suggests that computer-based learning, which uses visual models such as animations and simulations, could improve content understanding and performance - especially in science.

"Visual models are particularly useful for teaching subjects where learners need to visualise scientific knowledge that cannot be seen with the naked eye," says Lindelani.

Teachers would require thorough training on these technologies in order to use them effectively.



"The Department of Basic Education and the private sector should urgently invest resources to equip teachers with skills which could be used for teaching and learning during the COVID-19 pandemic."

Universities should also offer

free online training for teachers to enhance their skills.

"By adopting online teaching strategies and visual models, the DBE will minimise the impact of COVID-19 on the education crisis and may be able to improve performance in science."



# THE ART OF RESEARCH