# Reducing the language barrier in Lebanese science education through technology: Opportunities and challenges

Students in Lebanon learn science in a foreign language (English or French), and not in their first language, Arabic. For many of these students, particularly the most deprived including Syrian refugees, the language used for teaching and assessing science is a major obstacle for achieving deep learning. With science literacy being key to building prosperous societies capable of engaging with the challenges of the 21st Century, providing appropriate educational support for these students is crucial.

Formal mainstream education in Lebanon has not yet been able to cater for students' language needs in science, and teacher training programmes do not adequately prepare teachers to work through the issues involved.

Meanwhile, many youths are dropping out of school. The dropout rate has been particularly alarming amongst Syrian refugees with over 48% of surveyed children aged between 6 and 14 and 84% of surveyed adolescents aged between 15 and 17 being out of school by end of 2016. The language of instruction has been listed as one of the main causes (after constraints such as lack of legal residency papers and costs of transport)[1]. Young people leaving school at such an early stage have lower chances (if any) of getting an accredited certificate that allows them to compete fairly in the job market and contribute positively to their communities. In addition, they are more susceptible to exploitation, abuse, deviant behaviour and recruitment by terrorist factions.

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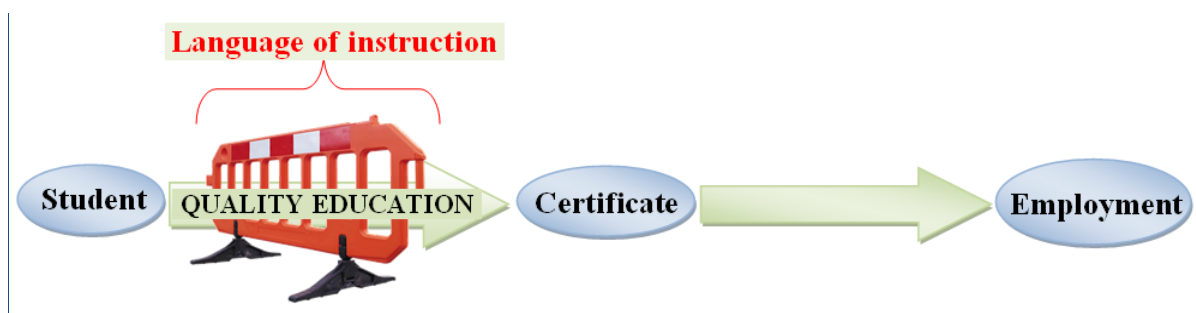
[1] UNHCR, UNICEF, WFP. (2016) *Vulnerability assessment of Syrian refugees in Lebanon 2016.* Available at https://reliefweb.int/sites/reliefweb.int/files/resources/VASyR2016.pdf.

There are many approaches to addressing the issue of the language of science instruction in Lebanon. One of these could be the use of technology.

A number of local and international non-governmental organisations (NGOs) have tried to fill the gap by providing support to students through non-formal education and pioneering initiatives integrating technology in learning (e.g. blended learning, using interactive tasks).

How can technology support science learning?

Creativity	• Complex scientific concepts can be represented in novel ways to reduce the language challenges
Motivation	• On-screen and interactive science tasks can engage students positively and minimise the language barrier
Feedback	• Constructive feedback can be provided promptly
Language supportive pedagogy	• Can meet the students where they are and provide relevant and focused feedback and support
Flexibility	• Access to educational support is independent of location and time
Scalability	• Support can be rolled out on a larger scale

There are concerns over the effectiveness of technology-based science programmes: some programmes still contain very difficult language for the students; others have reduced the language demands but have diluted the science content and limited opportunities for critical thinking.

Can technology reduce the language barrier and support students' deep learning of science in Lebanon?