Billions are spent on educational technology, but we don't know if it works

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During the COVID lockdowns, schools and universities worldwide relied on education technology—edtech—to keep students learning. They used online platforms to give lessons, mark work and send feedback, used

apps to teach and introduced students to programs that let them work together on projects.

In the aftermath of school closures, the market for edtech has kept on growing. The value of the sector is projected to rise to US$132.4 billion globally by 2032.

The problem is that we don't know very much about how effective many edtech apps or programs are—or if they are effective at all.

And some effects may be negative. Some of the so-called educational apps advertised to families show many adverts to children. They may use manipulative features to keep children on screens without teaching them anything new.

This technology is here to stay and will remain a significant part of how children learn—so knowing whether it works is imperative.

Assessing and addressing the quality of edtech is a significant task, especially when it is already so widely used. For edtech under development, a valuable option is to foster closer collaboration between tech developers and scientists who study learning to embed existing research and knowledge into the design.

Research consultancy firms can carry out swift assessments to provide edtech developers with information on how well what they are offering works. Transparency and integrity in the research process is vital, though, to prevent bias. Ways of ensuring this include pre-registration: reporting that a study is going to take place before it happens.

Partnerships with schools could also provide valuable feedback. However, minimum standards of quality and ethical considerations would need to be assured before technologies are sent to schools.

Setting a standard

When it comes to edtech that is already available, what is really needed is some kind of standardized metric to assess how well it works.

But establishing minimum standards for the effect of edtech is easier said than done. There is, historically, a lack of standardized metrics for assessing educational impact within impact economics—the study of how businesses create financial returns while ensuring positive social or environmental outcomes.

Without standardization, there are too many ways to assess edtech. A review commissioned by the UK government of evaluation criteria and standards for edtech analyzed 74 methods for assessing their quality.

Similarly, I carried out a research study with colleagues on available criteria to assess the effectiveness and efficacy of edtech produced specifically for schools. We found 65 different frameworks for evaluating whether these school-specific offerings work.

The abundance of evaluation possibilities can be confusing for edtech businesses. The multitude of options makes it difficult to ascertain the quality of their products. It is confusing to investors too, especially those who want to prioritize not only edtech's return on investment but also a return on education and community.

A yardstick that establishes the minimum quality requirements for a edtech product to be used in schools is crucial to ensure technology does more good and no harm. The creation of a yardstick needs to take into account both the product quality and the process of using the technology—whether it works for diverse populations and diverse learning environments.

The independent verification of evidence is vital, considering that any company can simply "generate" a study with the data they daily collect on users. In my research work with colleagues, I have argued for a focus on the rigor and validity of various research types.

New initiatives, such as the International Certification of Evidence of Impact in Education, have begun to consolidate the different research approaches, standards and certifications related to evidence of edtech impact globally. Ultimately, the goal is to make it easier for schools and parents to navigate the thousands of educational apps and online platforms available.

Whether individual countries will create the legal and institutional frameworks to enforce any of the standards remains to be seen. Countries will need to select standards that suit both their economic and educational agendas. An important shift is needed so that schools can strategically select edtech they know will help children's learning.

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