Overall, studies consistently find that digital technology is associated with moderate learning gains

Cost	Evidence strength	Impact (months)	Effect size
£££££	🔒🔒🔒🔒🔓	**+4**	*0.29*

What is it?

By digital technology we mean the use of computer and technology assisted strategies to support learning within schools. Approaches in this area vary widely, but generally involve:

- technology for students, where learners use programmes or applications designed for problem solving or open-ended learning; or
- technology for teachers, such as interactive whiteboards or learning platforms.

How effective is it?

Studies consistently find that digital technology is associated with moderate learning gains: on average, an additional four months' progress. However, there is considerable variation in impact.

Evidence suggests that technology approaches should be used to supplement other teaching, rather than replace more traditional approaches. It is unlikely that particular technologies bring about changes in learning directly, but some have the potential to enable changes in teaching and learning interactions. For example, they can support teachers to provide more effective feedback or use more helpful representations, or they can motivate students to practise more.

Studies suggest that approaches which individualise learning with technology (such as one to one laptop provision where pupils work through learning activities at their own pace, or individual use of drill and practice software) may not be as helpful as small group learning with technology or the collaborative use of technology.

There is clear evidence that digital technology approaches are more beneficial for writing and mathematics practice than spelling and problem solving, and there is some evidence that they are more effective with young learners.

Digital technologies in the Arab world are recognized as tools to support the student-centered approach in the classrooms. Teachers who integrate the use of technologies in their instructional practices succeed in engaging students and ensuring an interactive learning environment. Despite the limited research on ICT integration on students' academic development, qualitative and quantitative studies provide evidence that students who use technology in their learning became more responsible in making decisions for their learning, more autonomous and self-directed learners, and their higher order thinking skills were developed. For example, in an experimental study, Jordanian kindergarten students who used computers in the classroom did better on the fluency, elaboration, and originality dimensions when compared with the control group

Studies have found that limited ICT resources, problems with electricity or internet connection and lack of government plans for ICT integration have been barriers to the implementation of Digital Technology approaches across the region. Others have suggested for teachers to be better prepared to integrate technology in their classroom through engaging them in formal training – either as part of preservice preparation programs or through continuing professional development. Professional development providers, are highly recommended to consider the conditions for effective teacher training relevant to the local context. Developing parents' awareness through workshops may be another effective way of increasing the effective utilization of ICT tools in the learning off their children.

How secure is the evidence?

There is extensive evidence of positive effects across age groups and for most areas of the curriculum. However, the variation in impact and the range of technologies available suggest that it is always important to monitor the impact on learning of any new approach.

The pace of technological change means that the evidence is usually about yesterday's technology rather than today's, but average effects have remained consistent for some time, suggesting that the general message of – on average – moderate positive impact is likely to remain relevant.

What are the costs?

The total costs of using digital technologies – including all hardware – can be high, but most schools are already equipped with hardware such as computers and interactive whiteboards.

Digital technology approaches often require additional training and support for teachers which can be essential in ensuring the technology is properly used and learning gains are made.

Expenditure for an average programme is estimated at £300 per pupil for new equipment and technical support and a further £500 per class (£20 per pupil) for professional development and support. Costs are therefore estimated as moderate.

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Expenditure for an average programme is estimated at about 300.0 GBP (385.9 USD, 273.6 JOD) per pupil for new equipment and technical support plus about 500.0 GBP (643.2 USD, 456.0 JOD) per class (about 20.0 GBP, 25.7 USD, 18.2 JOD per pupil) for professional development and support. Costs are therefore estimated as moderate.

Costs originally calculated in GBP; USD and JOD calculated via oanda.com on 22/09/20.

As yet there is no information about local costs.

What should I consider?

Effective use of digital technology is driven by learning and teaching goals rather than a specific technology: the technology is not an end in itself. You should be clear about how any new technology will improve teaching and learning interactions.

New technology does not automatically lead to increased attainment.

How will any new technology support pupils to work harder, for longer, or more efficiently, to improve their learning?

Pupils' motivation to use technology does not always translate into more effective learning, particularly if the use of the technology and the desired learning outcomes are not closely aligned.

Teachers need support and time to learn to use new technology effectively. This involves more than just learning how to use the hardware or software; training should also support teachers to understand how it can be used for learning.