

## Utilization Categories in Education

Digital tools and technology are applied in a variety of significant categories in the education systems. The categories demonstrate how the schools, colleges, universities, teachers, and learners can use the benefits of modern educational resources. The initial significant category of utilization is the teaching and learning support. In this category, digital platforms, online resources, learning management systems, videos, simulations and AI tools are used to enhance classroom instruction. Such tools assist teachers to expound complicated concepts in more pictorial and engaging ways. As an example, simulations can be used to help students of science to understand how to perform experiments, how to pronounce words and how to write them. UNESCO describes how artificial intelligence and digital learning tools can facilitate learning and teaching when used in an ethical and well-defined policy manner (UNESCO, 2025).

Personalised learning is the second type of utilisation. Conventional classrooms tend to adopt a single teaching method to all the students yet learners have different abilities, interests as well as learning rates. The digital and AI-enhanced systems can be used to determine student weaknesses and strengths and offer individualised learning material. An example of this is that a student with a low learning ability can be provided with more practice questions, whereas a student with a high learning ability can be given more advanced practice questions. Such application of technology can render education to be flexible and student-centred. Personalised learning should not however take the place of the teacher. It must assist the teacher by providing more information on the progress of the student and the learning needs.

The third group is the assessment and feedback. Technology in education can be used to facilitate quizzes, online exams, automated feedback, plagiarism checker and learning analytics. Digital assessment tools help teachers to find out what errors are common and can issue feedback much faster. It also helps students as they can observe their progress and comprehend what they require to enhance. But, the technologies of assessment should be applied with precaution. Excessive dependence on automated marking may result in unfairness and particularly in cases of creative writing, critical thinking assignments and students of other language backgrounds. Human review is thus still needed.

Administration and management is the fourth category. Digital systems are used in schools and universities to track attendance, enrollment and schedule, student record, fee regulation, communication and reporting. Such systems minimize the amount of paperwork and enhance decision-making. Administrators are able to monitor the student performance, teacher workload, use of resources and progress of the institution. According to the World Bank, digital technologies have the potential to transform the education systems by helping students, teachers and learning processes in general (WHO, 2026).

The fifth category of utilization is communication and cooperation. Digital tools enable students, teachers, parents and administrators to converse more readily. Online discussion forums, emails, class groups, video meetings and shared documents, are aimed at aiding students to work in teams even when they are not physically in the same location. This category was particularly significant in remote and hybrid learning. It also facilitates group work, peer review, as well as communication between teachers and parents.

Inclusion and accessibility is the 6<sup>th</sup> category. The students with disabilities, students in remote locations and learners with language barriers can be assisted using technology. They include screen readers, captions, translation applications, recorded lectures, Speech-to-text applications, and mobile learning systems. They can be used to make education more inclusive as it will help to eliminate the barriers to participation. Inclusion however is based on equal access to devices, internet, teacher support and access to accessible content design. Otherwise, technology might contribute to rising inequality rather than decreasing it.

### **The Untapped Value Categories to Explore**

Even though technology is already applied in many different ways in education systems, a number of different value categories are not yet utilized. The initial unexplored area is early detection of learning deficiencies. Several students can lag behind even before a teacher or a parent realizes that there is a problem with the students. The trends to be identified may include low attendance, poor results on quizzes, repeat errors, or non-participation, which can be achieved with the help of learning analytics and AI-based systems. When properly applied, these systems can assist the teachers to intervene early either by tutoring, counselling or modified learning plans. This particularly comes in handy in a large classroom setting where the teachers might not have all the time to watch every student separately.

The second unexploited segment is to reduce teacher workload. Lesson planning, marking, reporting and administrative activities are some of the activities that teachers engage in taking excessive time. Lesson outlines, resource organisation, practice question generation, summarisation of student progress, routine communication can be aided with the help of digital tools. According to

OECD, the digital education ecosystems are gaining momentum in influencing the way countries use the data, digital tools and new technologies in education (OECD, 2023). In case technology will decrease repetitive work, teachers will have more time to mentor, interact with students in classrooms, be creative, and support their students.

The third category, which is untapped, is skills needed in future employment. Education must not only impart knowledge of the subjects; it must also equip students with skills of dealing with the changing workplaces. New skills that are valuable include digital literacy, AI literacy, data interpretation, online collaboration, cybersecurity awareness, and problem-solving. The World Bank emphasizes that the development of digital skills has to be accompanied by the ongoing changes in the curriculum and assessment due to the emergence of new technologies changing the skills requirements. The role of technology in bridging the gap between classroom learning and real-life employability should therefore be explored by schools and Universities.

The fourth one is the inclusive and localised learning material. A large number of digital education content targets global audiences, yet is not necessarily reflective of local languages and cultures, examples, and community requirements. The potential of local digital content that takes into consideration cultural identity and helps learners in their own context remains unexploited. This is significant among rural people, Indigenous people, multilingual students and students of low-income background. Importation of content should not be the sole purpose of education technology, but rather education technology should enable communities to create relevant learning materials.

The fifth unexploited one is lifelong learning and flexible learning. After formal education, many individuals require

reskilling/upskilling after their formal schooling. Adults, workers, parents, and people who are changing careers can be supported using short courses, micro-credentials, online certificates, workplace learning platforms, and mobile-based learning. This group is significant as the process of education is not confined to the childhood or college years anymore. It is carried on in life.

In order to access these unexploited groups, good policies are required. To begin with, the governments and institutions should have an equity-first policy of digital access. This will be through provision of affordable internet, internet devices, electricity and technical support to needy students and schools. Digital education fails to provide equal opportunities to learners thus only benefiting already-privileged students. Second, a data privacy and ethical AI policy should be used in the education systems. Student information is confidential and the schools need to ensure that such information is not abused. What data can be collected, who can see it, how long can it be stored, and how the decisions based on AI or analytics may be reviewed by humans should be defined by the policies.

UNESCO suggests that a human-centred approach to AI in education should be augmented with the focus on equity, inclusion, accountability, and ethical governance (UNESCO, 2025).

Third, a policy of teacher training and professional development should be in place. Without teachers being sure that they can use technology, no improvement of the education is possible. Educators should be trained in digital pedagogy, AI literacy, online assessment, and accessibility tools, and ethical use of student data. Training must be on-going as opposed to a workshop that is conducted once.

Fourth, learning institutions must have a procurement policy, which is evidence-based. Digital tools are not to be purchased

in schools merely due to their popularity or being promoted as novel. Each of the tools should be considered in terms of the learning impact, cost, accessibility, privacy, and the usability by teachers. Pilot testing is supposed to be done prior to actual implementation.

Lastly, the education systems require a reform policy of a curriculum and assessment. When students are supposed to acquire digital, AI and problem solving skills, the curricula and assessments should be in line with these skills. Exams must not just be a test of memorisation, but should also test creativity, ethical decision making, team work, research and application.

## References

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