




POLICY NOTE

DISTANCE AND E-LEARNING IN TVET





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By overcoming boundaries of time and space, distance/e-learning has revolutionized the learning process. With today's technologies, it is possible to deliver good quality learning experiences to remote areas where access to learning opportunities have previously been limited. This policy note provides information on distance/e-learning, and uses key research findings to draw attention to the issues that policymakers may wish to consider before incorporating these technologies in the delivery of technical and vocational education and training (TVET).

WHAT IS DISTANCE/E-LEARNING?

Distance learning is a mode of delivering education or training programmes remotely. It does not require a simultaneous interaction between the teacher/trainer and the learner. This is not a new concept; in fact, delivering learning material by post to learners who lived far from educational/training institutions existed well before the advent of the Internet.

The greatly increased access to the Internet and advances in Information and Communication Technologies (ICTs) over the past two decades have provided a tremendous boost to distance learning, so that it is now generally referred to as "e-learning". With education and training being no longer dependent on physical infrastructure and co-location, e-learning allows a large and varied number of learners, including people who for various circumstances do not have access to traditional learning and training, to access new knowledge and skills. A key aspect of e-learning is computer-based or Internet-aided learning activities. Online learning is another term that is often used, but e-learning could be off-line, for example learning from off-line educational applications stored on a tablet.

Examples of ICTs applications in TVET include virtual training content using simulators and virtual or augmented reality software, podcasts, Massive Open Online Courses (MOOCs), blogs, YouTube videos, tablets, mobile phones, radio etc.

E-learning encompasses multiple formats and levels of interaction between students and instructors, ranging from autonomous learning, through exclusively online teaching, to a mix of online and regular or occasional face-to-face contacts between instructor and learner known as "blended learning". Some advantages and disadvantages of online learning are presented in the Box below. As regards the role of teachers, while they remain essential figures in the learning process, their role will need to be redefined from that of instructor to that of designer of formats, developer of materials and facilitator of learning environments.

It should be mentioned that, although internet based e-learning is the most widely used method of distance learning, other off-line modalities based on traditional media (radio, CD/DVD players, USB sticks) may also be a vehicle for distance learning in places not connected to the web.

Modern economies face a rapid change in skills demand, with an increasing demand for a qualified workforce. In response to these new labour market needs, innovative applications of e-learning have become an important aspect of TVET. For instance, large countries with extensive rural or remote areas, such as Australia and Canada, apply distance/e-learning to provide the theoretical part of vocational training, as a strategic policy option to improve access to quality training. Economies that are highly dependent on the growth of ICT-related and automation technologies have been applying e-learning and ICTs-based TVET delivery to reshape their skills development systems.

Box 1. Some advantages and disadvantages of online learning

Advantages	Disadvantages
<ul style="list-style-type: none"> ♦ People can learn at any time ♦ Learners can be anywhere, provided they have access to the Internet ♦ Learners can go at their own pace - suitable for learners with various aptitudes and constrained time ♦ Lower ongoing costs (e.g. lower tuition fees, no commuting cost for learners, lower delivery costs for TVET institutions) 	<ul style="list-style-type: none"> ♦ It requires self-discipline to follow online learning courses ♦ Feeling of isolation ♦ Limited peer learning effects ♦ Internet access speed and cost ♦ Sometimes high initial costs (design and equipment)


WHY IS DISTANCE/E- LEARNING IMPORTANT?

Achieving inclusive socio-economic development

Societies need to provide equal access to quality TVET and skills development that is relevant to current and future job needs. This is essential for achieving more inclusive social and economic growth. A judicious and integrated implementation of e-learning, as an option for delivery of TVET, can promote inclusiveness by making flexible training and lifelong learning available to a wider group of potential learners. Possible beneficiaries include marginalized people who do not have access to education and skills development because of their geographical, financial, religious, or ethnic circumstances. If well implemented, ICT-based pedagogy can thus contribute to building a more inclusive society in which all people, regardless of their socio-economic conditions, are equally supported to progress. In this way universal opportunities for skills development can provide an essential contribution for sustained and inclusive development.

Improving learning outcomes

Compared to traditional learning, one of the main advantages that e-learning can offer is flexibility in choosing the location, timing and pace of learning for both learner and teacher. This can lead to a decrease in both the actual and opportunity costs of learning. Training which is entirely online can pose certain challenges, such as the need for strong self-discipline on the part of learners; it also needs to



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cater for variations in the level of digital literacy among learners. These issues, however, can be addressed by combining face-to-face teaching and online learning. In this “blended learning” method, teachers continue to play key roles in supporting and directing students’ learning and can adapt the part played by technology through a tailored teaching plan.

In designing e-learning programmes, instructors can develop individualized pedagogical tasks and assessments based on each student’s knowledge, previous experience and personal interests. “Learning analytics” is an example of a student-centered learning pedagogy, where data generated by automatized learning monitoring systems running in the background are processed to provide customized learning paths based on students’ learning styles, strengths and weaknesses. Learning can also become more attractive to learners by integrating text, images, and graphics videos into manageable information blocks. Trainees are able to navigate through different sources of information and to use and apply knowledge that best fits their needs and their personal circumstances.

In addition, teachers are increasingly using “simulations technology” to give learners more control and opportunities for manipulating different parameters in their learning experiences. Augmented and virtual reality are good examples of technologies by which learners apply theory to practice in realistic, but also safe and controlled ways. These technologies create authentic or realistic learning environments that were previously unavailable.

E-learning can motivate students to develop the reactive capacity needed to support self-directed learning. When used appropriately, ICTs have the potential for empowering and transforming passive learners into active and independent ones, able to take charge of their own learning by choosing and using a range of resources. Developing autonomous learning in this way, which endures after a formal course is ended, is indeed the true key to lifelong learning.

Responding to the rapidly changing skills demand

In view of the rapid socio-economic and technological changes, jobs and the skills required to perform them continue to evolve. Many jobs in labour-intensive sectors, which tend to be occupied by economically vulnerable groups of people (such as women and the poorly educated), are at high risk of being automated. In this light, delivering job-relevant skills at a reasonable cost, especially for workers whose jobs are at risk, is important. If well implemented, ICTs in TVET have the potential to improve access to learning, to improve quality while decreasing costs, to make teaching and learning more relevant to people’s work and lives, and to encourage individuals to become lifelong learners.

E-learning formats allow material to be easily updated to reflect latest developments. Online learning material is often developed by renowned experts and teams of highly qualified and experienced specialists, allowing programmes to be more relevant to current demands for skills. In addition,



it is frequently much easier and cost-effective to modify e-learning material as the skills requirements of jobs change than it is to update physical learning materials.

ICTs have also a great potential for helping teachers and instructors to keep up-to-date with the latest developments in their field. A technology that is of particular relevance in this respect is Open Educational Resources which, because of its easy

accessibility, can offer teachers and instructors additional expertise adapted to suit local needs and curricula. Furthermore, teachers and instructors who lack technical expertise in specialized vocational subjects can use expertly designed materials from online sources to bridge the gap.

WHAT REQUIRES POLICYMAKERS' ATTENTION?


While ICTs may bring significant benefits to learners and serve to enhance teaching, the progressive integration of ICTs in TVET is a complex process which involves a wide range of issues that policymakers need to pay attention to. Cost, feasibility, security risks and barriers to access all need to be taken into account.

Introducing ICTs in TVET: The extent of adoption of ICTs varies considerably between and within countries. Implementing technology-backed solutions that are workable in a one context may be unsuitable in cases where resources for initial investment are constrained. Developing countries might prefer a gradual transition to ICT-enabled learning, using technology to foster wider access to learning especially in rural areas. Regardless of the stage a country is at, it is important that its approach to digitalization of TVET is coherent across institutions, adapted to the nature of the educational sector as a whole, and an integral part of a comprehensive human resources development policy.

Digital divide and inequalities: In the most remote areas individuals may not possess basic digital literacy and may not be familiar with e-learning. ICTs can be a double-edged sword which, depending on how it is used, can either alleviate or aggravate socio-economic inequalities. It is important that care is taken to avoid the emergence of a “digital divide” and that policies are put in place to ensure that e-learning does not result in increasing inequality.

Minimizing digital divides: To avoid increasing the “digital divide”, interventions should aim to widen access to ICTs through improved basic computer literacy and to promote community e-learning centres. When other solutions are not available, technologies that do not require computer literacy (e.g., radio and videos with content in local languages) might also be considered.

Overcoming barriers of accessibility: In many rural areas, lack of access to reliable internet connectivity, coupled with the cost of purchasing and maintaining computers, tablets and smartphones is a common barrier to introducing e-learning. Solutions include providing memory USB sticks with learning content on them, and sending smaller files which are easier to download on weak connections.



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Partnership with industry to ensure the job relevance of learning: Delivering a properly skills-focused digital learning system will require TVET institutions to collaborate with each other and to strengthen their partnerships with the private sector so that all stakeholders can collaborate in making good use of the technologies.. The creation of ICTs “Industry Skills Councils” is another way to ensure forward-looking planning and close links with industry are effectively managed.

Reviewing and redesigning curricula and assessments: If technology is to be properly integrated into TVET, revisions of curriculum, pedagogy, learning materials and assessments will be necessary. For instance, there are concepts or theories that are more easily understood when they are illustrated through an animation than through written texts. Harnessing the benefits of e-learning requires changes in the way teaching is organized. While the development of new material will often be essential, reviewing and revising existing multimedia and ICTs resources is also sometimes a viable option.

Making e-learning material widely available: It is good practice to save e-learning material into an online database (e.g. cloud server) so it is readily available to all. Teachers, instructors, and learners can access the material when they need it, either streaming it or downloading it. For places where Internet access is limited, learning material may be saved in a device (e.g. tablets) and delivered to TVET institutions and community learning centres.

Supporting teachers: Teachers may be unprepared or reluctant to use ICT for delivering teaching. Further teacher training will be required on how to integrate technology with traditional teaching. Examples of this type of support include strengthening teachers’ capacity through coaching by expert educators and investing in additional training and support for teachers.

Cyber security: Where individuals’ e-learning progress is monitored online and learning outcomes (e.g. test scores and certificates) are stored in cyberspace, safeguarding against malicious attacks becomes important. Investment in security precautions will be necessary.

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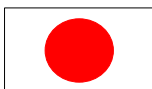
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Employment and Skills cluster,
ILO Jakarta Office

Employment and Skills cluster works with the government of the Republic of Indonesia and social partners with the aim of improving skills development systems and promoting Decent Work for all. In particular, the team promotes: industry-TVET collaboration; e-/distance-learning; revitalization of national skills development systems; and women's access to TVET and employment.

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