BİLİŞİM VADİSİ
Technology Development Zone

DIGITALIZATION IN EDUCATION WORKSHOP

FINAL REPORT

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ABOUT WORKSHOP

Digitalization in education is at the top of the agenda all over the world. Rapid actions need to be taken on many issues such as the digitalization journey of educational institutions, digital education platforms, and supporting the labor force with digital competencies. At the Digitalization in Education Workshop, we held in line with this important agenda, the issue was discussed in depth with our participants, and important results were obtained. I hope that this workshop organized by the Bilişim Vadisi will have a catalytic effect on the education sector and contribute to the digitalization process.

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This workshop was conducted with face-to-face participation.

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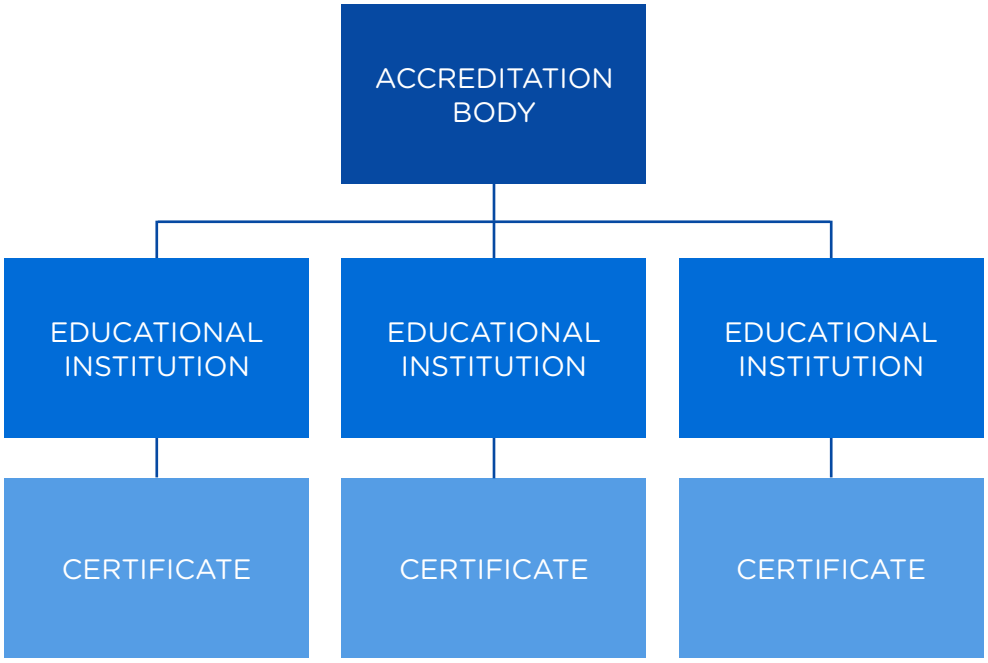
FIRST SESSION

1. USE OF DIGITAL LEARNING and EDUCATIONAL PLATFORMS

1.1

How can recognition of online learning communities for different fields (Learning Communities for Open Course Materials, Learning Communities for Scientific and Academic Studies, Learning Communities for Language Learning, etc.) be increased and how can users be encouraged?



National education policy and the recognition of online learning communities for different fields can be increased through many different tools. The training materials and programs to be implemented by the communities can be accredited by an umbrella organization and announced to the public. The international certification system is the most valuable catalyst for the process. Certified training by accredited communities and the validity of this certificate in universities and public/private institutions and organizations are important steps in the management of these processes.

1.1

Through conferences, publicity campaigns, and workshops to promote the communities, the recognition of these communities by both government and private businesses will be increased. The certification of communities and efforts to increase their credibility should be among the priority actions. Accredited communities can be accessed through trusted platforms such as e-Government. Thus, data on online education communities can be visualized and reported. Outreach to communities can be encouraged by invitation. A gamified certification process can also be implemented.

1.1

User-friendly interfaces, visualization, and ease of access will increase the demand for communities. Communities' ability to convey plain, simple, concise information and to produce content that is understandable by everyone will also increase the gains from education. In this context, it is necessary to increase and improve the "Technology Literacy" skills of both users and stakeholders involved in the education process.

1.1

Traditional media such as print media and newspapers can be used to increase the recognition of communities. Besides, new-generation newspapers can be read. Furthermore, organizing public events can be an effective tool for recognition. In order to ensure the credibility of the communities, it is thought that the reference of the channels trusted by society to these communities will make an important contribution. Communities are generally organized on social media; therefore, to increase the functionality or visibility of communities, social media channels and schools should be used to increase visibility. Communities can be popularized through public service announcements. Communities becoming visible in advertising and celebrity involvement can raise awareness. Storytelling ads can be a good option. An active presence on digital and gaming platforms is necessary and opportunities to gain knowledge can be increased.

1.1

The visibility of publicly owned/publicly supported platforms also needs to be increased. It is thought that it would be beneficial to use these communities' training to provide behavioral changes in the orientation training of public employees and newly recruited employees. It is thought that in case certificates are given for courses taken from open sources, these courses should be accepted by universities. To summarize, the content of the training provided by these communities needs to have a counterpart in the education system in order to create momentum. Institutional encouragement by the state will contribute to the development of these communities. Issues such as filling legislative gaps in copyright and branding strategy are important for encouraging learning communities.

1.1

Students should be provided with 24/7 (artificial intelligence) support for all kinds of questions within the digital platform. The subject-based objectives of the training implemented by the communities should be clearly defined. Prior to the new academic year, educators in educational institutions and organizations should be informed about the communities to be developed and this training content should be transferred to their students and stakeholders during the new academic year.

1.1

The greatest problem with open source is marketing. There are numerous open sources available. However, raising awareness of individuals on this matter is one of the most important issues. There is a strong need for institutions to strengthen communication. Following the identification of the target audience (in terms of advertising strategy), all marketing channels need to be established. It is essential to share the success stories and experiences of those who have already graduated from learning communities with those who want to receive such training. Providing strong institutional references can also be a significant catalyst.

1.1

In addition to institutions, platforms are also needed in this area. It is generally considered that a platform that will keep education channels together is necessary. Additionally, practices to strengthen communication between ecosystems are required. Field research on how to differentiate from existing online education platforms is being conducted; user experiences and comments are very useful in this regard. Encouragement can be increased by using the reward mechanism correctly with presents offered to individuals and using the right algorithms. Quality content, recycling, presents, and certification is important elements of the process. The international certification system is the most valuable catalyst for the process. The support of organizations and the training of employees in business life is the most important step during this period.

1.1

Social media advertisements and educational platforms to encourage users should be used by establishing trust. Regulations need to be revised and restructured according to digital education. There is also a need to develop legislation to solve legal problems.

1.1

Training content developed by professionals should be communicated to the other party (those who want to receive training). Determining the user profile (level determination) is a priority in order to meet expectations. A reward mechanism should be developed within the system to encourage both participants and educators. Training of educators should be focused on in order to improve the competencies of educators within the framework of online learning activities.

The theoretical parts of face-to-face training and exams (driving license, occupational safety, etc.) can be transferred to online platforms to increase functionality. In order to increase the educator quality of the groups formed online, it should be ensured that different academics and educators take part in institutions in different fields. A free “Platform” should be established to improve practical speaking in foreign language education.

1.1

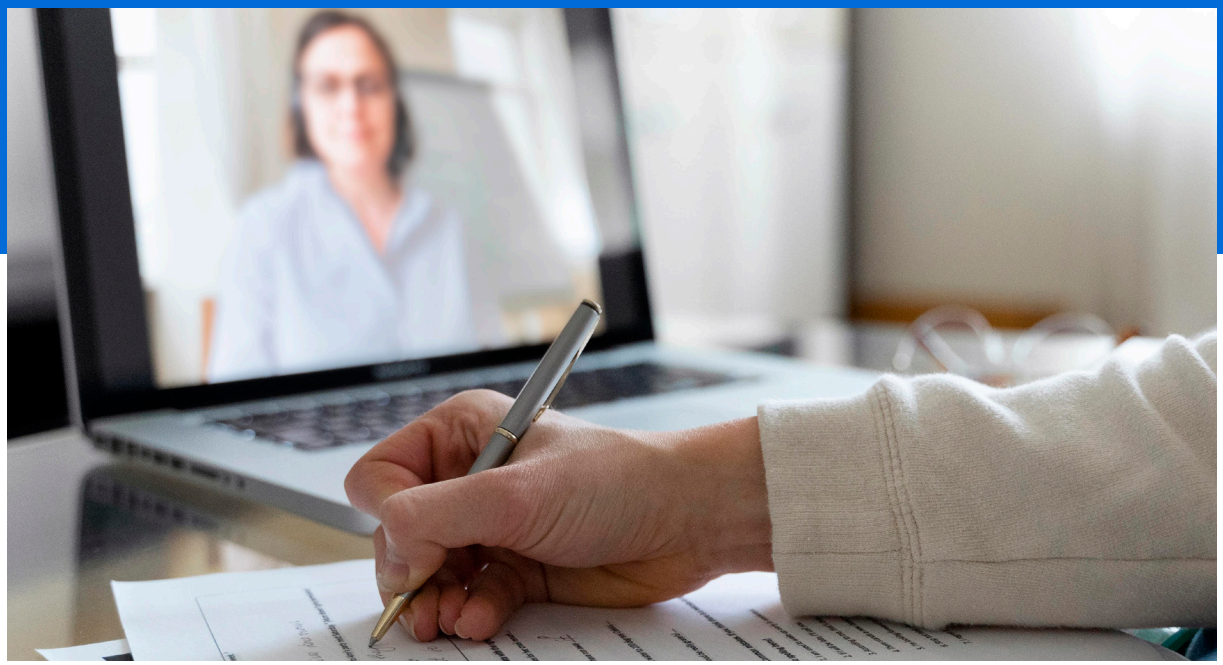
It is regarded as necessary to establish a common platform for the foreign language skills development of civil servants, students, and educators in public schools. It is also crucial that performances here are included in assessment and evaluation systems. The Ecole 42 model (founded in Paris in 2013) is today recognized as the best coding school worldwide with over 10,000 students in 20 countries. The education at Ecole 42 is completely free and does not require any academic degree or coding experience. It is considered that it would be beneficial to establish a model similar to the co-learning model (new generation coding training) for different sectors in an online platform.

1.2

How to ensure that participants using digital education platforms absorb the topics related to the training provided and acquire behavioral changes? Please state your suggestions.

Different technologies and methods must be used according to the age profile of the individuals to be trained. Assimilation can be achieved through gamification for children and virtual or augmented reality for adults. Interactive content can be more effective when gamification and virtual reality are combined. Through interactive training, the training can be transformed into an effective training approach. Systems that instantly transform learned knowledge into behavior are significant and more effective. It is considered that the functioning of the education system in Türkiye must change with these models.

1.2



Especially in digital education, students need to interact with each other and with their instructors. Students should be encouraged to change the way they learn by asking themselves questions and trying to increase efficiency with different competencies. A platform that individuals can easily access, whose content is attractive, far from monotonous, and sustainable should be developed. It is necessary for the trainee to make acquisitions in the adaptive learning process and to improve the missing acquisitions. The most important method is for students to internalize the process and adapt it to their lives to achieve success.

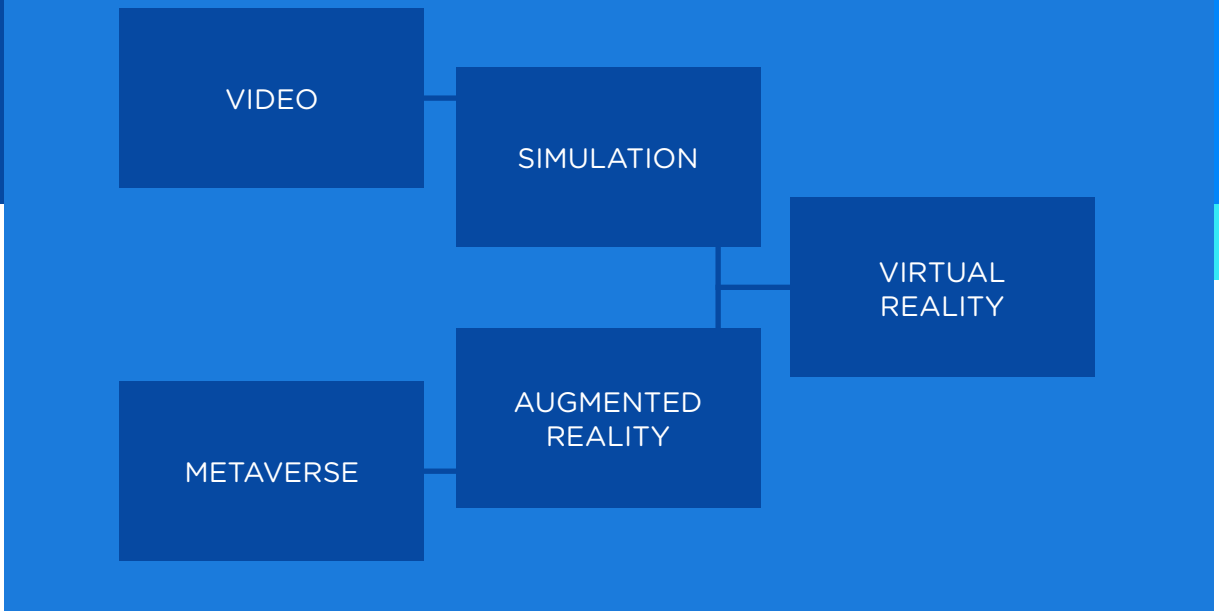
1.2

It is necessary to integrate Web 2.0 tools into the educational design and enrich educational processes with group work and peer learning. In the context of meaningful and permanent learning, competency-based evaluation processes related to the education provided can be implemented and behavioral change can be achieved. Motivation can be increased by giving badges and certificates. Interactive educational environments can be prepared using virtual reality technology. Examples of assimilation of behaviors and topics are conveyed to the participants through virtual reality. Values education and role modeling can be improved by developing educational materials that individuals can share interactively with each other in educational processes.

1.2

Content that will support practice rather than too much theoretical information and that increases visuals should be provided. Instant measurement and reinforcement methods should be used in the content. It should be a priority to analyze the individuals before the training, to shape the training according to the individual, and to provide personalized training. For the training to turn into behavior after digital education, tasks that will be applied in real life can be given in the continuation of the training and a community can be created for the participants of the same training.

1.2



In digital education, it should be ensured that the student can listen to the course recording in a flexible time period instead of a limited time. It is important to set more achievable and fragmented targets rather than unity. It is necessary to create a homework system (activity, video, simulation, virtual reality) environment where they can use their digital competence. Instead of the traditional exam system, the exam system should be carried out through a simulation. Providing adaptive learning and gamification with artificial intelligence where the student can provide personal development will facilitate the process.

1.2

For the individual receiving training on the platform to spend time on the platform, time planning, segmentation of the training, keeping the process of the person receiving the training alive through interim evaluations, and repeating the training at certain periods can ensure that the training is assimilated. It is necessary to make learning more attractive by experiencing the simulation, metaverse, AR/VR/XR applications, applying different encouragement methods through gamification and placing guiding and encouraging elements in the instructional design. Online education often remains at the theoretical level. In order to put theoretical knowledge into practice, it is necessary to support it with virtual reality and metaverse environments.

1.2

It should be ensured that training is differentiated in certain periods and that training content is transferred through concepts that affect students' lives and that students can relate to. It is necessary to identify problems by having in-depth information about the online education process by creating a data report card of the platforms on a student basis. Students' participation should be measured, and one-to-one, live, and group interviews should be used to increase student interaction in the education process and to structure the education process.

A system that encourages analytical thinking based on interpretation should be created in online education. It is known that measurement and evaluation in online education are problematic. The development of secure testing platforms should be supported.

1.2

The training can then be supported by an internship. Activities should be integrated into digital education to arouse curiosity. Activities can be developed and tasks can be defined so that training can be applied concretely in real life.

Users of the education platform should act as a community. Digital education platforms should be introduced into mainstream media such as YouTube, Spotify, etc.

1.2

A mechanism should be established to identify companies for implementation and participants should also become content producers. Education should be quality assured and different segments of society should have access to the same concepts. There should be output and feedback equivalent to a diploma so that both the reputation and output of education increase. It should offer experimentation and project output. It should be ensured that the training is proactive and that the training received is motivated. For example, it should be a paid or valuable certificate, and the terms of the certificate should not be misused.

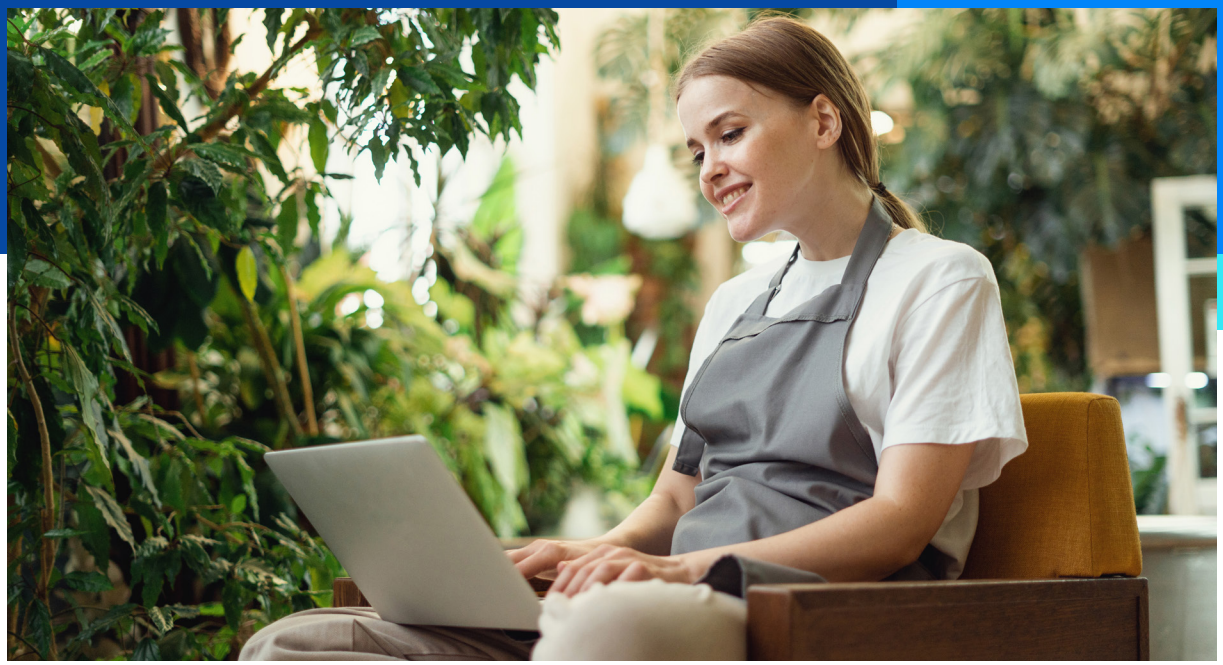
Perception should be created so that the training received can be applied in the field. Digital learning platforms should be auditable. The content must be checked for appropriateness by pedagogical experts (commonsencemedia.com).

1.3

What are the opportunities offered by digitalization in the education system compared to formal education? What disadvantages and shortcomings does digitalization bring along with it? What are your suggestions for solutions?

Distance learning and face-to-face education processes are quite different. Students should be made aware of the difference between distance learning and education processes. Remote teaching processes should be organized in such a way that students can evaluate their performance and receive feedback. The concept of flexibility is important in the learning process. Training management processes need to be optimized and human resources transformed. Formal education is the art of performance. A wide range of training should be available to improve the quality of the student's education. Different information across countries can be digitized to increase the student's viewing time. The role of the teacher is changing with the developing technology. In the context of educators being role models for learners, courses such as digital education practices for teachers can be added to the curriculum of faculties of education.

1.3



The most important advantage of digitalization in the education system is that it is regardless of time and space; it is accessible anywhere, anytime. There is also the advantage of being able to develop training material once and reach a wide audience. The efficiency of digital education is lower than face-to-face training, but resource efficiency is high; one educator has the chance to reach a large number of learners and training resources. The opportunities of digital education include reduced carbon footprint, time savings, ease of access, the possibility of continuous repetition, and affordability. Online education increases/ensures equality of opportunity, saves time, and makes it easier for participants to access training by eliminating the distractions that arise in the physical environment. As an advantage, online education accelerate the learning process. In digital education, there is the opportunity to complete education in a shorter time, to change fields, or to receive education in different branches. Furthermore, in the process of digital education, academicians, educators, students or participants should contribute to the process with their opinions, suggestions, and footnotes on the subject.

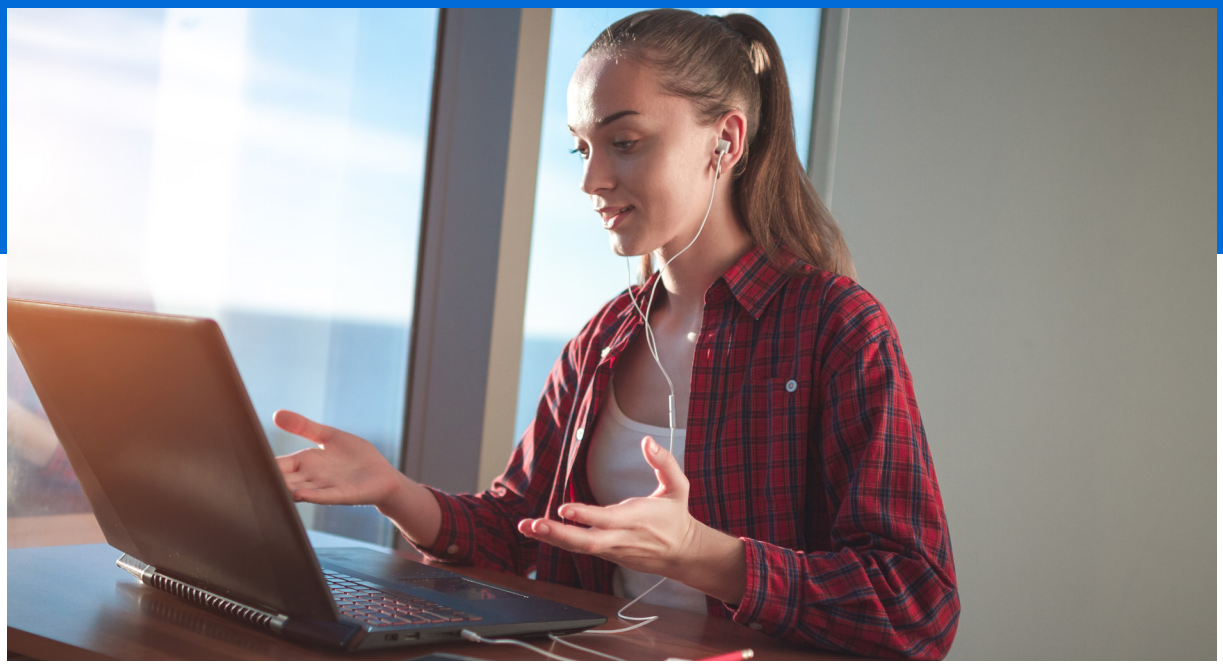
1.3

The disadvantages of online education can be interpreted as inefficient interaction and learning process, and unfair assessment and evaluation due to the security of the exam platforms. Evaluation and Assessment is the biggest problem in digital learning processes. Students working together is an important challenge in digitalization; teamwork should be implemented in digital education processes. Disadvantages include the problem of identification in online education, the reduction of social learning, and the fostering of excessive digitalization.

1.3

One disadvantage is that the quality of instructors and training on digital education platforms is not auditable. A clear cost/benefit analysis is required. In face-to-face education, academics and instructors can easily determine whether the subject is understandable with the attitudes, behaviors, gestures, and facial expressions of individuals; while in online education, this cannot be controlled due to reasons such as the lack of eye contact with the other party and the lack of obligation to participate with video. Lack of emotional communication and lack of classroom seriousness can also be considered disadvantages. There is a need to shorten the duration of online courses and to set clear rules regarding course organization. For example, solutions such as participation with video cameras, allowing each student to take the floor, and giving them the right to speak can be suggested. Implementation of legal regulations by lawmakers can be offered as a solution. There should be accredited programs such as train-the-educator programs for digital educators. Digital learning standards such as Management Systems Standards (ISO 9001 etc.) might be established.

1.3

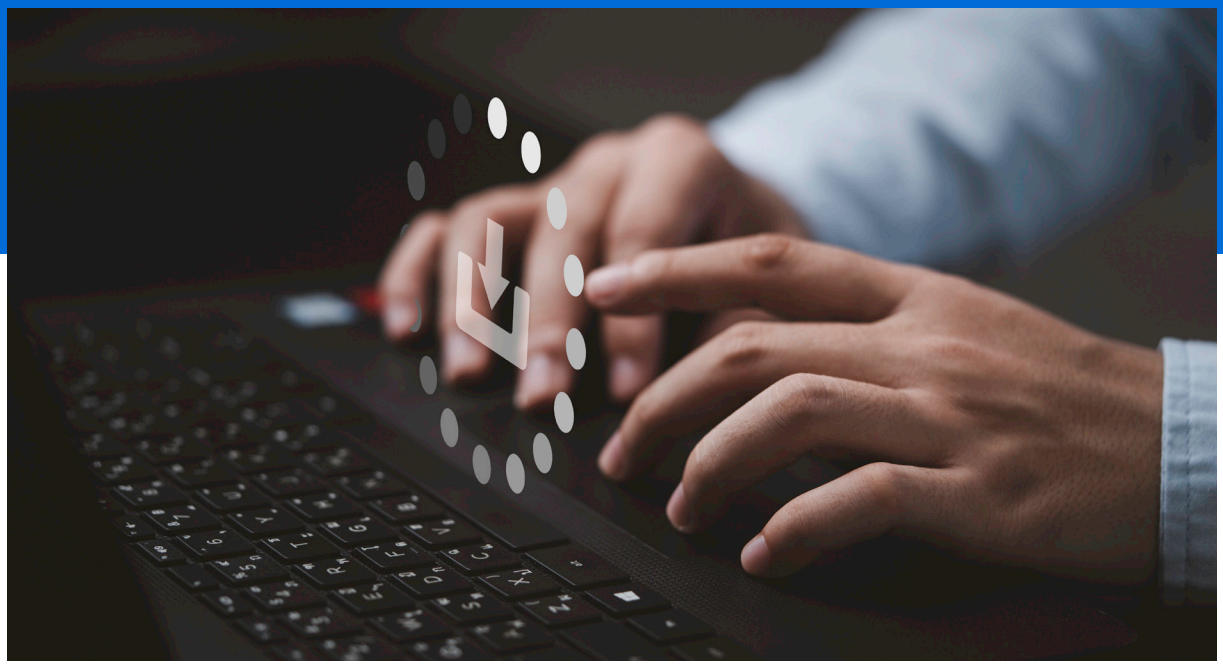


Access to education is disadvantaged in some regions due to technological inadequacies and failure to meet infrastructure needs. Since interaction and communication are achieved through technological means, people can be negatively affected psychologically in this process. Furthermore, various problems such as addiction caused by the intensive use of technology are also emerging. The solution is to carry out informative activities to make individuals conscious of the use of technology. With applications such as virtual laboratories, everyone can access high-cost laboratory applications at a low cost from anywhere.

1.3

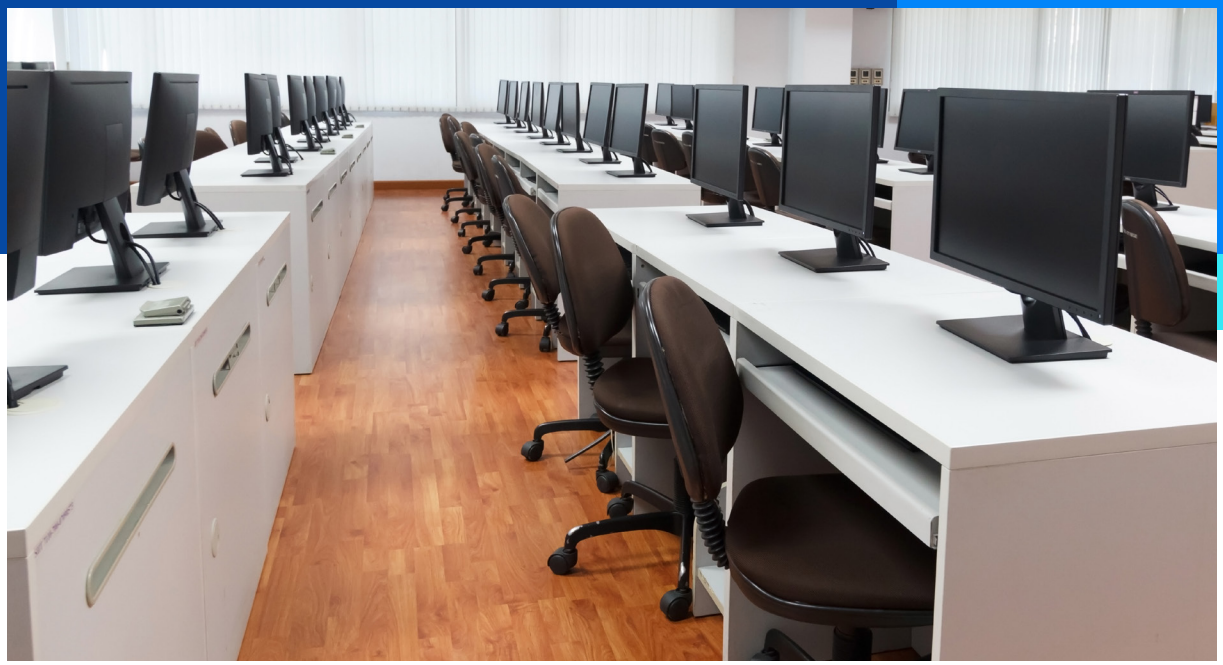
Virtual reality can be used to provide communication and interaction between teachers and students. In the hybrid education model, adaptive learning can be achieved with artificial intelligence used in digital homework control and the personal development of the learner. Producing a financial model for both hardware and content (computer, tablet, online education platform) is an important issue in digital education. It is necessary to control and monitor the student with AI (even if the camera is turned off). Learning should be ensured by developing a reward system with push notifications. It is thought that providing digital recess/intermediate motivation (such as a few people playing games online together), as in the formal classroom, will have a positive effect.

1.3



Another issue that can be listed as a disadvantage is the risk of attention deficit and focusing problems in children due to the effect of digitalization in education. It can also lead to various physical health problems (such as Ophthamological problems). It can lead to reduced socialization, create information pollution, prevent the development of information literacy and limit education through educational tools. Limited access to and availability of digital education tools due to regional development and economic level, limited interactivity, artificial intelligence complicating operations, and lack of alternatives in case of power or internet outages may pose problems. The inability to prevent copying in digital education is another problem.

1.3



As a solution, hybrid education needs to be expanded and enhanced. It is important to organize the distance education environment according to the education. Special spaces need to be set aside for education in living spaces. The digital education system should be designed to be interactive with the user. The interaction of the educator should be ensured in the digital education tool. Content should be ranked with a digital scoring system. Digital education requires the creation of opportunities to access experiences that cannot be reached in daily life or formal education. Information literacy and media literacy training should be expanded. Educators and students should be provided with introductory training.

1.4

What are the benefits of digital certification of knowledge, skills, and titles for educators and trainees?

A certain quality standard needs to be established and this quality needs to be sustained. It is important to establish the same quality standards throughout all universities. Education channels need to be monitored and controlled to improve quality. It is thought that establishing local versions of internationally accredited organizations such as Pearson in Türkiye will increase the trust in certificates. It is thought that a digital badge platform can be created from scratch by digitally implementing platforms instead of digitizing traditional methods.

1.4

It is thought that there should be different accreditation bodies for the acquisition of titles and that their standards should be established in universities. International accreditation networks should be established and promoted. It is not right to issue digital badges and certificates from a single center; there should be more than one accrediting company and organization, standards should be set, and these certificates should be at standards accepted both in Türkiye and internationally.

Determining the digital badge and certification architecture increases motivation. A reference is created by educators to trainees through digital surety. Knowledge, skills, and titles certified in digital environments can be accessed and verified from anywhere. For the educators, the benefit of this certification is the creation of new jobs and income opportunities. The immutability of the digital badge and certification architecture should be kept under control.

1.4

Digital certification of knowledge, skills, and titles is preferred by businesses in the employment process. This will ensure the popularization of education. It provides education regardless of age. The rapid realization of the processes, together with being economical and reducing bureaucratic procedures, creates a positive effect. However, it also has positive results in terms of enabling sectoral change.

Developing a software program for academics, teachers, and educators to focus entirely on the student/participant rather than bureaucratic tasks (such as reading exams, taking attendance, and scoring) and documenting learning activities through digital certification will have a positive impact. Being certified in the digital environment is very important in terms of creating motivation and improving the quality of learning in digital education.

1.4

A further consideration is a need to develop a policy for the recognition of prior learning. The certification of knowledge, skills, and titles should be reliable. By certifying the educators, it will be possible to fill in the certificates obtained by the trainees. When students turn to educators whose knowledge and skills have been validated, they can be assured of an appropriate and reliable education process. The certification of knowledge, skills, and titles can have important contributions in terms of providing different perspectives to educators and trainees and introducing new techniques and methods, provided that the process is valid and reliable. Certifying those who provide education can provide them with financial benefits and help them get the recognition they deserve.

1.4

Moving to a competency-based “digital badge” system is critical for both educators and learners. Emphasizing competence instead of diplomas is beneficial in terms of triggering the formation of independent platforms where it is shared. Certifying the competencies to be obtained in the digital environment and sharing them in the digital environment will bring job seekers and employers together.

It is important to earn badges and epaulets on social media and to take these badges into consideration in recruitment. Currently, certificates from digital education do not constitute an effective source of reference in everyday life. Certificates are not taken into account in recruitment as they are considered to be too easily produced. This perception and the current situation need to be corrected and regulated.

1.5

Is it necessary to create digital transformation plans for educational institutions? Which steps are important for this?

A digital transformation plan should be created for educational institutions. For this, a national "digital transformation guide for educational institutions" similar to the digital transformation guide prepared by the Presidential Digital Transformation Office can be prepared. In order to monitor whether this transformation is being implemented correctly in educational institutions, a "guide for digital transformation in education" can also be prepared. Audits can also be conducted by education-based auditors to be assigned in educational institutions according to the "guide for digital transformation in education".

The main objective should be to move forward with a vision of digitalization and take action in this direction. Digital transformation efforts need to be improved by optimizing technology, human resources, and processes. Using technologies that optimize management processes, identifying the needs of the target audience, developing human resources, and creating new human resources by optimizing new processes are issues that should be prioritized.

1.5

For distance education systems, new interfaces should be explored and new technologies should be followed, leaving old methods aside. These systems should be up-to-date both technically and in terms of content. Following the systems of different countries and institutions is crucial for sustainability. Ease of use, the use of systems that can be managed independently of individuals, and the strengthening of hardware are necessary. It is also valuable that the software can be quickly implemented according to rapidly changing needs.

Educational institutions must provide digital education to children born into the digital age; primary schools, high schools, and universities must make the necessary regulations; school founders must be ready for digital processes; and as a prerequisite for this, the right human resources and skills and competencies must be developed within the organization. It will also be beneficial to get professional support in the processes that need to be managed in-house with the right consultancy company.

1.5

Projects such as E-Project and E-Technocity should be implemented and carried out strategically. Projects such as 'E-High School' should be developed and the planning of the beneficiaries should be made and compliance with the legislation should be ensured. The legislation also needs to be adapted for structural changes for digital transformation in education.

Digital literacy training should be added to the formal education curriculum. Educators involved in education should be provided with in-service training by creating digital transformation plans. It is thought that it would be useful to create virtual communities for individual needs. Establishing transformation plans on issues such as cyber security and information security is a priority. It is thought that digital transformation plans should be planned in accordance with the conditions of the day, excluding formal education plans.

1.5

By analyzing the current situation, the level should be determined and what needs to be done according to the target should be planned and realized. Short and long-term targets should be set, performance indicators should be developed and stakeholders should be informed. For education to be sustainable, educational materials need to be digitized. It should be ensured that a comparison is made with another organization that has completed its digital maturity or has reached a certain stage and that the necessary steps are taken for the digitalization process in this context. Both public institutions and the private sector must create and manage the necessary budget for the transformation process (R&D, etc.).

1.5

Institutional processes should be analyzed and both hardware and software support should be provided. It is important to rationally define digital transformation goals and organize institutional legislation. Education data should be collected on a single platform. Providing human resources in the field of information technologies is among the most important issues. The digitalization needs of each organization are different. It is necessary to identify needs on an institutional basis, create an improvement plan and prioritize. It is necessary to distribute tasks within the framework of the digital transformation plan, to identify key performance indicators, to implement, and to re-run the process by re-evaluating and identifying shortcomings. The necessary mechanism must be in place for the digital transformation plan to be sustainable.

1.5

Digital transformation is inevitable. Organizations that skip this will not be able to survive:

1- The right technologies and infrastructure should be provided.
2- Quality standards should be set and practices should be monitored accordingly.
3- The learning journey should be designed and implemented efficiently within the platform.

Digital transformation plans need to be created. Policies to support digital transformation should be developed at the state policy level. Inclusive support should be offered and transformation should take place.

1.5

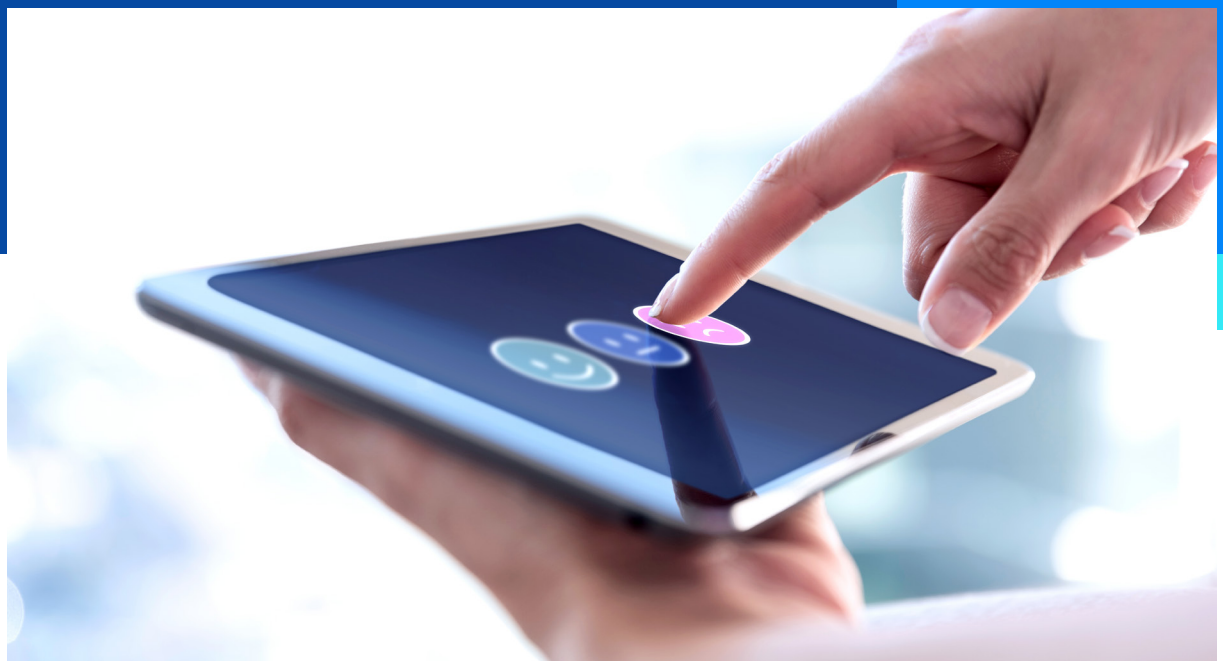
It is a necessity today to realize digital transformation plans in educational institutions. Creating a digital culture in organizations is a prerequisite for transformation. Incentive mechanisms should be developed for the transition of educational institutions to digital education so that digital culture is permanently established. Accredited digital courses should be offered to students from primary school to university in a credit course format (compulsory course).

In the preschool period, especially gamification should be used intensively. Children should be shown real heroes instead of imaginary heroes, and game developers should design these real heroes to provide social benefits. Nationalization of social education content is important.

1.5

Preparation and implementation of educational content in a proactive and interactive format are important for raising students' self-confidence and increasing their motivational power. It is not possible to be solution-oriented by equipping training content with only technical content Training content should include leadership, management, aesthetics, and values training. A major part of today's problems is that there are not enough managers and leaders to mentor young generations, to turn the emphasis on purpose into a role models with values. Technique, aesthetics, and values should be transformed into a form that is complementary to the education received. This lacking aspect of family education should be completed with the support of the education system.

1.5



Guidance and counseling services should be an important part of digital education. Students' talents and competencies should be determined, and the right career planning should be made, they should be directed to the right education accordingly, and personalized education curricula should be created. In Türkiye, these mechanisms should be made to work better to ensure that millions of young people have towards the right targets within the education system with the right career planning. For young people to make the right university, profession, and job choices, they need to be guided by this awareness and ability, and a process should be designed to eliminate their future and goal concerns.

1.5

It is critical to orient educational content according to the needs of future professions. Accurate short-, medium- and long-term needs and determinations should be made about the professions of the future. In reaching these conclusions, the social benefits should be considered along with trends and global tendencies. Within the framework of the accreditation mechanism, the creation of training content can be anonymized.

The societies addressed by the digital university should not be limited to Türkiye. It is important to follow and acquire new trends and developments in digital technology. With the development and widespread use of Web 3.0 in a short time, educational activities will be used effectively in immersive virtual environments. In this way, especially in many areas that are difficult to practice physically in real life, the possibility of virtual practice will be part of the education system.

1.5

In digital transformation, all steps from infrastructure to reaching the user must be planned. When planning training content, planning should be done by considering the necessity and disadvantages of digital education. A digitally structured education institution should be created from scratch. Customer usage and experience should be taken into account and planning should be done accordingly. In digital education, the visual design of the content needs to be strong. Digital platforms should be developed according to the characteristics of disadvantaged groups.

The harmonized education system needs to be made feasible. Institutions need to conduct SWOT analyses. You cannot manage what you cannot measure; it would be appropriate for organizations to measure the data and then make adjustments. The legislation requires electronic document management systems software.

1.6

How to create secure platforms with high-quality content and user-friendly applications? Please state your suggestions.

It is important to implement the curriculum correctly, to ensure that the contents cover the current agenda, to ensure that the contents are suitable for the target audience, to increase the diversity of resources, and to make education applicable by conducting research in the literature. Field research is necessary for the development of training content. Strategic partnerships should be established to cooperate with all platforms. Internationally recognized content that meets the needs of the business world should be developed. Globally successful training should be adapted locally.

1.6

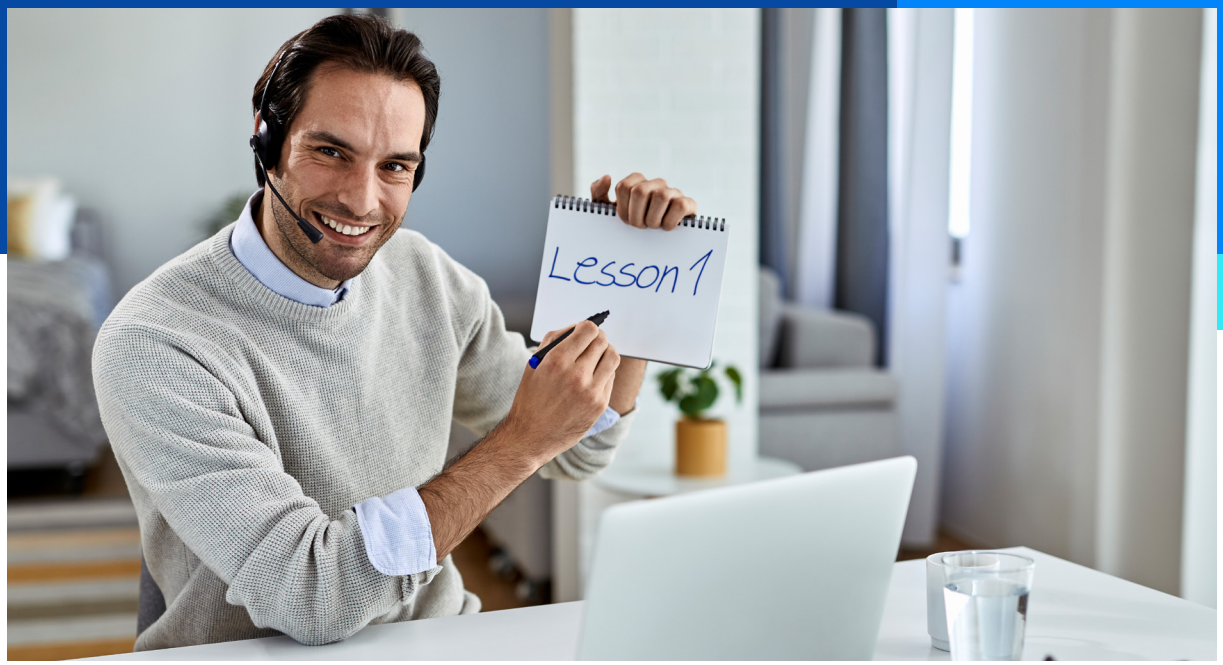
To develop high-quality content, content experts and instructional designers should work together to create content. When creating training materials and curricula, Web 3.0 technologies should be used in line with standards, user-friendly application interfaces (with intuitive design) should be developed and mobile technologies should be made widespread. Security software should be developed to ensure that the platform on which the content produced from external or internal sources depends does not deteriorate in terms of quality. The integrations of the developed security software should be approved and selected. Necessary measures should be taken to ensure that personal data is not shared with third parties and used for commercial purposes within the scope of the PDPL. It is essential to develop security measures to ensure that high-quality content is not copied or reproduced. It is not possible to talk about a secure platform. Therefore, the information on the applications can be kept on the blockchain.

1.6

Security testing of platforms and accreditation of education-specific content should be performed. Digital platforms need to be more convenient and developed for people with disabilities. These issues need to be included as state policy in Development and Action Plans. It is important to create personalized content and to cooperate with institutional structures that have experience in content creation.

The public sector should create a special financing model for the purchase of such platforms. A board needs to be established, a platform needs to be created based on a needs analysis, and content producers and platform creators need to be separate and supported. The state can support companies that establish this platform and develop policies in this context.

1.6



The platform should include experienced educators with recognized knowledge and skills. User comments and scoring should be shared. In order to produce high-quality content, the purpose of its production needs to be clearly defined. In order to increase the quality and reliability of the platform, a wh-questions procedure should be followed when producing content. It should be ensured that the user accesses the content they want to access in the least possible steps while using the education platform and that the necessary analyzes are conducted in the user experience and content creation process.

It is thought that educators or presenters should be selected from people who are suitable for the digital education concept (style, diction, and body language). Gamification in applications should be pre-test, mid-test, and post-test within the training program. It is thought that it would be useful to use competition and award arguments in implementations. In order to produce quality content, studios need to be established to provide infrastructure, experience, and design facilities. Periodic feedback is essential for digital platforms to become continuous and high-quality. It is thought that it would be useful to benefit from social media phenomena that can reach large masses at various levels (such as Tonguc academy).

1.6

While there is outcome-based education, there is no controlled education. Within this system, those who will receive training must be also positioned as content producers. The public should set the standards and field stakeholders should be involved as players. A living system should be designed, a cyber security operation center should be established and integrated with organizations around the world.

Technological infrastructure is one of the most important and prioritized issues. When we examined the problems experienced by universities during the pandemic; it was observed that their bandwidth and hardware infrastructures were inadequate. Investments should be made in technical infrastructure. It is necessary to focus on the user experience and develop a user-driven capacity. In order to ensure equal opportunity in the MoNE EBA (Ministry of National Education) system, technical infrastructure, material, and logistic needs need to be met.


BİLİŞİM VADİSİ
EĞİTİMDE DİJİTALLEŞME ÇALIŞTAYI


BİLİŞİM VADİSİ
Technology Development Zone
EĞİTİMDE
DİJİTALLEŞME
ÇALIŞTAYI
Birlikte Başarabiliriz

SECOND SESSION

2. THE EFFECTS OF DIGITAL EDUCATION AND REFLECTIONS ON THE LABOR MARKET

2.1

How can digital education approaches benefit the creation of a qualified labor force and the continuity of education/ development?

Prioritizing digital education is a necessity today. Digital education in the manufacturing sector should be transferred to all sectors and the continuity of training should be ensured to improve the competencies of the employees of the organization. The training given by institutions must be provided in accordance with the new generation and certain standards instead of the old-style master-apprentice hierarchy. Institutions should not separate digital education from other educational tools but should proceed with the principle of an integrated digital education system. In terms of efficiency, especially in terms of blended learning, it is necessary to realize these processes with minimum cost and time savings. The demands of the business world should be clarified and it is necessary to ensure that education continues in a sustainable digital environment in line with these demands.

2.1

The knowledge and skills gained through digital education approaches can be made tangible and observable learning capabilities can be provided. By creating an open-source applied knowledge pool and using current application examples from the sector, current platforms such as presentations, web tools, and VR technologies can be transferred and updated in the pool in order to demonstrate a qualified labor force. Thanks to the digital education being done in the right way, adaptation is achieved quickly and development continuity is completed. Compared to physical training, digital education will provide cost and time advantages. Within the scope of creating a qualified labor force, the development continuity is maintained by accurately defining the past stories of professions.

2.1

Work simulations can support the training content practically. Having constant access to digital content and keeping information fresh can be beneficial. The fact that online platforms and their content can be constantly updated and kept up to date will make a significant contribution in terms of continuity. Thanks to digital platforms, a larger number of participants can benefit from the training compared to face-to-face training, which will increase the impact. Lifelong learning (on-the-job training) will be ensured. With technological tools such as virtual reality and simulation, content producers and professional organizations can be united and brought together on a common ground. Especially in application areas, VR glasses can be used to enable students to learn the machine and the product effectively. Digital education technologies can contribute to the creation of a qualified labor force. Simulations can be used to determine the suitability of the labor force for the job and periodic training.

High technology self-efficacy of educators who will contribute to the creation of a qualified labor force can contribute to both the labor force and the continuity of education. Digital education technologies contribute to the continuity of education/development as they enable access to education regardless of time and space. Digital education facilitates access to both the labor force and educational resources, making it possible for the labor force to become qualified and for the existing labor force to continue its development.

Economically and for organizations, digital education offers significant advantages in terms of the total cost. In terms of time savings, those who will receive qualified education will have the advantage of being able to continue their education regardless of space and time. In terms of continuity, training is possible at any time and on any subject. In terms of measurability and manageability; by creating analyzable databases, processes can be measured and managed. The potential to benefit from expert educators increases. Digital education creates an economically manageable infrastructure because it is sustainable, measurable, and accessible.

2.1

On digital education platforms, training needs to be repeated. A spiral education model should be adopted. Each training should surpass the previous one. The training should be archived and the user should be able to access these at any time. At the same time, updates should be made according to user feedback.

The same education should be offered through different models. For this, it is necessary to follow current technologies closely. Video-training identification is provided and similar content is presented according to the users' search content. Firms can create or support their training based on the labor force needed. Not only individuals but also organizations should be involved in continuing education.

2.1

Businesses can create their academies to ensure a qualified labor force. In order to ensure the continuity of the qualified labor force, learning should be developed organically by ensuring that employees participate in up-to-date digital education. Digital education needs to be better grounded. Activities should be conducted in a specific field and subject in digital education. Therefore, more contributions can be made to the target and qualified labor force. Digital education should focus on quality rather than quantity. Measurement should be carried out at the end of the training. A qualified labor force should be defined. As a result of digital education, there should be a behavioral change in the person.

2.1

It should be open access, the validity period of the certificate at the end of the training should be limited and a systematic system of periodic auditing should be developed. For the digital education approach to be successful, the gaps in formal education should be filled. The biggest difference between universities and private organizations is the speed and cutting-edge technology. Education systems equivalent to university education need to be developed to meet the need for a competent labor force. The curriculum should be constantly updated. Universities should not only be theoretical, but a system should be created where students can develop their practical skills. Academics should work actively in the field to ensure this mechanism.

2.2

How can graduates and young professionals be trained for the changing demands and trends of the business world? Please state your suggestions.

As the parameters defined for the labor force change or are updated during the process of creating a qualified labor force according to the changing demands of the business world, it should be ensured that digital learning systems are also updated with short-term qualified content. In the pre-employment process, educational institutions should be in constant communication with the service sector. In this way, the qualifications needed by the business world should be taken into account and educational institutions should prepare their content based on these qualifications. In line with the needs of the service sector, employees can be encouraged to take training that falls within the scope of micro-qualifications for professional or personal development. Digital education programs should be created based on the shortcomings and demands of the system. Focusing on 21st-century skills, young professionals can be trained in this context. Post-employment employees can be provided with professional development training in the context of lifelong learning.

2.2

Different pieces of training can be offered on different platforms to improve the skills of recent graduates, such as project development and problem-solving, to contribute to the development of young professionals. Courses in the sector can be transferred to young graduates by creating a platform at universities. In order to develop effective communication and entrepreneurship skills, it is necessary to develop mechanisms to increase the applicability of the education students receive at universities to real life. The acquisition of personal skills should start at primary school age, and parents should not leave the development of their children's skills to the school alone. Furthermore, for the development of skills and competencies, early recruitment should be made for insured workers instead of interns. New graduates should be allowed to learn the corporate culture within a certain time frame and be given the vision to develop different projects. It is necessary to contribute to the acquisition of 21st-century competencies in the family or at an early age by creating platforms with productive content supported by the state and accessible to everyone.

2.2

On certain days of the week, observations can be made through an online platform in companies to be arranged by schools. Companies can conduct their executive development programs either hybrid or remotely. Experience-sharing platforms can be created that can become online institutes. Online mentor-mentee programs (graduates, work experience, bosses, managers, peer sharing, etc.) can be created. Up-to-date content can be provided by cooperating with the business world in the creation of digital content in the vocational and technical context.

Rather than the state changing the curriculum, the private sector can prepare a curriculum and the graduates of this curriculum can be recognized by the state. High-quality service can be ensured through project proposals and value-added work according to the working fields of young engineers. Inferences can be drawn from research (such as surveys) and case studies conducted to determine the demands of the business world, and actions can be taken. The demands reported by professional boards can be developed by educational institutions. Practical training needs to be reinforced through long-term digital internship programs.

2.2

As the business world and trends are dynamic and needs are constantly changing, graduates and young professionals need open-source and longitudinal training. Various training platforms can be created in cooperation with NGOs, industrial organizations, and universities. Educators need to keep up with the changing technology and improve their educational processes by considering new-generation technologies. There is a need to increase the number of activities and collaborations that bring together theoretical and academic practices. While designing training, incentive mechanisms such as fun and gifts to increase motivation and practices that can keep students alive should be implemented. Furthermore, the training and the educator need to be able to address the level of the participant.

The main problem is that employers and new graduates do not use a common language. To overcome this, competencies can be made a common language. Providers and trainees can create a sustainable communication channel as long as the outputs are acquired as competencies. Young people receiving vocational training can emphasize their expertise by receiving digital education in more specific areas. Pre-competency studies and aptitude tests to be conducted on the digital platform will support individuals by guiding them on which field young people should focus on. Young people can have a job by turning to the areas of expertise needed by institutions.

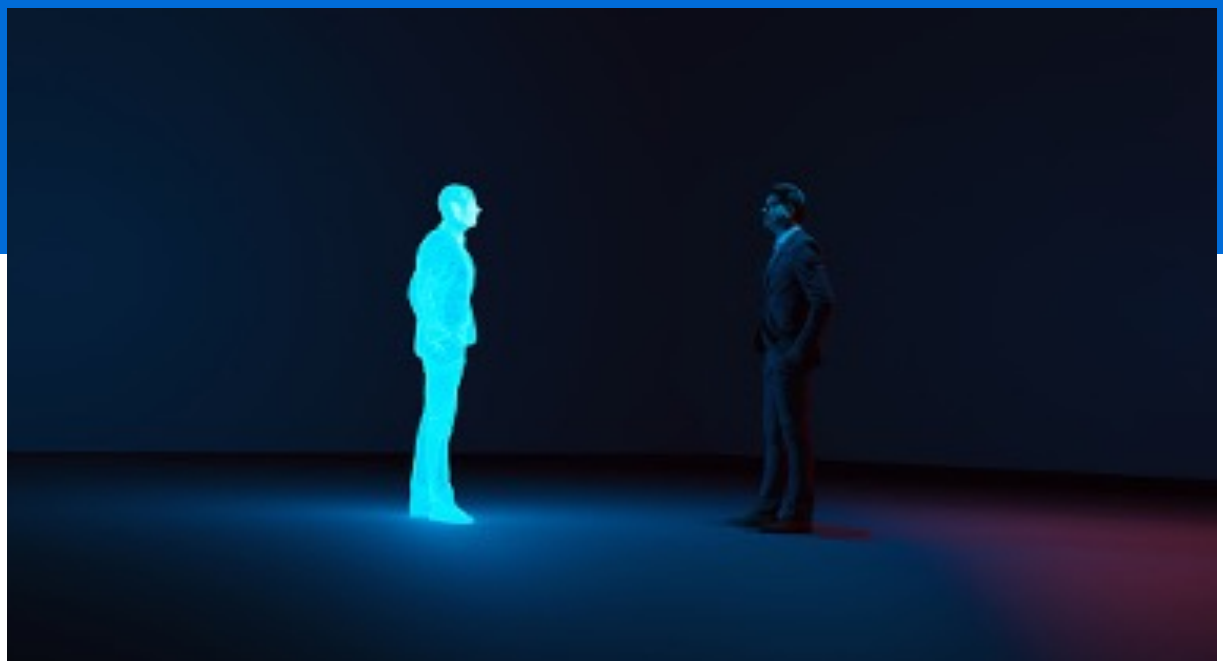
2.2

It is also necessary to receive basic training (such as correspondence, composing texts, and writing e-mails) in order to meet the needs of the business world. It is imperative to keep up with and use digital education to adapt to rapid change, innovations, and professional development. Being solution-oriented, having the skills to work with different groups and storytelling are qualities sought after in the business world. Scaling digital technologies requires identifying and determining visible and invisible needs.

Children should be directed to digital education based on their interests and abilities, and young people should focus on specific fields and develop themselves. Young people's lack of experience can be supported by digital education. It is thought that the business world should develop a hybrid education model with a university education. School education should be shaped according to the employee profile needed by the institutions representing businesses. Thus, digital jobs can be created. The employer needs to recognize and accept invisible work. An industrial application area should be established within universities. Innovative fields of application here should be supported. Initiatives should address specific problems. It should be ensured that academia is involved in the industry to produce one-to-one solutions to the problems in the business. Stakeholders and organizations representing businesses should play a leading role in the development of this model. Activities similar to TEKNOFEST* should be expanded in the industrial field. Models that inspire students should be put forward.

**TEKNOFEST Aerospace and Technology Festival is organized with the partnership of Türkiye's most important institutions and organizations whose main goals are realizing the National Technology Initiative and transforming Turkey into a technology developing society.*

2.2



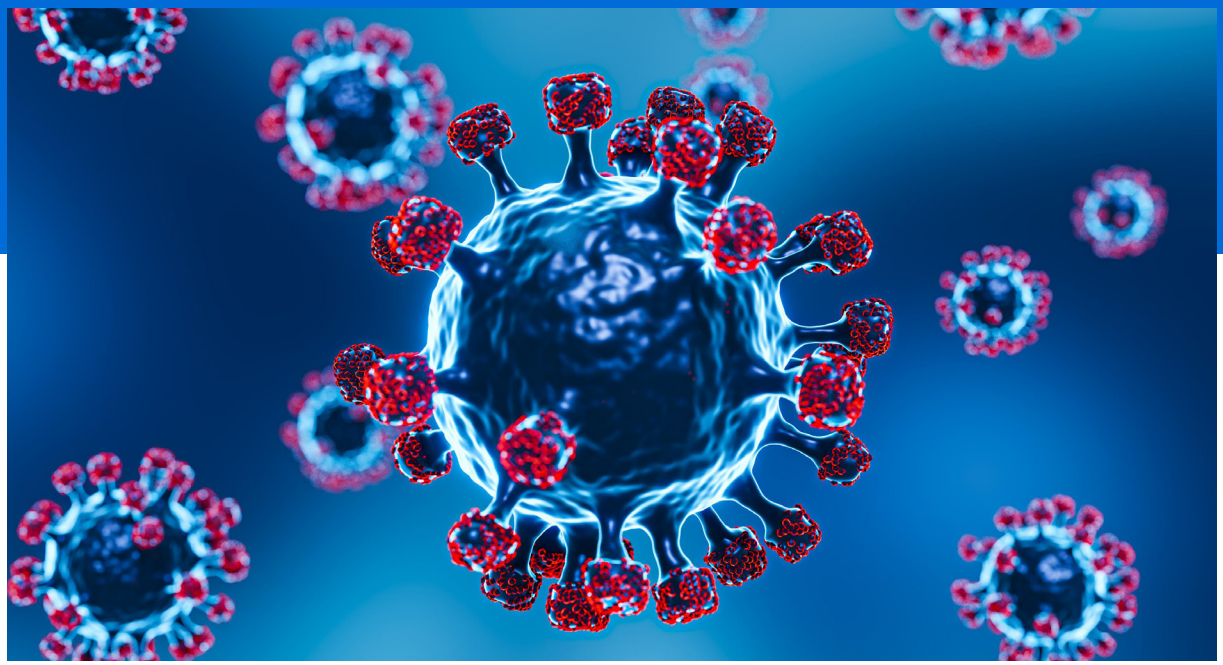
Incubation centers can be established and financial support such as SSI (Social Security Institution), İş-Kur (Turkish Employment Agency), taxes, and salaries can be provided for young graduates and professionals. Protocols should be made to meet the need for intermediate employees between departments for digitalization within the framework of public-private sector-university cooperation. Training to be determined by professional organizations can also be provided under the auspices of professional organizations. Each sector should determine a digital roadmap for itself and support it with information and communication technologies. Capacity-building activities required by the changing business world should be conducted. In-house training should be mandatory and a human resources roadmap should be drawn. Competency levels in the digital field should be determined and development should be made based on categories. Holographic methods should be used.

2.3

How will the development of digital skills and competencies contribute to the labor market and future jobs?

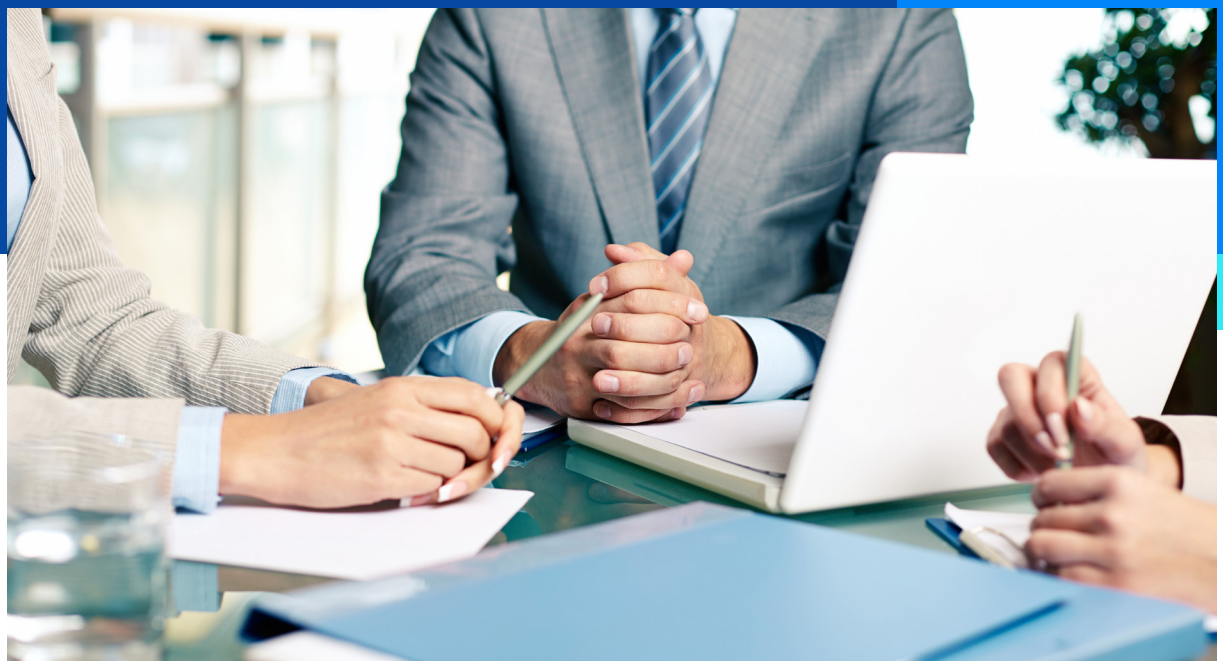
Among the professions of the future, the software industry, metaverse, image, and sound processing seem to be the priorities. It is also important to know the programs in the field of graphic design and to improve oneself in this field. Young people should specialize in one field and have a plan B, that is, something to do behind the scenes. Various future professions such as the Metaverse need to be integrated into all areas of life. Similar to the 1 million employment project, the state needs to provide guidance by identifying shortcomings in the market and developing competencies for future occupational fields. As digital skills are required in every field, individuals need to have digital skills in addition to vertical and horizontal skills.

2.3



The employment market should identify gaps and shortcomings between current and future occupations and ensure that the necessary skills and competence maps are drawn up and shared with professional organizations. The development of information and communication technologies has led to different perspectives in all segments of society. Business disruptions like COVID-19, which have had a profound impact on society, have also made it imperative for individuals to develop digital skills and capabilities. In this context, given the knowledge and skills that will be required for the professions of the future, digital skills competencies need to be shaped accordingly.

2.3



Studies in the field of social sciences conducted in online can be made more qualified with the data visualization method. Such applications can also be developed for other disciplines. It can be ensured that workflow processes can be continued with remote working regardless of space and time. The orientation process of employees can be accelerated by conducting the orientation process on a digital platform. Decision support systems can be strengthened with artificial intelligence to support decision-makers. It provides the opportunity to find and recruit international human resources; it also develops new professions and at the same time provides access to professions that are not known locally.

2.3

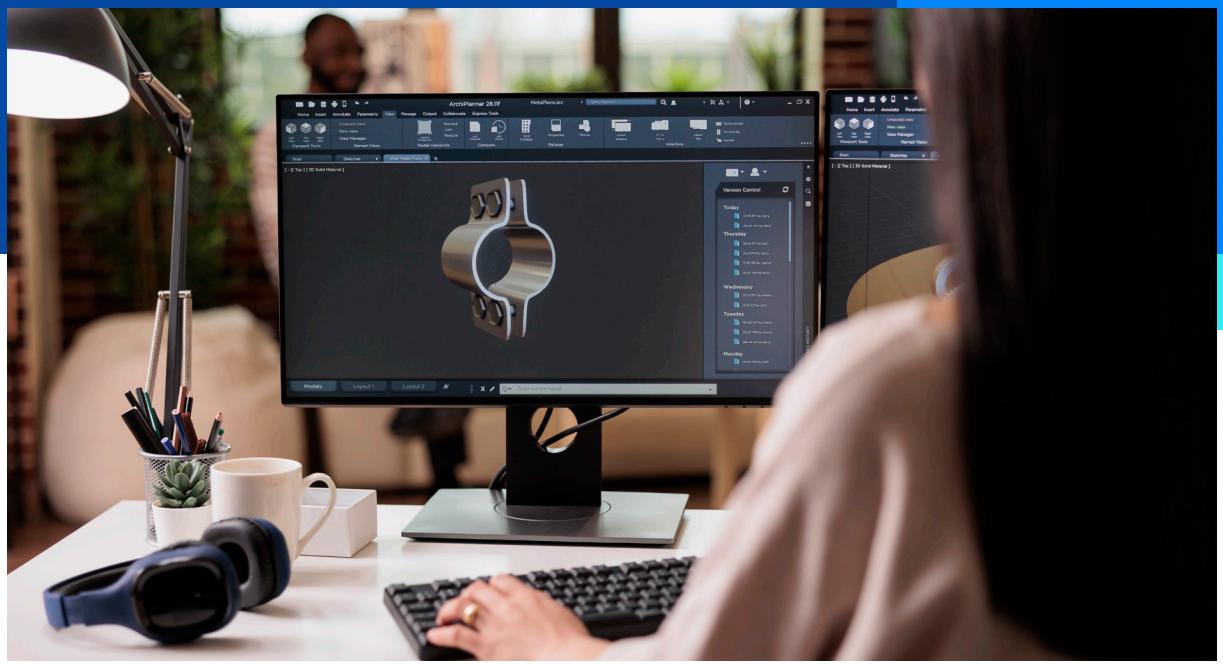
With open access, individual initiatives can design a system.

The motto of digital transformation is cooperation, not competition.

A labor force with enhanced digital capabilities can create an accelerating effect for the organization in different performance criteria. Digitalization can more easily ensure corporate sustainability. Digital competencies enable people to become more productive. Today, there is a need for people with multiple skills in the labor force. People with multiple skills, especially in the area of digital competencies, are becoming sought-after employees.

2.4

How to identify competencies that meet the expectations of both trainees and employers, and how to ensure that these competencies are acquired?



The Academy should include training that will provide solutions to the problems of the industry. In the digital field, universities need to make strategic decisions and develop their competencies in order not to fall behind the pace of technological developments. Universities are not institutions that meet the needs of the business world, but they should consider the needs of the business world. Feedback and improvement systems need to be added to the mechanisms and graduates need to be monitored. Various organizational structures need to be established, needs analyses need to be conducted, employers' demands need to be clarified, and NGOs need to conduct needs analyses.

2.4

MYK
MESLEKİ YETERLİLİK KURUMU

Under the national qualifications framework determined by the VQA (Vocational Qualifications Authority), competencies have been defined for each occupational group. The fact that educational institutions structure their training programs within the framework of these competencies ensures the acquisition of these competencies. By looking at İŞKUR vacancy records opened by companies, the competencies needed can be identified and the human resources required for these competencies can be trained in the medium and long term. The competencies needed in the service sector operating in the private sector can be identified and the human resources required for these competencies can be trained in the medium and long term. It should be ensured that employers and professional associations are part of the training spaces through continuous interaction with formal education or digital learning platforms. Once the training and contents needed by employers and professional associations have been determined, training experts should ensure that the training is formed. Developed training needs to fulfill the needs of the sector in a feasible and harmonized manner.

2.4

Competencies can be determined within the scope of the online personality inventory and content can be designed in digital education in line with these competencies. On digital platforms, users can search for content according to their competencies. AI-powered digital coaches can be created. An online database could be created to match the competency expectations of both training fields and employers.

2.4

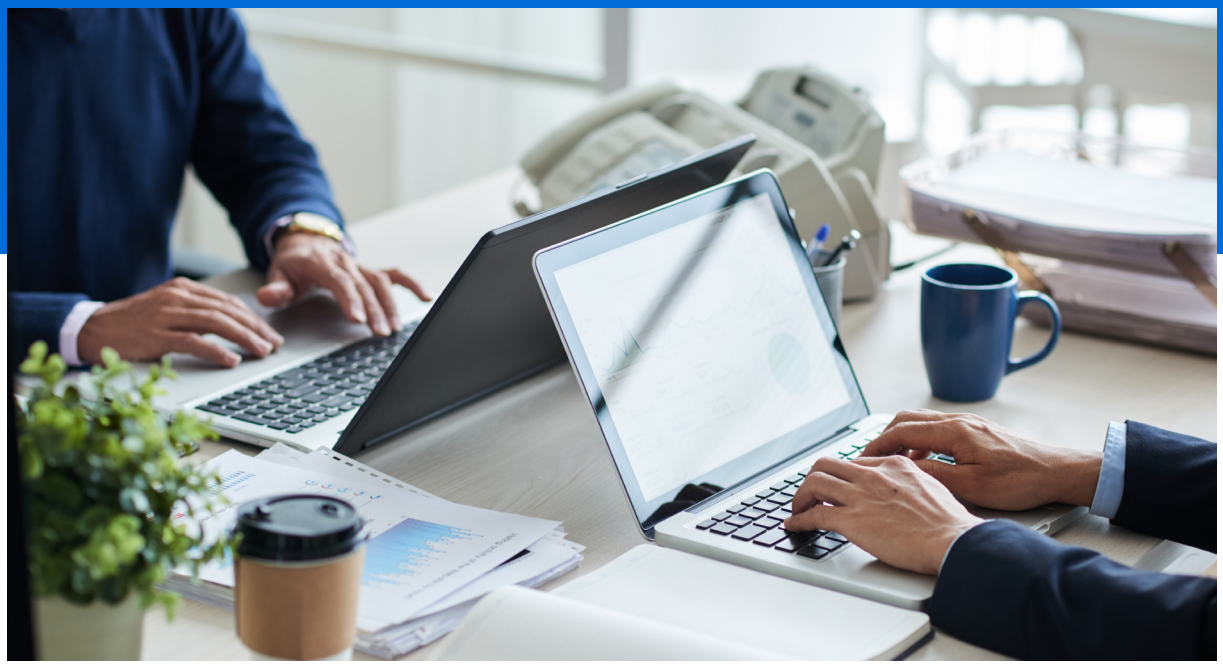
A state-regulated competence measurement system (badges, certificates) should be developed in Türkiye. Educational institutions, professional organizations, and trainees should be stakeholders of the system. Employers and organizations that conduct competency checks must identify the competencies needed through the organization of a large workshop. According to the needs of the employer, the state can provide identification and labor supply through a facilitating interface. With applied industrial training, there can be a system where the employer checks the competence of the student and scores them. With the joint work of companies and universities, training programs can be organized for the competencies needed with the logic of elective courses.

Educational institutions need to create a shared consciousness with corporations and stakeholders need to create a model of solidarity rather than consultation. Long-term projections can be made by examining successful digital education projects and methods in the world. Digital universities and vocational schools to be established jointly by public IT companies and universities should be encouraged. The requirements for enrolling in digital universities should be minimized and the framework of a user-friendly system should be determined.

2.4

Sectoral analyses should be conducted, digital maturity analysis of enterprises should be conducted and the needs identified in the gap between the current situation and the target should be addressed. In this context, projects need to be planned and human resources need to be recruited and trained. Training areas should be oriented towards gaining experience in the business. Educators need to know the enterprises very well. What brings employers and employees together is the creation of qualified work. Employers expect to develop intermediary institutions for the identification and implementation of competencies between employers and educational institutions. A qualitative analysis should be carried out by the state. Expectations of trainees: the desire to work regardless of time and space. Relevant institutions should identify and present technology trends and competencies.

2.4



Short, medium and long-term targets should be determined according to the structure of the companies and necessary training should be planned for qualified personnel in line with these targets. Sector data should be integrated with the public sector and data should be processed and presented in partnership with the private sector.

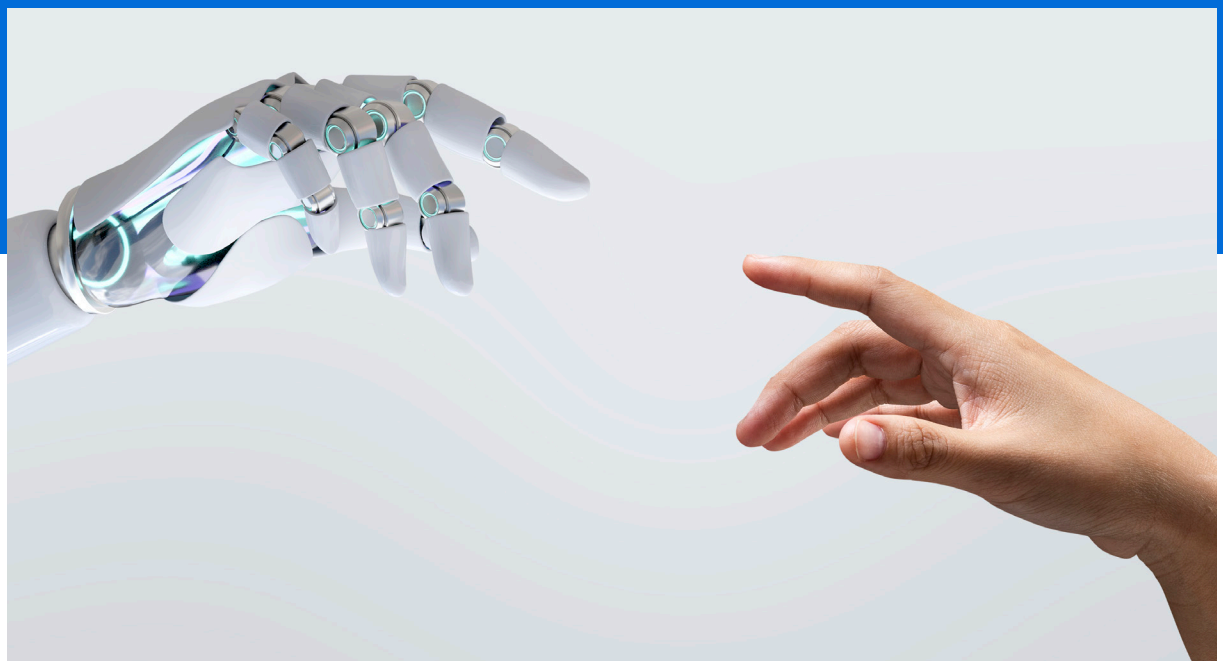
Internship programs need to be emphasized. An internship is not an obligation, but a very important opportunity to learn how to combine work, theory, and practice. An incentive bonus should be given to the master teacher in an internship. University-industry cooperation should be ensured. Individuals who are competent in the sector must give lectures at universities (Experience Sharing). Furthermore, the standard of specialization should be raised.

2.5

What can be done to ensure that digital communication supports face-to-face interactions?

Support should be provided to create communities and be together with students, socialize and increase the interaction of institutions outside the digital environment. Training should be provided on increasing teamwork in communication in the digital environment and managing the digital generation. Learning should be taken out of the classroom by providing digital communication environments and face-to-face interaction should be supported. A vision of communication in the digital environment needs to be gained.

2.5

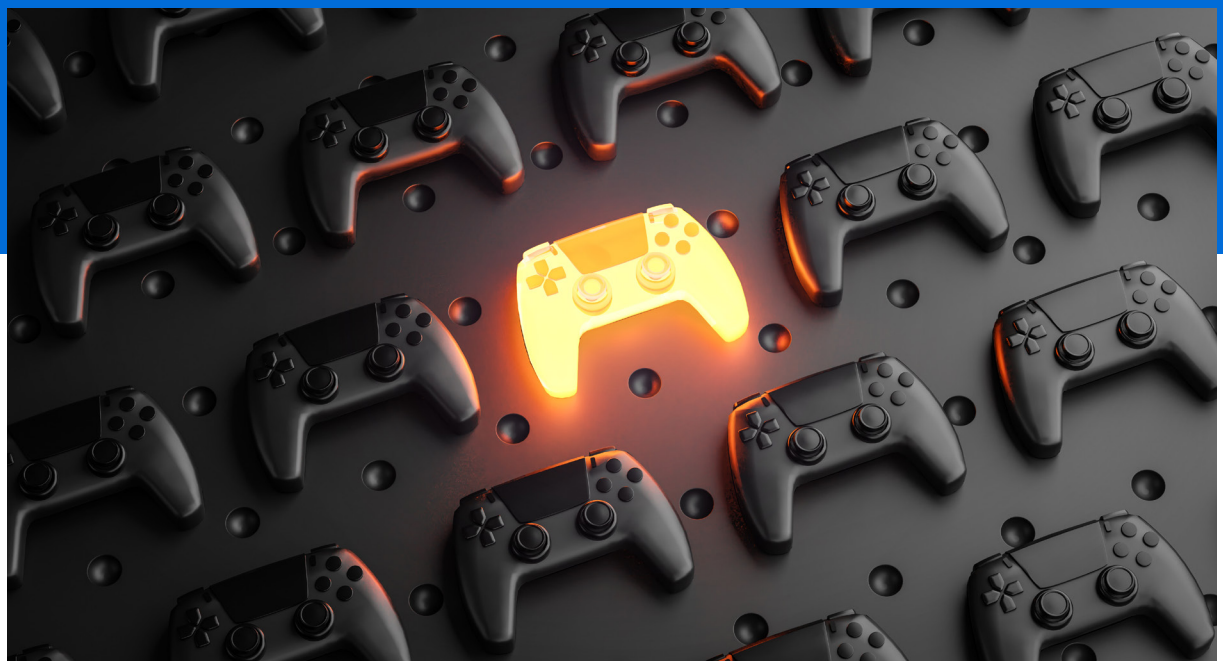


By using Metaverse capabilities, face-to-face communication can be supported through the digital twin method and by evoking the feeling of physical contact when digital contact is made with the other party. By planning the activities to be planned in the digital environment in the form of gamification or team activities, interaction can be increased, and face-to-face interaction can be approached. With new technologies (hologram technology), interaction in the digital environment can be closer to face-to-face interaction. The use of devices with higher technological capabilities, such as cameras and microphones, can be made more widespread (which may require tax exemptions to keep costs at an acceptable level). New-generation technologies such as neuro link technology, wearable technologies, the Internet of Things, and sensors can be used to develop sensory-based interactions.

2.5

Educational interviews in the digital environment should be conducted not only for learning purposes but also for socializing and entertainment purposes. The fact that learning tasks in the digital environment are also done face-to-face with peer monitoring and evaluation techniques strengthen face-to-face interaction. In order to complete the digital education content to be developed for training, it can be managed through mobile applications.

2.5



Digital content needs to be gamified to make it easy to understand and to enable interaction between people. The widespread use of edutainment (educating through entertainment) method in all branches and digital environments will have a positive impact. R&D activities can be conducted for the adaptation of metaverse or wearable technologies with digital education content. In assessment and evaluation, the total score can be determined by weighting digital and face-to-face scoring.

Digital channels can be a networking resource for face-to-face interaction. The intertwining of the two worlds can be achieved by applying the theories of face-to-face interaction to digital life. Authentication can be achieved through digital interaction. Virtual interactions need to be monitored and managed until they reach the touch points of face-to-face interactions.

2.5

Sharing location information in digital education practices can enable people who are together to meet. Doing business together, developing projects, and coming together physically within this framework, groups that have met face-to-face can be brought to digital platforms and physical activities such as camping can be organized with groups in the digital environment. Alternative environments should be developed and planning and hybrid working processes should be undertaken. Face-to-face activities can be enabled by using digital tools. Networking events can be organized on specific topics. A blended learning system can be introduced.

2.6

How to maintain a system of values to sustain digital interactions? What are your solutions to the problems that may occur in human-machine, and machine-machine interaction?

A common system of values (digital ethics) for digital environments should be established. The means of values (messaging, communication, etc.) should be identified. A common culture of digital interaction can be created by taking cultural differences into account. Sociologists and digital media development experts should work together as stakeholders in the process. Large communities can be manipulated from a single center, and international institutions need to be created to anticipate and manage global movements that depend on a single institution and a single individual.

There is a need for preventive legislative action on the issue. Also, Personal space ethics needs to be developed. In a pilot area or living lab, the government can use technology to receive feedback and shape the system. For instance, ethical values should be introduced and audits should be conducted on many different issues such as expelling the person who does not comply with this evaluation letter three times from the digital environment, using unlicensed software, etc.

2.6

Within the scope of digital values and ethics, training can be provided through preschool education. The creation of content filtered through ethical values in the digital environment can be ensured. Digital platforms should always be governed by the protocol of human dignity and physical integrity.

Activities can be initiated to develop legal frameworks for IT law. Studies can be conducted in which an AI, which will be developed by teaching past trials (not only in Türkiye but in all countries that can be taken as an example), can produce automatic decisions (artificial intelligence judge system) for problems that may arise between human-machine, machine-machine. It can be ensured that machines are only used to facilitate human life. It is deemed necessary to be present in environments where the digital ethics constitution can be discussed globally, to express opinions and to contribute. Courses such as human-computer interaction should be added to the curriculum and made widespread.

2.6

A reference system similar to the Clubhouse should be introduced. It is necessary to ensure that the person who makes a mistake in the community is punished together with the person who refers him/her, to develop laws, to develop digital punishments, to develop punishments shared by all platforms in the digital environment, and to ensure unity among practices.

Anonymity and bot accounts should be removed, blocked, and prevented from being opened. Parents should be provided with digital safety education and pedagogical training. Training to protect the system of values should be included in the content of education. There is a need to provide training for students and parents on ethics education, digital citizenship education, and cyberbullying.

CONCLUSION AND REMARKS

CONCLUSION and REMARKS

- Online learning communities can be accredited by an umbrella organization and publicized.
- Accredited communities should provide "certified" training. The certificate should be nationally and internationally recognized.
- User-friendly interfaces, visualization, and ease of access will increase the demand for communities.
- Communities' ability to convey plain, simple, concise information and to produce content that is understandable by everyone will also increase the gains from education.
- Through conferences, publicity campaigns, and workshops to promote the communities, the recognition of these communities by both government and private businesses will be increased.
- Both classical and new-generation promotion channels can be used for the target audience.
- Theoretical knowledge should be supported by practice in order to assimilate the subjects related to the education given and to gain behavioral change.
- The most important advantage of digitalization in the education system is that it is regardless of time and space; it is accessible from anywhere, anytime.
- Technological inadequacies and the inability to meet infrastructure needs create disadvantages in terms of access to education in some regions.

CONCLUSION and REMARKS

- Since interaction and communication are achieved through technological means, people can be negatively affected psychologically in this process.
- Digital certification of knowledge, skills, and titles is preferred by businesses in the employment process.
- A digital transformation plan should be created for educational institutions.
- The main objective should be to move forward with a vision of digitalization and take action in this direction.
- It is important to implement the curriculum correctly, to ensure that the contents cover the current agenda, to ensure that the contents are suitable for the target audience, to increase the diversity of resources, and to make education applicable by conducting research in the literature.
- Field research is necessary for the development of training content. Strategic partnerships should be established to cooperate with all platforms.
- Internationally recognized content that meets the needs of the business world should be developed.
- Globally successful training should be adapted locally.
- The knowledge and skills gained through digital education approaches can be made tangible and observable learning capabilities can be provided.

CONCLUSION and REMARKS

- By creating an open-source applied knowledge pool and using current application examples from the sector, current platforms such as presentations, web tools, and VR technologies can be transferred and updated in the pool in order to demonstrate a qualified labor force.
- Thanks to the digital education being done in the right way, adaptation is achieved quickly, and development continuity is completed.
- Different pieces of training can be offered on different platforms to improve the skills of recent graduates, such as project development and problem-solving, to contribute to the development of young professionals.
- Courses in the sector can be transferred to young graduates by creating a platform at universities.
- In order to develop effective communication and entrepreneurship skills, mechanisms need to be developed to increase the applicability of the education students receive at universities in real life.
- The employment market should identify gaps between current and future occupations and ensure that the necessary skills and competence maps are drawn up and shared with professional organizations.
- The development of information and communication technologies has led to different perspectives in all segments of society.
- Business disruptions like COVID-19, which have had a profound impact on society, have also made it imperative for individuals to develop digital skills and capabilities.

CONCLUSION and REMARKS

- In this context, given the knowledge and skills that will be required for the professions of the future, digital skills and competencies should be shaped within this framework.
- Under the national qualifications framework determined by the VQA (Vocational Qualifications Authority), competencies have been defined for each occupational group.
- If educational institutions structure their training programs within the framework of these competencies determined by the VQA, there will be an acceleration in the competencies acquisition.
- By examining at İŞKUR (Turkish Employment Agency) vacancy records opened by companies, the competencies needed can be identified and the human resources required for these competencies can be trained in the medium and long term.
- Once the training and contents of the training needed by employers and professional associations have been determined, the pieces of training should be provided by training experts.
- Developed training needs to fulfill the needs of the sector in a feasible and harmonized manner.
- Support should be provided to create communities and be together with students, socialize and increase the interaction of institutions outside the digital environment.

CONCLUSION and REMARKS

- Training should be provided on increasing teamwork in communication in the digital environment and managing the digital generation.
- Learning should be taken out of the classroom by providing digital communication environments and face-to-face interaction can be supported.
- A vision of communication in the digital environment needs to be gained.
- A common system of values (digital ethics) for digital environments needs to be established.
- The means of values (messaging, communication, etc.) should be identified.
- A common culture of digital interaction can be created by taking cultural differences into account. Sociologists and digital media development experts should work together as stakeholders in the process.
- Large communities can be manipulated from a single center, and international institutions need to be created to anticipate and manage global movements that depend on a single institution and a single individual.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Thank you all stakeholders who participated...

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