

### Proposed Article on Vocational Education and Training for publication

<b>Article Title</b>	Digital culture in technical education: Challenges for the teacher, the student and the higher educational institution.
<b>Authors</b>	Enga. Claudia Guadalupe Romero Segovia, Master in University Teaching. Eng. Luis Humberto Rivas Rodríguez, Master in Strategic Business Management.
<b>Institution</b>	School specialized in Engineering ITCA-FEPADE, San Miguel Regional Center.
<b>Country</b>	El Salvador.
<b>Keywords</b>	Tecnologies, challenges, digital culture, digital transformation, virtual modality.

#### 1. SUMMARY

Technology in education has accelerated its use from the change of face-to-face to virtual teaching modality. And there is a need on the part of the student, the teacher and the educational institution to strengthen knowledge, acquire skills and technical skills to contribute to academic training. On the other hand, in the teaching and learning process, it is necessary to train with solid and updated knowledge in the management of technological devices towards an educational approach, which, in the face of a process of transition from the face-to-face to virtual modality, faces obstacles or challenges, which can be overcome through digital culture initiatives that allow improvement by educational institutions, teachers and students.

#### 2. INTRODUCTION

This article seeks to contribute to the analysis of digital culture and the challenges presented to the teacher, the student and the educational institution at the higher level, in the digitalization of the resources they have to provide a digital transformation in educational processes. Information and communication technology have currently led us to a digital transition, which entails challenges that must be faced with the constant updating and training of the individual, to have a change of perspective about technology, and to change the way of thinking about the correct use of this. Technology has had a significant impact in recent months for the development of student learning at any type of educational level, in addition most teachers have had to adapt to the new virtual modality and not to mention that many institutions have had to take on that challenge of how to integrate merely face-to-face processes to a more flexible mechanism using virtually.

#### 3. DEVELOPMENT

The new way of working around the world changed with the arrival of the COVID-19 pandemic. In our country it affected most businesses, companies and the area of education was no exception. There were closures of public schools, private colleges, and institutions of higher education. This generated a shift from face-to-face to virtual teaching. The virtual modality at the beginning generated many obstacles, since the vast majority of people were not prepared to face the situation, and measures or work plans emerged from the MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY (MINEDUCYT) to continue teaching the student population. It has been a process of working together with educational institutions and the commitment of the people involved such as directors, teachers, pedagogical advisors, deans, rectors, computer staff among others.

In the area of higher education, in order not to interrupt the teaching-learning process, different virtual platforms have been used in order to provide quality in the education of students, but this entails a series of challenges that are described below:

1. Lack of technological resources on the part of the student: in the virtual modality, it is necessary to have enough technical equipment, such as desktop computers or laptops, so that students can carry out school activities and their productivity is the best or at least the essential in their training.

The following table shows the percentage of households in El Salvador that use technological devices in 2019.

Table 1 - Departments with the highest ICT penetration. Source: Ministry of Economy. 1[1]

Department	Home Computer	Mobile phone	Internet at Home
San Salvador	27.88%	95.86%	38.49%
Freedom	19.09%	95.74%	25.73%
San Miguel	16.28%	94.55%	22.83%
Santa Ana	14.18%	93.82%	19.22%
Usulután	10.68%	94.00%	18.85%
San Vicente	8.61%	91.70%	15.66%
Sonsonate	12.48%	94.92%	18.15%
Cabins	9.02%	93.52%	15.20%
Cuscatlan	10.41%	91.93%	13.14%
Chalatenango	10.81%	94.77%	14.60%
Morazan	8.43%	91.95%	11.19%
La Paz	7.39%	91.94%	9.18%
The Union	8.08%	93.20%	13.97%
Ahuachapan	8.63%	94.52%	9.12%
<b>Average</b>	<b>12.28%</b>	<b>93.74%</b>	<b>17.52%</b>

The device that is most used in households according to the survey, is the mobile phone with an average of 93.74%, since most households own it; computers on average were used in 12.28% and the Internet with 17.52%. However, there are areas where the reception of Internet signal is null or low or do not have any technological resources. Currently, the government of El Salvador has delivered computers to high school students in the public sector with access to internet and virtual platforms. [2]

The technological resource is essential to receive classes virtually through Content Management Systems (LMS). In the case of the Education Superior sector, the delivery of computer equipment has not been made, since each of the students must acquire or share the device, be it a computer, laptop or tablet with the other members of their family. The use of a computer equipment is fundamental in virtuality so that the student can achieve the essential competence of each of their subjects, this with the aim of guaranteeing learning and that the student does not become a candidate to desert or fail his cycle of study.

2. Distance teacher training: during top the COVID-19 pandemic, our teaching scenario changed; so, it means that the teacher must seek (sometimes on his own merit) training mechanism through platforms, trainings, webinars on topics that help update and allow him to be an innovative, multidisciplinary and flexible teacher. Many times, the institutions of Superior Education do not take priority to the issue of teacher training in the discipline or area in which it operates, despite the fact that as time passes, the processes, techniques, methods are improving and

changing, and to that same extent the standards of education towards students are improved. This axis is important since it is a linear and continuous process that must be followed, starting with quality teaching, trained teachers, updated curricular meshes, innovative methodologies.

The training by the teacher is relevant, since to the extent that it serves as a guide, guides and motivates, it promotes significant, dynamic and relevant learning scenarios, making the teaching-learning process friendly and optimized through information and communication technologies.

3. Self-taught teacher and student: the institutions and educadoras have ceased to be the main source of information, considering the national and world reality. The pandemic has come to change the way of teaching classes and the coexistence of teacher – student, that is why it must be implemented and take advantage of the opportunity to discover how technology helps us to favor the teaching-learning process without affecting the educational quality.

ICT in everyday life in the classroom is necessary because it allows the student to provide a worldview of knowledge development based on relationships with technology. Technology helps in the field of mathematics, science and in any of the branches of education, as it plays an important role with the execution of specific applications that can perform activities for the creation or design of graphs, geometric figures, statistical calculations, mathematical applications, among others. In science it helps to include videos with experiments, applications dedicated to teaching learning-doing.

The implications of an inappropriate relationship of the teacher and the student can be many, such as the lack of accompaniment by the teacher, lack of communication to solve doubts, time and dedication of study, are some of the difficulties they face daily. But, making good use of the technological resource, organization and work planning, quality attention could be provided to the student, promoting in parallel soft skills such as being self-taught, capable of researching and filling with knowledge. With the guidance of the teacher you will be able to expand and acquire new skills and competences, adapt to a new study schedule to which you were accustomed. Therefore, the student must obtain a way of working and organizing daily activities and meet their weekly academic assignments. [3]

4. Administrative and academic processes: administrative and academic processes from a virtual approach should be short and easy processes without losing the legality of the process. With the arrival of the pandemic, remote work has allowed us to realize some advantages and disadvantages of teleworking. If good use is made of technological resources and software that helps and facilitates task management, follow-up, timely communication channels and management of technological resources in general, it should not be a problem for an educational institution that wants to make a transition from face-to-face to virtual. The management of administrative or academic processes should promote digital culture to the use of communication tools, financial tools, attendance controls, note control, inventory controls, among others, since previously they have been used largely from an office, working with a paper and pencil. Society has evolved and in the same way our way of working, and it is where we see the need to train and incorporate technological tools to promote productivity, efficiency of time management, decision making, and improvements in the organization. On the other hand, if the teacher or administrative staff does not associate or seek training, it will be difficult to align themselves with a digital strategy that allows them to adequately perform their functions within the educational institution, since the way of working changed with the arrival of the Covid-19 pandemic.

#### 4. CONCLUSIONS

#### Initiatives that can provide alternative solutions:

1. **In the absence of technological resources of the student:** habilitar classrooms or computer centers in the Instituciones of Educación Superior, applying the biosecurity protocol, with the necessary permits by the ministries of education and health, in order to support a number of students who for different reasons can not acquire the technological resource.
2. **In the area of constant training for teachers:** incentivar and support the teacher to take training courses in both specific and transversal areas, which promote digital skills to facilitate their teaching process.
3. **The process of teachers and students autonomous:** methodologies should be sought in virtual classrooms or courses that allow the development of motivating, challenging and integrative learning scenarios, encouraging the student to make the correct use of study platforms and specialize in courses that help and contribute to their teaching-learning process.
4. **In administrative and academic processes:** to appease the staff in charge of administrative and academic processes in the use of tools, appropriating and making them part of their business productivity. It is important here to mention that the leaders of the organizations must have as a vision to incorporate digital skills at all levels of the institution, since the integration of all will make a competitive advantage, due to the improvement of the service provided to students, internal and external customers of the institution.

The educational field has been one of the pioneers in virtualization scenarios. With the arrival of the pandemic, this teaching-learning process has accelerated. Digital transformation is a culture that must be generated from the highest levels of the organization to the operational staff of the same. It is a constant learning that demands to be prepared to face the new challenges, to be optimistic, to be open to changes in our way of carrying out the trabajo. Nor stop trying and above all to seek innovation through new working methods, will make the institution become friendly with the technological and productive resources that allow it to achieve the mission. of its existence, which is to train competent professionals through innovative educational processes and attached to the current labor demand.

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#### CURRICULUM(S) AUTHOR(S)

**Claudia Guadalupe Romero Segovia**, Computer Systems and Networks Engineer at Gerardo Barrios University. Master in University Teaching at the Universidad de Oriente, UNIVO. Permanent Professor of the School of Computing at ITCA-FEPADE Centro Regional San Miguel. 27 years old, originally from the city of San Miguel, El Salvador.

**Luis Humberto Rivas Rodríguez**, Technician in Computer Systems and Networks, Instituto Tecnológico Centroamericano ITCA. Computer Systems Engineer, Universidad de Oriente UNIVO. Master in Strategic Business Management, Universidad Gerardo Barrios. Research Teacher and Ad-Honorem Coordinator of the School of Computing at ITCA-FEPADE Centro Regional San Miguel. 34 years old, originally from the city of San Miguel, El Salvador.