

RESEARCH ARTICLE

# A transformative educational framework in tourism higher education through digital technologies during the COVID-19

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**Received:** April 27, 2021;

**Accepted:** June 3, 2021;

**Published:** June 11, 2021.

**Citation:** Kallou, S., & Kikilia, A. (2021). A transformative educational framework in tourism higher education through digital technologies during the COVID-19. *Advances in Mobile Learning Educational Research*, 1(1), 37-47.

<https://doi.org/10.25082/AMLER.2021.01.005>

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**Abstract:** The rapid development and the integration of emerging technologies are changing the perceptions in all aspects of education. As the current tourism education is considered traditional, changes in learning environments, educational methods, and curricula are required. Additionally, the latest COVID-19 pandemic developments have led to a new perspective of education through digital technologies, changing how universities perceive the teaching and the learning process. As a result of these circumstances, the transformation of higher tourism education is more than ever a current issue preparing students to face the new challenges that arise. This paper proposes an educational framework using the Transformative Learning Theory and digital technologies, providing a contemporary learning design, and offering flexible use of many digital technologies and tools, leading to the development of tourism students according to the needs of modern society. It can also lead to the transformation of dysfunctional beliefs and assumptions of tourism students to be more functional and thrive. Implementing the educational framework can lead to the upgrade of the provided tourism education and its transformation, leading to a higher quality of the tourism services.

**Keywords:** transformative learning, tourism education, digital tools, online education

## 1 Introduction

The socioeconomic changes and the rapid development of technologies led to a new perception of education. Tourism education is not an exception following the demands of the technology-oriented society. As the tourism industry is focused on the fourth industrial revolution framework, future tourism employees need to be technology-oriented and skilled to meet the demands of the competitive tourism field (Bilotta et al., 2020).

Additionally, the discussion about revising the traditional learning methods is an imperative need nowadays (Raikou & Karalis, 2016). As the current tourism education is considered traditional, changes in learning environments, educational methods, and curricula are required (Kalogiannakis, 2010; Hsu, 2018). The crucial role of digital technologies in the tourism sector brings a revolution leading to innovation, changing customers' behaviors, and enhancing their experiences (Balula et al., 2019; Law et al., 2014).

Furthermore, the COVID-19 pandemic has led to many changes in higher education, forcing universities to implement distance education and adopt digital technologies in a short time (Hall et al., 2020). Consequently, university students have confronted new challenges and have tried to adapt to digital environments. As a result of these circumstances, the digital transformation of higher education is more than ever a current issue preparing students to face the new challenges of technology and the pandemic (Adedoyin & Soykan, 2020; Kalogiannakis, 2008; Kalogiannakis & Kanaki, 2020; Kanaki & Kalogiannakis, 2018; Matzakos & Kalogiannakis, 2018; Papadakis, 2020; Papadakis & Kalogiannakis, 2020; Poulakakis et al., 2017).

This paper proposes an educational framework for a university course in Tourism Management studies using digital technologies. Using digital tools as supportive tools and educational ones in higher education leads to the transformation of the learning process, as educators and students develop their digital skills providing positive academic outcomes (Amin & Mirza, 2020). Besides, Transformative Learning, as the most integrated and investigated theory in adult education during the last decades, is proposed in combination with digital tools and technologies for the transformation of beliefs and assumptions of students to change and thrive.

This paper aims to transform individuals' beliefs and habits of mind encouraging critical reflection through the application of Transformative Learning Theory combined with digital technologies in tourism education, and to develop their digital competencies.

## 2 Literature review

### 2.1 Transformative Learning

Transformative learning is a student-centered learning theory characterized as interactive, providing students' engagement during the learning process (Tsimane & Downing, 2020). Transformative learning (TL), introduced by Jack Mezirow, is considered today as the most integrated and investigated theory in the field of adult education during the last decades (Raikou et al., 2017). TL is referred to how learning can transform individuals' habits of mind and points of view, encouraging critical thinking and discourse to change their perspectives and attitudes (Mezirow & Ass., 2000; Tsimane & Downing, 2020). According to Mezirow (1991), "... learning is a dialectical process of interpretation of a new experience, in which we interact with objects and events, guided by an existing set of expectations. In Transformative Learning, however, adults interpret the acquired experiences, guided by a new set of expectations, giving new meaning and re-evaluate these experiences."

Consequently, the individuals reflect and critically deconstruct the meaning perspectives and the fossilized socio-cultural structures, re-evaluate the established assumptions on which their beliefs are based, and transform their frameworks to take action resulting of their repositioning and leading to personal growth (Mezirow, 1990; Mezirow & Taylor, 2009). Essentially, they critically assess assumptions, values, beliefs, attitudes and review past experiences to change themselves. In this way, the individuals acquire new knowledge and learn to transform "the given frames of reference (the way an individual interprets reality by the way he perceives it) or the overall view they have for themselves and the world" (Lintzeris, 2010).

In Mezirow's theory, two major elements include the "Critical Reflection" and the "Rational Discourse" that can lead to transformation and make reality more functional (Lintzeris, 2007). Critical reflection is defined as the process of critically reflecting upon their beliefs, values, and assumptions, on which they understand reality and take action (Brookfield, 2005). Rational discourse (dialogue) is the constructive discussion of exchanging experiences with others through communicative learning that leads to transformation and helps individuals think in a way that is serving the growth of the individual and the society (Rogers, 2002).

Although TL is an adult theory, many of its elements could be implemented in universities and schools. TL could be applied through digital technologies providing dialogue and critical reflection to negative past experiences of students (Aubrey & Riley, 2020). Implementing TL in tourism education is crucial for students to change perceptions and beliefs, be more open through critical thinking and discourse, and thrive in a very competitive and demanding tourism industry (Stone & Duffy, 2015).

### 2.2 Online education

The rapid development and integration of emerging technologies are changing the perceptions in all aspects of education (Dorouka et al., 2020), bringing about transformations worldwide (McAfee & Brynjolfsson, 2015). These challenges lead researchers to recommend the implementation of digital technologies and new teaching styles in higher education (Kikilia & Barbounaki, 2011; Papachristos et al., 2010) as they contribute to profound changes in knowledge (Kinshuk, 2016) as well as in educational goals, methods, means, enhancing the learning process (Kalogiannakis & Papadakis, 2007; 2008; Kalogiannakis, 2010).

The high availability of digital technologies and the students' autonomy is crucial for the learning experiences (Dhawan, 2020; Mackness, 2020). According to recent research, students and academics are favorable to online education as it provides flexibility, interactivity, ubiquity, personalization, reduced costs, and convenience (Aithal & Aithal, 2016; Leszczyński et al., 2018). Furthermore, learners claim that online education is as efficient as face-to-face teaching, supporting social presence, and providing feedback (Estelami, 2016).

### 2.3 Tourism education during COVID-19 pandemic

Since the outbreak of the coronavirus pandemic, the tourism sector has been confronted with challenges that will affect its long-term development. However, for many researchers, the COVID-19 crisis is an opportunity for many changes, including education and training and the large scale of adoption of digital technologies and online learning (Hall et al., 2020).

One of the critical goals for tourism education is to cultivate students to develop skills in the various segments of the tourism industry. Tourism education is essential for developing individuals providing knowledge, competencies, and abilities, and contributing to their efficiency, preparing students for the global tourism workplace. During the pandemic, many universities

and institutes in tourism studies implemented online courses and virtual classrooms, and various teaching methods resulting in the digital transformation of higher education. (Qiu et al., 2020; Strielkowski, 2020). The virtual classroom environment is the ideal environment during the pandemic. As the tourism industry plays a significant role in world economic development, the benefits of creative and innovative online education programs are very critical (Betts & Edgell, 2013). Additionally, the high availability of new technologies in education and students' autonomy has a vital role in the learning process during the COVID-19 pandemic. In online learning, many students can be anywhere, anytime, and interact with educators and other students (Dhawan, 2020).

In tourism education, students seem to accept and enjoy the online experience of the learning process and are very enthusiastic about it (Annaraud & Singh, 2017). Additionally, Kim and Jeong (2018) acknowledged that the future of tourism education is new technologies and online learning.

Through these unprecedented circumstances that the world is facing, it is of crucial importance for the field of education and the tourism sector to understand the current needs and adapt, developing new perceptions of the curricula, flexible teaching methods, and enhancing the role of digital technologies to cater to the tourism industry requirements (Sigala, 2020).

### 3 Methodology

The methodology of the proposed framework is based on the combination of Transformative Learning theory as the learning method, Bloom's Digital Taxonomy for thinking skills and knowledge, and digital technologies. It also consists of digital material which is appropriately structured (gradually evolving) so that the student will be able to expand, compose and analyze the knowledge he/she has received, in addition to the course material, online sources, and projects, contributing to the learning process as well. In this research context, national and international research ethics guidelines will be followed (Petousi & Sifaki, 2020).

#### 3.1 Educational framework

This framework aims to exploit influential learning theories and digital technologies to enable the teaching and the learning process, providing high-quality learning outcomes in tourism education. It is proposed to be implemented at the Educational Policy and Tourism Education (EPTE) course of the Tourism Management Department of the University of West Attica (UNIWA) in Greece. This framework follows: (see Figure 1)

(a) the trends that reconsider the traditional tourism education system to a more student-centered, characterized by new learning methods and new learning environments (Hsu, 2018; Raikou & Karalis, 2016);

(b) the contemporary needs of the tourism field for employees proficient in digital skills (Bilotta et al, 2019).

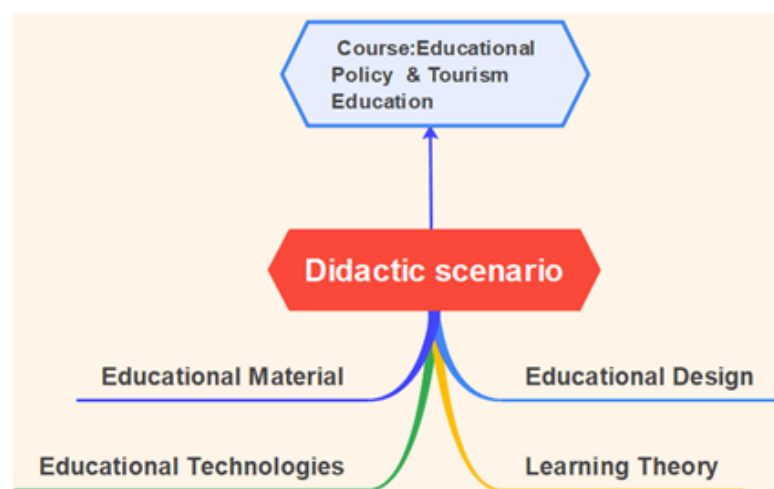


Figure 1 Educational framework

### 3.1.1 Educational technologies

Regarding educational technologies, the utilization of the learning management System (LMS), web conferencing technologies, and MOOCs are proposed, as they are flexible, providing synchronous and asynchronous communication. They also administrate and deliver knowledge and enhance interaction (Kalogiannakis & Kakadiaris, 2018; Orfanakis et al., 2016; Stasinakis & Kalogiannakis, 2015).

The Learning Management System (LMS) has been evolved as the core of online learning. It is used to support educational activities and the learning process. An LMS is a platform for administrating, documenting, and delivering knowledge that facilitates online learning, offering flexibility to the students. LMS provides asynchronous and synchronous communication, content development and delivery, and online assessments (self-evaluation and multiple-choice questions) (Papadakis et al., 2017; 2018; Laskaris et al., 2017; Laskaris et al., 2019).

Additionally, web conferencing technologies, as synchronous tools, are suggested at the EPTE course to provide immediate feedback, enhance real-time interactions with educators and peers, foster the exchange of emotions, and support social presence (Kalogiannakis & Touvlatzis, 2015; Liodakis et al., 2005; Lowenthal et al., 2017; Vlasopoulou et al., 2021).

The use of MOOCs is also suggested, as they provide flexibility to students and the opportunity to manage the learning process independently, depending on their goals, prior knowledge, skills, and learning strategies (Paquette et al., 2015). MOOCs have the feature of open access while providing a high level of free e-learning to all students (Chew et al., 2015).

### 3.1.2 Educational design

The integration of Bloom's Digital Taxonomy in the didactic scenario facilitates the learning process, focusing on digital activities, leading to the transformation of students' thinking (Amin & Mirza, 2020). Benjamin Bloom developed a taxonomy in 1956 as a structure of the learning process that Anderson and Krothwohl revised in 2000. Churches (2009) extended Bloom's taxonomy by incorporating digital tools and technologies, shifting the focus of learning from content delivery to a more student-centered process. Consequently, the purpose of the revised Bloom's taxonomy is to measure students' skills and knowledge and to guide educators using digital technologies to facilitate students' learning experiences. Bloom's Digital Taxonomy is hierarchical, meaning that the acquisition of knowledge and skills attained at lower levels precedes the knowledge and skills at higher levels of learning. The taxonomy promotes higher forms of thinking skills in education, progressing from Lower Order Thinking Skills to Higher Order Thinking Skills, focusing on digital activities to transform students' thinking at different cognitive levels (Amin & Mirza, 2020).

The digital tools are easily accessible to educators and students and can be used more than a cognitive level (Amin & Mirza, 2020). (see Figure 2)

### 3.1.3 Learning theory

This field is referred to the utilization of the learning theory and, more specifically, the adoption of Transformative Learning Theory in order for students to develop cognitive abilities and critical thinking and become more aware of their environment, with the contribution of their experiences and constructive dialogue (Cranton & Taylor, 2012). In this framework, TL enables students to be more open-minded and thrive in a very demanding field that characterized by cultural diversity.

The transformation process begins with a disorienting dilemma which is an experience (a personal crisis) or trigger events that are more complicated and challenging and provide the opportunity for further analysis of past experiences (Mezirow et al., 1990). The disorienting dilemma, which consists of ten steps, assists the individuals to question deeply held beliefs, re-evaluate their established assumptions through critical reflection and rational discourse, and revise them (Mezirow et al., 2009). TL gives the individuals the opportunity, through critical reflection, to learn, to become more effective and change because of their experiences (Koulaouzidis, 2019; Raikou & Karalis, 2016).

### 3.1.4 Educational material

The interactive educational material helps students facilitate the learning process and be involved in critical thinking (Djamas et al., 2018). It is following the curriculum of the course. It includes presentations, educational videos and audios, bibliography analysis, e-books, blogs, helping students expand their knowledge, and online exercises, virtual workshops, quizzes, projects, wikis, podcast, charting, and mapping tools, contributing to the learning process too.

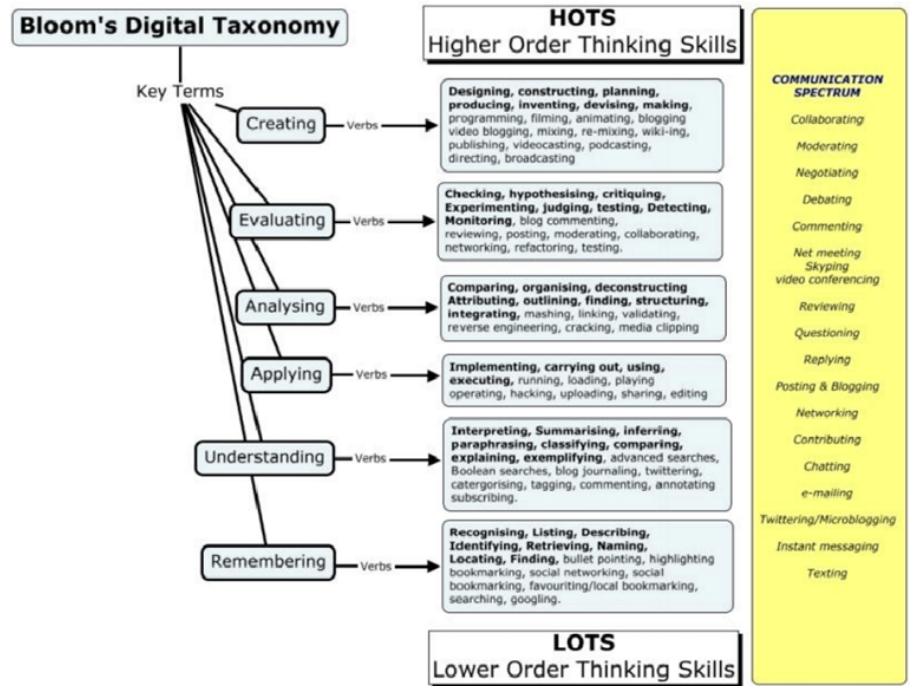


Figure 2 Churches Bloom's Digital Taxonomy (Churches, 2009)

#### 4 Paradigm – scenario design

In this paper, a didactic scenario is proposed to be implemented at the Educational Policy and Tourism Education (EPTE) course of the University of West Attica (UNIWA). The main objective of the Tourism Management Department is the provision of high-quality studies to students, in combination with a high level of knowledge and skills, in the tourism sector. Meeting the needs of the Greek tourism industry and creating higher education executives, the department prepares the students for senior management positions, providing high-quality education.

The EPTE course is an introductory university course of the Tourism Management Department of UNIWA. The objective of this course is to introduce students to issues of tourism educational policies and tourism education. This course aims to enable the students to understand the structure of the tourism education system in Greece. Upon completion of the course, students will be able to:

- understand the structure of tourism education.
- have a comprehensive knowledge of the Greek education policy in general.
- recognize the differences between the various institutions of tourism education.
- identify their professional rights and their career perspectives.
- identify the advantages and disadvantages of the Greek tourism education system.
- have a general knowledge of the tourism education policies of other European countries.
- understand the European Union's tourism education policy.

The teaching subject of the didactic scenario is referring to the academic unit: "Tourism education." The didactic scenario is according to the curriculum of the EPTE course of the Tourism Management studies of the UNIWA. Students attend this course during the 3<sup>rd</sup> semester of their studies. The purpose of the didactic scenario in the "Tourism education" unit is to enable students to understand the differences between the institutions of tourism education in Greece, the advantages of tourism studies in universities, and to identify their professional rights and their career perspectives.

Upon completion of the unit through the didactic scenario, students will be able:

- to have a comprehensive knowledge of the Greek tourism education policy.
- to know the Greek tourism education system
- to understand the purpose of tourism studies at all different levels separately
- to identify and criticize the characteristics and the differences between the tourism educational institutions



(5) to explore the connection of the several levels of tourism studies with the tourism labor market

(6) to identify the impact of tourism education changes and the merger of Technological Institutions in Universities

(7) to identify their career perspectives and their professional rights

(8) to take advantage of the perceived skills and knowledge to have access to the competitive tourism industry and career perspectives

Through the didactic scenario, students will also be able to develop skills such as:

(1) critical thinking, communication, and collaboration skills

(2) digital skills

The didactic scenario is based on the combination of Transformative Learning theory and Bloom's Digital Taxonomy through digital technologies.

The transformation process begins with the disorienting dilemma: "Which are the tourism employees' career perspectives and development?"

The dilemma is based on the cognitive goals of the "Tourism Education" unit. It enables students to consider their career opportunities and their perspectives in the tourism field. The students' perceptions about their career perspectives could be an obstacle to their development because of the unclear career opportunities and the special conditions of the tourism working environment. Examining their career perspectives in the light of TL and Bloom's Digital Taxonomy, the students may expand these perceptions and be led to new paths of development in the tourism industry.

When experiencing the disorienting dilemma, students try to identify and examine, through critical reflection, their established frames of reference about the tourism career perspectives and development. Through critical reflection and rational discourse, referring to past experiences and different perspectives, students understand how these assumptions come into dissonance and how to overcome these perspectives.

Subsequently, implementing TL, students try to find new ways of thinking by questioning their assumptions and using digital technologies to provide collaborative learning through dialogue and critical reflection. The student organizes the knowledge gradually and adapts it through the learning process. This examination and approach with different points of view can lead to a change of thinking and a transformation of assumptions and beliefs about the tourism career perspectives and development. TL is implemented through digital technologies, such as web conferencing, LMS, MOOCs. Bloom's Digital Taxonomy is also used to facilitate the learning process incorporating activities and digital tools.

The interactive educational material used contributes to the learning process too. The educational material includes presentations, educational videos, audios, bibliography analysis, e-books, and projects, helping students expand their knowledge and online exercises, virtual workshops, quizzes, contributing to the learning process. The educational material helps students to process information and utilize the acquired knowledge. (see [Table 1](#))

## 5 Discussion and conclusion

According to researchers, the current conventional tourism education system needs to be transformed to meet the tourism industry's needs and requirements ([Hsu, 2018](#); [Raikou & Karalis, 2016](#)). Additionally, since the outbreak of the COVID-19 pandemic, tourism education faces several challenges, forcing universities to adapt to digital technologies, pedagogical methods and implement innovative teaching and learning processes ([Amin & Mirza, 2020](#); [Hall et al., 2020](#); [Liguori & Winkler, 2020](#); [Strielkowski, 2020](#); [Vlachopoulos, 2020](#)). The COVID-19 pandemic is a unique opportunity for innovative teaching methods and learning to be implemented in higher education.

This paper proposes an educational framework based on TL and digital technologies, in agreement with the course degree in Tourism Management studies, to improve educational methods and learning processes according to the technological revolution and the challenges of the COVID-19 pandemic. As digital literacy of students is very crucial to be competitive in a technologically focused world ([Omotayo & Haliru, 2020](#)), tourism graduates familiar with digital skills are necessary for the tourism industry as they can satisfy customers, implementing digital technologies in the tourism field ([Bilotta et al, 2020](#)).

Using TL and Bloom's Digital Taxonomy, the proposed framework is characterized by its student-centered philosophy and interactivity ([Churhes, 2009](#); [Tsimane & Downing 2020](#)). Implementing TL helps students, through critical reflection and dialogue, to change their perspectives and their established assumptions and beliefs, preparing them for the competitive tourism labor market. Additionally, the application of Bloom's Digital Taxonomy for facilitating

**Table 1** Transformative learning and Bloom’s digital taxonomy

Transformative Learning	Educational Unit: Tourism Education	Digital Tools & Technologies		
<p>Step 1: Experiencing a disorienting dilemma</p> <p>Step 2: Self-examination about the disorienting dilemma</p>	<p>The educator uploads to LMS the disorienting dilemma and assigns students a project which refers to writing down their assumptions and beliefs about the disorienting dilemma and upload it to LMS. Students examine their assumptions and beliefs about tourism employees’ career perspectives and development. These assumptions are based on their previous experiences in the tourism sector, their family stereotypes, society’s beliefs. They upload the assignment to LMS.</p>	<p>Disorienting Dilemma: Which are the tourism employees’ career perspectives and development?</p>	<p>LMS</p>	
		<p>Bloom’s Key Terms Bloom’S Digital Activities</p>	<p>Digital Tools &amp; Technologies</p>	
		<p>Lower Order Thinking Skills</p>		
<p>Step 3: Conducting a critical reflection of internalized assumptions</p>	<p>Students are encouraged to externalize their experiences, thoughts, and beliefs using constructive dialogue and critical evaluation through group discussions in virtual teams, referring to their past experiences, knowledge, and beliefs about tourism career perspectives and development.</p>	<p>Remembering: Students retrieve knowledge for concepts that refer to the structure of the tourism education system and the differences between the institutions in tourism education. They bookmark websites, resources, and files.</p>	<p>Bookmarking, highlighting, search engines, social networks</p>	<p>Web conference, videos, internet browsers</p>
<p>Step 4: The acknowledgment of resources that causes these assumptions through other people’s experiences.</p>	<p>Students try to identify why their views have been constructed through the web-conference platform and became their truth. The educator helps students understand that the existing dysfunctional assumptions and beliefs about tourism career perspectives can be overcome with new knowledge. Collaboration in teams through virtual rooms for exchanging thoughts and beliefs. This process helps students consider different points of view.</p>	<p>Understanding: Students recall knowledge, explaining the core of the tourism education system and its structure, describing and analyzing it</p>	<p>Advanced searching, wiki editing, blog journaling, commenting</p>	<p>Web conferencing, Internet browsers, blogs, wiki</p>
<p>Step 5: Exploring options for new roles, relationships, and actions</p>	<p>The educator presents the tourism education policies, the tourism education system, its several levels, and its changes during the recent years through the web-conference platform and LMS. He/She also uses examples about career perspectives and development. He/She proposes to students to exchange experiences and emotions through chat rooms and social media in an informal way.</p>	<p>Applying: Students develop a schedule and use information through implementation. They present the acquired knowledge about the tourism education policies and the tourism institutions.</p>	<p>Charting, editing, presenting, uploading, sharing with a group, podcasting</p>	<p>web conference, LMS, social media, podcast, charting tools, chatrooms, Google docs, PowerPoint</p>
<p>Step 6: Developing a plan of action</p> <p>Step 7: Acquisition of knowledge and skills for implementing the plan</p>	<p>The educator uploads and sends educational material (LMS, email) for acquiring new knowledge and asks students to collaborate through assignments. He/She asks them to explore the connection of the several levels of tourism studies with the tourism labor market and analyze the tourism policies. Participation in teams through virtual workshops and virtual coaching for further development of knowledge.</p>	<p>Analyzing: Students draw connections among the tourism education institutions and the tourism labor market. They analyze the tourism education policies, and the state intervention, through comparing, deconstructing. They also criticize the characteristics and the differences between the tourism education institutions.</p>	<p>Mind mapping, integrating, surveying, linking, validating</p>	<p>LMS, web conferencing, mapping tools, email, virtual workshops, virtual coaching</p>
<p>Step 8: Trying on new roles</p> <p>Step 9: Building of competence and self-confidence in new roles and relationships</p>	<p>The educator gives students a case study (uploaded to LMS) and asks them to interpret and critically evaluate the data from different perspectives, using the new knowledge they have gained, collaborating in virtual teams. MOOCs for further development of knowledge and abilities.</p>	<p>Evaluating: Students develop judgments based on criteria through verifying and critiquing the tourism education institutions and tourism policies. They also use self-evaluation, multiple-choice questions, quizzes, and a final level assessment of knowledge and understanding through exams and projects.</p>	<p>Grading, testing, reflecting, reviewing, collaborating, networking</p>	<p>web conferencing, MOOCs, LMS, chatrooms, discussion boards, quizzes</p>
<p>Step 10: Re-integration of new perspectives into life</p>	<p>Students re-examine the disorienting dilemma. They compare their initial beliefs about the tourism employees’ career perspectives and development that have been uploaded to LMS (Step1) and re-evaluate them. Application of the new knowledge through demonstrating the assignments and discussion (web conference).</p>	<p>Creating: Students reconstruct, plan and apply the acquired knowledge, and propose new educational tourism policies through projects, case studies, and thesis</p>	<p>Animating, blogging, filming, podcasting, publishing, directing, simulating, blogging, using wikis</p>	<p>LMS, web conference, digital publishing (thesis, e-book), video recording, audio recording, online tools, blogging, wiki</p>
		<p>Higher-order thinking Skills</p>		

the learning process provides collaboration, interaction, and communication, with the educator having the role of the coordinator of the acquired knowledge and the student. The implementation of collaboration tools in the taxonomy (chatrooms, discussion boards, live virtual rooms) leads students to create knowledge by themselves (Churhes, 2009).

In conclusion, the proposed educational framework provides a contemporary educational design, offering flexible use of many digital technologies and tools and leading to the digital literacy of students and their development according to the needs of modern society (Papadakis et al., 2021). It also enables students to enhance critical thinking, synthesis, and analysis of knowledge, communication through dialogue, interaction, and cooperation, contributing to the quality of higher education. It can also lead to the transformation of dysfunctional beliefs and assumptions of the tourism students to be more functional and thrive.

This paper makes a valuable contribution to tourism education and the discussion about revising the traditional learning methods and processes. The proposed educational framework is unique in tourism education and according to the tendencies of the digital society. Implementing the educational framework can lead to an upgrade of the provided tourism education and its transformation, leading to a higher quality of tourism services.

## References

- Adedoyin, O. B., & Soykan, E. (2020). Covid-19 pandemic and online learning: the challenges and opportunities. *Interactive Learning Environments*, 3, 1-13.  
<https://doi.org/10.1080/10494820.2020.1813180>
- Aithal, P. S., & Aithal, S. (2016). Impact of online education on higher education system. *International Journal of Engineering Research and Modern Education*, 1(1), 225-235.  
<https://doi.org/10.5281/zenodo.62029>
- Amin, H., & Mirza M., N. (2020). Comparative study of knowledge and use of Bloom's digital taxonomy by teachers and students in virtual and conventional universities. *Asian Association of Open Universities Journal*, 15(2), 223-238.  
<https://doi.org/10.1108/AAOUJ-01-2020-0005>
- Anderson, L. W., & Krathwohl, D., R. (Eds.) (2001). *A taxonomy for learning, teaching and assessing: A revision of Bloom's Taxonomy of educational objectives: Complete edition*, New York: Longman.
- Annaraud, K., & Singh, D. (2017). Perceptions of hospitality faculty and students of massive open online courses (MOOCs). *Journal of Hospitality and Tourism Education*, 29(2), 82-90.  
<https://doi.org/10.1080/10963758.2017.1297714>
- Aubrey, K. & Riley, A. (2020). *Understanding and Using Challenging Educational Theories*, SAGE Publications Ltd.
- Balula, A., Moreira, G., Moreira, A., Kastenholz, E., Eusébio, C., & Breda, Z. (2019). Digital Transformation in Tourism Education. *Tourism in Southern and Eastern Europe (ToSEE)*, 5, 61-72.  
<https://doi.org/10.20867/tosee.05.45>
- Belenky, M. F., Clinchy, B. M., Goldberger, N., & Tarule, J. (1986). *Women's ways of knowing: The development of self, voice and mind*. New York: Basic Books.
- Betts, K., & Edgell, Sr., D., L. (2013). Online education and workforce development: ten strategies to meet current and emerging workforce needs in global travel and tourism. *Journal of Tourism & Hospitality*, 2(1), 1-9.  
<https://doi.org/10.4172/2167-0269.1000108>
- Bilotta, E., Bertacchini, F., & Romita, T. (2020). Industry 4.0 technologies in tourism education: Nurturing students to think with technology. *Journal of Hospitality Leisure Sport & Tourism Education*, e100275.  
<https://doi.org/10.1016/j.jhlste.2020.100275>
- Brookfield, S., D. (2005). *The Power of Critical Theory for Adult Learning and Teaching*. New York: McGraw-Hill Education: Open University Press.
- Chew, S., W., Cheng, I. L., & Chen, N. S. (2015). *Yet another perspectives about designing and implementing a MOOC*. Berlin: Springer.
- Churches, A. (2009). *Bloom's Digital Taxonomy*.  
<https://www.yumpu.com/en/document/view/31996905/blooms-digital-taxonomy-educational-origami-wikispaces>
- Cranton, P., & Taylor, E., W. (2012). *Transformative Learning Theory: Seeking a more Unified Theory*. The Handbook of Transformative Learning Theory. Research and Practice. San Francisco :John Wiley and Sons.
- Djamas, D., Tinedi V., & Yohandri (2018). Development of Interactive Multimedia Learning Materials for Improving Critical Thinking Skills. *International Journal of Information and Communication Technology Education*, 14(4), 66-84.  
<https://doi.org/10.4018/IJICTE.2018100105>
- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*, 49(1), 5-22.  
<https://doi.org/10.1177/0047239520934018>



- Dorouka, P., Papadakis, St., & Kalogiannakis, M. (2020). Tablets & apps for promoting Robotics, Mathematics, STEM Education and Literacy in Early Childhood Education. *International Journal of Mobile Learning and Organisation*, 14(2), 255-274.  
<https://doi.org/10.1504/IJMLO.2020.106179>
- Estelami, H. (2016). An exploratory study of the effects of online course efficiency perceptions on student evaluation of teaching (SET) measures. *American Journal of Business Education*, 9(2), 67-82.  
<https://doi.org/10.19030/ajbe.v9i2.9613>
- Hall, C. M., Scott, D., & Gössling, S. (2020). Pandemics, transformations and tourism: Be careful what you wish for. *Tourism Geographies*, 22(3), 577-598.  
<https://doi.org/10.1080/14616688.2020.1759131>
- Hsu, C., H. (2018). Tourism education on and beyond the horizon. *Tourism management perspectives*, 25, 181-183.  
<https://doi.org/10.1016/j.tmp.2017.11.022>
- Kalogiannakis, M. (2008). From Learning to Use ICT to Use ICT for Learning: Technological Capabilities and Pedagogical Principles. In R. Kobayashi (Ed.), *New Educational Technology*, 13-42, New York: Nova Publishers.
- Kalogiannakis, M. (2010). Training with ICT for ICT from the trainer's perspective. A Greek case study. *Education and Information Technologies*, 15(1), 3-17.  
<https://doi.org/10.1007/s10639-008-9079-3>
- Kalogiannakis, M., & Kakadiaris, P. (2018). From being one-sided to being diverse: the use of e-portfolio as a tool in distance learning of environmental issues for young children. *International Journal of Teaching and Case Studies*, 8(4), 319-337.  
<https://doi.org/10.1504/IJTCS.2017.088935>
- Kalogiannakis, M., & Kanaki, K. (2020). Introducing Computational Thinking Unplugged in Early Childhood Education Within the Context of Physical and Natural Science Courses: A Pilot Study in Greece. In J. Keengwe, & P. Wachira (Eds.), *Handbook of Research on Integrating Computer Science and Computational Thinking in K-12 Education* (pp. 164-190). Hershey, PA: IGI Global.  
<https://doi.org/10.4018/978-1-7998-1479-5.ch010>
- Kalogiannakis, M., & Papadakis, S. (2007). The dual form of further education of educators in ICT: technological and pedagogical training. In C. Constantinou, Z. Zacharias & M. Papaevripidou (Eds.) *Proceedings of the 8th International Conference On Computer Based Learning in Science*, Heraklion, 30, 265-276.
- Kalogiannakis, M., & Papadakis, S. (2008). Hybrid learning for women and socially sensitive groups for the promotion of digital literacy. *Proceedings of the 5th WSEAS / IASME International Conference on ENGINEERING EDUCATION (EE'08)*, 305-311, Heraklion, Greece, July 22-24, 2008.
- Kalogiannakis, M., & Touvlatzis, S. (2015). Emotions experienced by learners and their development through communication with the tutor-counselor. *European Journal of Open Distance and e-Learning*, 18(2), 37-49.  
<https://www.learntechlib.org/p/176209>
- Kanaki, K., & Kalogiannakis, M. (2018). Introducing fundamental object-oriented programming concepts in preschool education within the context of physical science courses. *Education and Information Technologies*, 23(6), 2673-2698.  
<https://doi.org/10.1007/s10639-018-9736-0>
- Kikilia, Aik., & Barbounaki, S. (2011). The Evolution of E-Learning in Greek Universities and Technological Education Institutes – the Government Intervention. *International Conference on E-Learning in the Workplace (ICELW)*, New York.
- Kim, J., & Jeong, M. (2018). Research on hospitality and tourism education: Now and future. *Tourism Management Perspectives*, 25, 119-122.  
<https://doi.org/10.1016/j.tmp.2017.11.025>
- Kinshuk (2016). *Designing adaptive and personalized learning environments* (p. eISBN: 978-1-315-795492). New York, NY: Routledge.
- Koulaouzidis, G. A. (2019). *A dialogue on adult education. Tips and directions for young trainers*. Athens : Metaihmio Publications (in Greek).
- Laskaris, D., Kalogiannakis, M., & Heretakis, E. (2017). Interactive evaluation of an e-learning course within the context of blended education. *International Journal of Technology Enhanced Learning*, 9(4), 339-353.  
<https://doi.org/10.1504/IJTEL.2017.087793>
- Laskaris, D., Heretakis, E., Kalogiannakis, M., & Ampartzaki, M. (2019). Critical Reflections on introducing e-learning within a blended education context. *International Journal of Technology Enhanced Learning*, 11(4) 413-440.  
<https://doi.org/10.1504/IJTEL.2019.102550>
- Law, R., Buhalis, D., & Cobanoglu, C. (2014). Progress on information and communication technologies in hospitality and tourism. *International Journal of Contemporary Hospitality Management*, 26(5), 727-750.  
<https://doi.org/10.1108/IJCHM-08-2013-0367>
- Leszczynski, P., Charuta, A., Laziuk, B., Galazkowski, R., Wejnarski, A., Roszak, M., & Kolodziejczak, B. (2018). Multimedia and interactivity in distance learning of resuscitation guidelines: A randomised controlled trial. *Interactive Learning Environments*, 26(2), 151-162.  
<https://doi.org/10.1080/10494820.2017.1337035>

- Liguori, E. W., & Winkler, C. (2020). From offline to online: Challenges and opportunities for entrepreneurship education following the COVID-19 pandemic. *Entrepreneurship Education and Pedagogy*, 3(4), 346-351.  
<https://doi.org/10.1177/2515127420916738>
- Lintzeris, P. (2007). *The significance of critical reflection and discourse in Jack Mezirow's theory of transformative learning*. Athens: Hellenic Adult Education Association.
- Lintzeris, P. (2010). *Transformative Learning Theory: Ability for a critical and emancipative turn in the practice of Adult Training*. In Vergidis, D. Kokkos, A. (eds) *Adult Training: international approaches and greekroute.*, Athens: Metaihmio Publications, (in Greek) (pp. 94-13).
- Liodakis, G., Kalogiannakis, M., Psarros, M., & Vassilakis, K. (2005). Building E-services for Learning and Teaching by the Exploitation of an LMS System. *WSEAS Transactions on Communications*, 14(9), 792-798.
- Lowenthal, P., Snelson, C., & Dunlop, J. (2017). Live Synchronous Web Meetings in Asynchronous Online Courses: Reconceptualizing Virtual Office Hours. *Online Learning Journal*, 21(4), 177-194.  
<https://doi.org/10.24059/olj.v21i4.1285>
- Mackness, J., Mak, S., & Williams, R. (2020). The ideals and reality of participating in a MOOC. In *Proceedings of the 7th International Conference on Networked Learning Aalborg, Denmark, 3-4 May 2020*; University of Lancaster: Lancaster, UK; pp. 266-275.
- Matzakos, N., & Kalogiannakis, M. (2018). An analysis of first year engineering students' satisfaction with a support distance learning program in mathematics. *Education and Information Technologies*, 23(2), 869-871.  
<https://doi.org/10.1007/s10639-017-9641-y>
- McAfee, A., & Brynjolfsson, E. (2015). The digitization of just about everything. *Rotman Management Magazine*, Fall, 39-42.
- Mezirow, J. (1991). *Transformative Dimensions of Adult Learning*. San Francisco, CA: Jossey-Bass.
- Mezirow, J. & Associates (1990). *Fostering Critical Reflection in Adulthood*. San Francisco: Jossey-Bass.
- Mezirow, J., & Taylor, E. and associates (2009). *Transformative learning in practice: Insights from Community, Workplace, and Higher Education*. San Francisco: Jossey-Bass.
- Omotayo, F. O., & Haliru, A. (2020). Perception of task-technology fit of digital library among undergraduates in selected universities in Nigeria. *The Journal of Academic Librarianship*, 46(1), 102097.  
<https://doi.org/10.3145/epi.2019.ene.04>
- Orfanakis, V., Papadakis, St., Kalogiannakis, M., Ampartzaki, M., & Vassilakis, K. (2016). Digital Student Conference Platform Implementation: The case study of the "Research Project" course. *Open Education*, 12(2), 5-23.  
<https://doi.org/10.12681/jode.10871>
- Papachristos, D., Alafodimos, N., Arvanitis, K., Vassilakis, K., Kalogiannakis, M., Kikilias, P., & Zafeiri, E. (2010). An Educational Model for Asynchronous e-Learning. A case study in Higher Technology Education. *International Journal of Advanced Corporate Learning*, 3(1), 32-36.
- Papadakis, S. (2020). Apps to Promote Computational Thinking Concepts and Coding Skills in Children of Preschool and Pre-Primary School Age. In *Mobile Learning Applications in Early Childhood Education* (pp. 101-121). IGI Global.  
<https://doi.org/10.4018/978-1-7998-1486-3.ch006>
- Papadakis, S., & Kalogiannakis, M. (2020). A research synthesis of the real value of self-proclaimed mobile educational applications for young children. *Mobile learning applications in early childhood education*, 1-19.  
<https://doi.org/10.4018/978-1-7998-1486-3.ch001>
- Papadakis, S., Kalogiannakis, M., & Zaranis, N. (2021). Teaching mathematics with mobile devices and the Realistic Mathematical Education (RME) approach in kindergarten. *Advances in Mobile Learning Educational Research*, 1(1), 5-18.  
<https://doi.org/10.25082/AMLER.2021.01.002>
- Papadakis, S., Kalogiannakis, M., Sifaki, E., & Vidakis, N. (2017). Access moodle using smart mobile phones. A case study in a Greek University. In *Interactivity, Game Creation, Design, Learning, and Innovation* (pp. 376-385). Springer, Cham.  
[https://doi.org/10.1007/978-3-319-76908-0\\_36](https://doi.org/10.1007/978-3-319-76908-0_36)
- Papadakis, S., Kalogiannakis, M., Sifaki, E., & Vidakis, N. (2018). Evaluating Moodle use via Smart Mobile Phones. A case study in a Greek University. *EAI Endorsed Transactions on Creative Technologies*, 5(16), 1-9.  
<https://doi.org/10.4108/eai.10-4-2018.156382>
- Paquette, G., Mariño, O., Rogozan, D., & Léonard, M. (2015). Competency-based personalization for massive online learning. *Smart Learning Environments*, 2(1), 1-19.  
<https://doi.org/10.1186/s40561-015-0013-z>
- Petousi, V., & Sifaki, E. (2020). Contextualizing harm in the framework of research misconduct. Findings from discourse analysis of scientific publications. *International Journal of Sustainable Development*, 23(3/4), 149-174.  
<https://doi.org/10.1504/ijsd.2020.10037655>
- Poulakakis, Y., Vassilakis, K., Kalogiannakis, M., & Panagiotakis, S. (2017). Ontological modeling of educational resources: a proposed implementation for Greek schools. *Education and Information Technologies*, 22(4), 1737-1755.  
<https://doi.org/10.1007/s10639-016-9511-z>

- Qiu, H., Li, Q., & Li, C. (2020). How technology facilitates tourism education in COVID-19: case study of Nankai University. *Journal of Hospitality, Leisure, Sport & Tourism*, e100288.  
<https://doi.org/10.1016/j.jhlste.2020.100288>
- Raikou, N., Karalis, T. & Ravanis, K. (2017). Implementing an innovative method to develop critical thinking skills in student teachers. *Acta Didactica Napocensia*, 10(2), 21-30.  
<https://doi.org/10.24193/adn.10.2.2>
- Raikou N., & Karalis, T. (2016). Adult education and higher education – A focus on Transformative learning in Universities. *International Education and Research Journal*, 2(4), 19-22.
- Rodgers, C. (2002). Defining reflection: Another look at John Dewey and reflective thinking. *Teachers College Record*, 104(4), 842-866.  
<https://doi.org/10.1111/1467-9620.00181>
- Seraphin, H., & Yallop, A. (2020). *Overtourism and tourism education: A strategy for sustainable tourism futures*. London: Routledge.
- Sigala, M. (2020). Tourism and COVID-19: Impacts and implications for advancing and resetting industry and research. *Journal of Business Research*, 117(C), 312-321.  
<https://doi.org/10.1016/j.jbusres.2020.06.015>
- Stasinakis, P., & Kalogiannakis, M. (2015). Using Moodle in secondary education: A case study of the course “Research Project” in Greece. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 11(3), 50-64.
- Stone G., A., & Duffy L., N. (2015). Transformative Learning Theory: A Systematic Review of Travel and Tourism. *Scholarship Journal of Teaching in Travel & Tourism*, 15(3), 204-224.  
<https://doi.org/10.1080/15313220.2015.1059305>
- Strielkowski, W. (2020). COVID-19 pandemic and the digital revolution in academia and higher education. Preprints, 2020040290.  
<http://doi.org/10.20944/preprints202004.0290.v1>
- Taylor, E., W. (2009). Fostering transformative learning. In J. Mezirow, Taylor, E., and Associates (Eds.), *Transformative learning in practice. Insights from community, workplace, and higher education*. San Francisco: Jossey-Bass.
- Tsimane, T. A., & Downing, C. (2020). Transformative learning in nursing education: A concept analysis. *International Journal of Nursing Sciences*, 7(1), 91-98.  
<https://doi.org/10.1016/j.ijnss.2019.12.006>
- Vlachopoulos, D. (2020). COVID-19: Threat or Opportunity for Online Education? *Higher Learning Research Communications*, 10(1), 16-19.  
<https://doi.org/10.18870/hlrc.v10i1.1179>
- Vlasopoulou, M., Kalogiannakis, M., & Sifaki, E. (2021). Investigating Teachers’ Attitude and Behavioral Intentions for the Impending Integration of STEM Education in Primary School. In St. Papadakis and M. Kalogiannakis (Eds.), *Handbook of Research on Using Education Robotics to Facilitate Student Learning* (pp. 235-256). Hershey, PA: IGI Global.  
<https://doi.org/10.4018/978-1-7998-6717-3.ch009>
- Wedlock, B. C., & Growe, R., (2017). The Technology Driven Student: How to Apply Bloom’s Revised Taxonomy to the Digital Generations. *Journal of Education & Social Policy*, 7(1), 25-34.