

Educational leadership and digital competence: a quantitative study with directors of lifelong learning institutions in Greece for educational leadership in secondary special education schools in Greece

Raftoulis Georgios

Director of 2nd public vocational institute of training in Larisa, Gen. Secr. for Lifelong Learning
raftoulis23@hotmail.com

Prendes-Espinosa, M. Paz

Professor of Educational Technology, University of Murcia
pazprend@um.es

Sanchez Vera, Maria Del Mar

Lecturer in Educational Technology, University of Murcia
mmarsanchez@um.es

Summary

The aim of this paper is to investigate the digital competence of the directors of institutes of vocational training and schools of second change in Greece. People by their nature have the need to learn, acquire and develop new knowledge and skills, throughout their lives, as ICT has become an integral part of everyone's life in the 21st century. In this framework, it is clear how necessary are the digital competence of the director of an institute of vocational training and school of second change in the administration of each one structure of lifelong learning. For this reason, the research occurred in a sample of 115 directors of vocational training and 72 of schools of second change in Greece. Through the use of a questionnaire that designed for this purpose, has emerged, firstly, the outcome that the years of use of ICT as well as the existence of adequacy technological equipment affects the digital competence of these managers.

Keywords: Lifelong learning, educational leadership, vocational training, digital competence

Abbreviations: ICT- information and communication technologies

Introduction

Nowadays, information and communication technology (ICT) has entered thoroughly in our society, causing changes to all levels of social and economic life, and without any doubt, to the educational one. The ICT to education has led to changes in educational administration that must be adapted to a culture where digital practice is predominant (Arzola et al, 2017; Garzón, et al, 2020). In addition, the globalization and all the increasingly recent changes in economic and social life has as a result the development of institutes of vocational training and schools of second change in order people be able to be adapted to society and especially into the labor market without facing the danger of social exclusion (Kersh & Huegler, 2018).

It is now necessary in the age of information society, the democratic function of the institute of vocational training and school of second change that will be based on a modern, balanced and equal regulation (Κωνσταντινίδη και συν., 2010). Certainly, it is required an intervention in the operation of these units as the democracy contributes to the upgrading of the administrative services in these units. In every institute of vocational training and school of second change, the director and the teaching staff must have the philosophy of the modern, open, digital and democratic unit (Πρίντζας, 2005).

Consequently, all European citizens should develop digital competence as a key competence of lifelong learning, becoming them active citizenship reducing employability (Council of the European Union, 2018). All these changes make the adult education imperative for developing and industrial nations (Unesco, 2015).

The school leadership is the key for this change. Ngang (2012) defines leadership as the knowledge of change strategies, knowledge of curriculum alternatives and development process, skill in group process, and decision making. According to Boonla and Treputtharat (2014), leadership is the process where the leader can use his/her influence to convince in decision making process and setting the goals for the organization. As Northouse (2016) mentions "leadership is a process whereby an individual influences a group of individuals to achieve a common goal" (p.:6). Generally, leader is someone who can influence other, can control a process and is responsible for organizational learning (Binieck & Schmidt, 2020). Consequently, the leadership of every educational unit is one of the biggest educational issues (Bush, 1998).

In this rapidly changing demands, the manager of every institute of vocational training and school of second change in order to be adapted to the administrative demands must has digital competence in order to be able to seize the potential of digital technologies for enhancing and innovating the education. According to DigCompEdu there are the above six areas that are focused on different aspects of educators' professional activities: 1) Professional engagement, 2) Digital Resources, 3) Teaching and learning, 4) Assessment, 5) Empowering learners, 6) Facilitating learner's digital competence (Redecker & Punie, 2017). They have become an essential part of a comprehensive education framework, so that without a specific digital learning program a part of the population will be illiterate, unable to meet the necessary job requirements, "and access to technology will be distributed unevenly, exacerbating inequality and hindering socio-economic mobility" (Park, 2016)

This technological advancement push the managers of institutes of vocational training and schools of second change to formulate their leadership that would be appropriate to the demands of the 21st century and principals have to lead their units towards future success (Shava & Tlou, 2018).

Adult education administrators serve as leaders of basic literacy programs situated in public school districts, leisure education programs in non-profit organizations, and job training programs in community colleges (Grover & Miller, 2016)

According to Grover & Miller (2016) the managers take leadership positions in schools of adult education having very little or zero experience in adult education structures.

The director of a public institute of vocational training in Greece

The institute of vocational training is an area of education very important as it is a vital precondition for the employability and productivity of young people in order to have smoother transition to job (Biavaschi et al., 2012). Institutes of vocational training are not part of the educational system. In Greece, according to article. 12, par. 1 of the law 3879/2010, institutes of vocational training are legal bodies or operate within the framework of legal entities, which have some of the forms provided by national or community legislation for the purpose of providing initial or supplementary vocational training services. Institutes of vocational training apply certified programs of initial or supplementary vocational training that correspond to specific vocational profiles.

The director of an institute of vocational training is the head of the institute without having teaching duties. In order the institute functions smoothly and with prospects of development and success, the director should have eight-year in education and must have administrative and scientific knowledge in the field of non-formal education. Furthermore, manager must be well awareness of development opportunities as well as learning and business opportunities and needs of the region where is the institute of vocational training (Law 4186/2013, article 27).

The director of a school of second change in Greece

Schools of second chance is an institution in Greece which started its function with the law 2525/97 and came to realize the goals of lifelong learning as they have stated in White Bible (1995) in order to combat the social exclusion. Especially, these schools are alternative public schools (gymnasium) and their function is determined by the needs, interests, capabilities and motivations of adult learners. The students are adults who haven't completed the compulsory education. The core of the curriculum consists of language, arithmetic, computer science, social, English, environmental and scientific literacy, as well as cultural and aesthetic education. Special emphasis is given to the acquisition of basic qualifications and the development of personal skills that are enhanced by collective actions. (Kokkos, 2007).

The manager of a school of second change according to the ministry decision K1 / 192979/2016:

- is responsible for the implementation of the educational policy of the General Secretariat of Lifelong learning, for the implementation of the curriculum and the school program schedule
- is responsible for the collaboration with local community to promote the school's goals
- is responsible for management issues of Schools of Second Change staff
- is the head in the meetings of the teachers' association
- takes care of the good representation of the school in public meetings
- Sends to General Secretariat of Lifelong learning all data related to the operation of the school (registrations, attendance, school activities, information reports, statistics, etc.).

Methodology

The research questions of this quantitative research are the following:

- In which extend do the Demographic factors (such as age, gender, level of studies, the years of educational experience, administrative experience, attendance of training programs about ICT) affect the digital competence of the directors of schools of second change and institute of vocational training?
- Which ICT and social networks facilitate managers in their administrative issues?
- Which are the benefits and the frequency from the digital competence and use of ICT in administration?
- To what extent do the digital competences of the directors contribute to their (auto) evaluation?
- Which factors contribute and prevent the directors from the further use of their digital competence in their administrative duties?

Consequently, the aim of this survey is to identify and investigate the digital competence of the directors of lifelong learning structures and in particular of the institutes of vocational training and schools of second change in Greece. At the same time, we aim to identify the extent of the digital skills of principals of these lifelong learning structures, the factors that may prevent the use of ICT in the administration, as well as the factors that will push them to develop further their digital skills in the administration of each one unit. It is a quantitative research based on a survey technique, using a questionnaire designed and validated with a pilot study.

Validity -reliability -of research process

Validity arises from the fact that a particular tool really measures what it seeks to measure (Grawitz, 2006, p. 175). To ensure the validity of this survey: It has been chosen the appropriate time period for sending the questionnaire (towards the end of the school year so

that even the principals who took office for the first time, have gained experience of one school year in the administration of the Institute/School of Second Change), adequate sources were used for the research, the appropriate methodology was selected based on the research questions, a suitable research tool has been developed, with its pilot application and with the contribution of experts. At the stage of data collection in order to ensure the validity has been done the following procedures: The time period for the collection of the questionnaires was limited (about 30 days), In data analysis to ensure validity: It was performed triangulation of data analysis techniques (quantitative) and sources (questionnaire), it was performed the appropriate statistical processing of the data, the conclusions are supported by the research data, in the presentation of the data: It is avoided the selective use of data (eg highlighting the positives and downgrading the negatives). It is mentioned the way of collection data and the limitations of research.

The reliability of this research, the repetition of a similar or the same sample of respondents in similar conditions and from different researchers that would have the same research results (Sürücü & Maşlakçı, 2020), is increased by the statistical processing of the received answers, as well as with the help of advanced statistical processing applications.

Sample

The sample of the survey was the directors of institutes of vocational training and schools of second change of the school year 2019-2020 of Greece. The sample of this research emerged randomly. More specifically, in this survey took part 72 directors of schools of second change and 115 of institutes of vocational training. The total number of the directors of schools of second change during the survey was 91 (of which 23 were out-of-home departments and 12 operated in detention centres) and 121 of managers of institutes of vocational training. In this survey took part 125 men towards 62 of women that were directors this specific period of the survey (Figure 1). The majority of the directors were between 51-60.

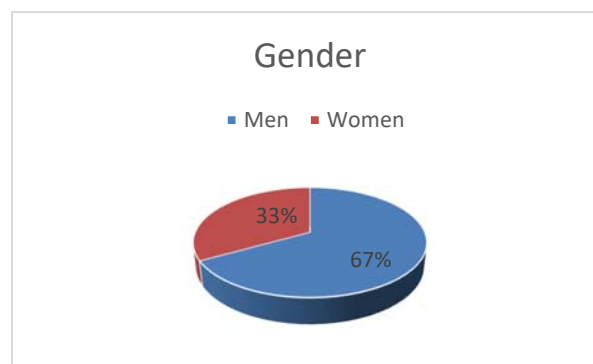


Figure 1: Age of the participant's directors

Instrument to collect data

The survey is quantitative and the main tool that was used in order to collect the survey data was the structured questionnaire with weighted closed-ended questions, with a grade five-point likert scale, which was distributed to the sample of this survey in order to measure the attitudes of the directors towards digital competence in a scientifically accepted and validated way (Joshi et al., 2015). According to Robson (2010), the questionnaire has the advantage of the anonymity of the participants and it helps them to provide honest answers. The honesty is enhanced by the physical distance between the researcher and the respondents (Leedy & Ormrod, 2013). The form of research method that was used was the descriptive statistic in the presentation of data concerning those directors who participated in the survey. The results were presented schematically using pie charts, etc. In addition,

based on the questions, where it is necessary, it is done grouped of the related questions (thematic axes) that were posed in the questionnaires, in order to give a more complete picture of the answers. Especially, for each topic axis, they are used the individual questions that were answered by the participants, in order to be presented clearly the trend in the research question and which answers are more prevalent. Then, as the questions are grouped, it is emerged an average for the answer to the research question, which is based on the averages of the answers to the questions that are grouped individually. Having calculated the above-mentioned averages and standard deviations for each thematic axis, it is drawn a conclusion about the prevailing trend in the questions that they are constitute it. Especially, if the average answer of a research question is about 4, this indicates that the answer to this question is "Very". It should be noted that the scoring of research questions is also based on the Likert rating scale. Finally, in order to be drawn conclusions about the research questions that were raised, it was used the methods of inductive statistics.

The questionnaire of the present research was formed, based on the research questions and the purpose of this research.

The pilot application of the questionnaire was carried out to 20 directors of school of second change and institute of vocational training. After the pilot application, some questions / statements were rewritten in order to be made clearer and additionally, have been added new questions / statements in order to gather more data about the digital skills of the principals of school of second change and institute of vocational training, mainly for their contribution to the improvement of management issues.

The completion of the questionnaire was done electronically during the period May- June 2020 mainly because of Covid-19 research and the distance between the researcher and all the managers. More specifically, the questionnaire was introduced to the Google Forms application and sent via e-mail to directors of school of second change/institute of vocational training. The collection of data via the internet has been chosen because it is undoubtedly a fast, economical and popular process due to the development of internet technologies (Creswell, 2016). The questionnaire was accompanied by a cover letter informing the participants about the purpose of the research, encouraging them to respond by emphasizing the importance of their participation and, above all, assuring them the confidentiality of their answers After the initial submission of the questionnaire, it was sent another message in order to remember the managers the completion of the questionnaire (Robson, 2010).

The final questionnaire is consisted of 29 questions including following parts:

In the first part, participants were initially asked to fill in some demographics. Specifically, they were asked to provide information about their gender, age, years in service, years in the position of director, their studies, their training about issues of the administration of school of second change/institute of vocational training, the population of the headquarters of school of second change/institute of vocational training, the ICT number, the hours of dealing with ICT, sources of access to internet. The answers to the above questions were given through the nominal scale where participants had to choose one of the possible categories (Creswell, 2016).

The second part is consisted of questions related to the digital competence and views of the principal regarding the use of ICT in the administration of school of second change/institute of vocational training, teachers and trainees. Questions included sub-questions in which the answers were given through the Likert scale, in which there is one end that indicates the absolutely agreement and the other that indicates the absolutely disagreement of the participants. (Creswell, 2016). Furthermore, it was used the Likert scale (1 = not at all, 2 = A little, 3 = Medium, 4 = Much, 5 = Too Much) and also it was used categorical questions (YES-NO) that may be of interest of respondents (Robson, 2010).

The third part is constituted by questions (Likert scale) about the degree of disagreement or agreement on the need to use ICT in specific tasks of the school administration by principals.

The fourth part is consisted of general proposals (Likert scales), which aimed at the auto evaluation of principals in relation to their digital competence, in the evaluation of the degree of digital competence in their unit and try to detect the reasons for the non-substantial use of ICT, as well as the reasons that will impulse the directors to develop more their digital competence in their administration.

Results

In this survey took place 187 managers of institutes of vocational training and schools of second change. 125, a percent of 67% of whom were men and 62 were women, a percent of 49%. According to their age, most of the participants of the research belong to the age group 51-60, in a percentage of 68% and the smallest population group (61+) has a percentage of 4%.

The overall average of the axis about the frequency of use of ICT in the administration is 3,527 and the sub-averages of the statements is ranged from 2.0802 to 4.8984, demonstrating a moderate to large influence of these statements on the frequency of use of ICT in the administration.

In addition, the administrative benefits from the digital competence of managers about the use of ICT in institutes of vocational training and schools of second change it is analyzed. This axis is consisted of five sub-questions. The total average of the axis is 4,397 and the individual averages of the statements is ranged from 4.1818 to 4.5401, demonstrating a quite large to very large influence of these statements regarding the benefits of the use of ICT in an institute of vocational training and school of second change as it is shown in the table 1.

Table 1: Digital competence of managers

	Mean	Minimum	Maximum	Range	Maximum /		N of Items
					Minimum	Variance	
Item Means	4.397	4.182	4.540	.358	1.086	.029	5
Item Variances	.318	.250	.412	.163	1.651	.007	5

The majority of the managers consider as main benefit from their digital competence through the use of ICT the immediate and fast communication with public and private sectors and the alternative way of presentation of information's.

It is worth mentioning, the factors that are related to the contribution of ICT to the management. This axis consists seventeen individual questions. In the question 20.32 has been a reversed on the question, ie "the use of ICT in administration is not a waste of time" (20.32r). The overall average of the axis is 3,901 and the sub-averages of the statements range from 3.2086 to 4.2299, demonstrating the great influence of these statements on the contribution of ICT to the administration. For this axis the questions that have been used, were tested for their reliability using Cronbach's alpha = 0.956. From the following, it seems that the reliability is excellent as it is shown in the table 2.

Table 2: Contribution of ICT to the management

	Mean	Minimum	Maximum	Range	Maximum /		N of Items
					Minimum	Variance	
Item Means	3.901	3.209	4.230	1.021	1.318	.075	17
Item Variances	.706	.458	1.327	.870	2.900	.064	17

The managers believe that the trainee has the ability to make visual educational visits in order to reinforce their professional profile as well as to improve the administration of the unit. 135 managers would like to gain more digital the factors that are related to the self-assessment of the digital competence of managers.

Furthermore, it is very important to be mentioned the factors that are related to the self-assessment of the digital competence of managers. This axis is consisted by five sub-questions. The overall average of the axis is 2,916 and the sub-averages of the statements are ranged from 2.4920 to 3.2620, demonstrating a moderate influence of these statements on the self-assessment of the digital ability of managers. For this axis, the questions that have been used, were tested for their reliability using Cronbach’s alpha = 0.975. From the following it seems that the reliability is high.

Table 3: Factors that are related to the self-assessment of the digital competence of managers

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q22.1	11.3155	22.550	.918	.916	.971
Q22.2	11.3957	22.176	.942	.936	.967
Q22.3	11.6150	21.367	.937	.882	.967
Q22.4	11.8984	20.479	.947	.922	.966
Q22.5	12.0856	20.412	.912	.888	.972

According to the self-assessment of digital competence of managers, it is important to be mentioned that the majority of manager’s possess medium information and data literacy and, on the other hand, 64 managers hasn’t any digital competence about problem solving. About the digital skill of safety, 56 managers have this digital competence. Little managers have the digital competence of communication and collaboration. The same number is observed in the digital content creation.

Last but not least, is analyzed the factors that contribute to the further use of ICT in management. This axis consists four sub-questions. The overall average of the axis is 4,326 and the sub-averages of the statements is ranged from 3.3690 to 4.8021, demonstrating a moderate to very large influence of these statements on the factors that contribute to the further use of ICT in the administration. For this axis, the questions that have been used, were tested for their reliability using Cronbach’s alpha = 0.370.

In relation to their level of studies, most of the participants of the research hold a postgraduate specialization diploma, at a rate of 68%, while the majority of participants is director of an institute of vocational training (115 people), a percentage of 61%.

The largest percentage (63%) of directors has 21-30 years of service. As it emerged, the average term of the years of service in this position is about 6 years. The most years in service in the position of director are 17 and the fewest are 2. The most institutes of vocational training and schools of second Change are located in areas with a population of more than 25,000 inhabitants.

In relation to their level of studies, most of the principals have attended a training program about the administration of an institute of vocational training and school of second change, at a rate of 75%

The principals were asked if they had attended any ICT training program –related to ICT. The majority of the directors answered positively, at a rate of 98%. The most frequently attended training program was this of the Ministry of Education (58%).

Regarding to the years of experience in the use of ICT, the most participants seem to have more than 10 years, at a rate of 78%, while the most participants use ICT for administrative purposes about 2-4 hours, at a rate of 50%. Finally, in majority (65%), the principals consider that the ICT equipment of the institute of vocational training and school of second change is insufficient.

In relation to ICT equipment, the average of PC in an institute of vocational training and school of second change is 20, as the smallest number is 5 and the largest is 40. In the absolute majority (percentage 100%) the managers have a PC in their office. Mainly the way of internet access is done through PC, at a rate of 80% and in addition in an institution of vocational training there is no internet access at all.

151 of the managers of the research agree absolutely that they need technical support in their administrative works and 128 of the managers that there is need for recruitment of suitable staff that would have the special training about issues of ICT.

A percentage of 39.6% consider to have mediocre digital competence even if a percentage of 44,4% finds satisfactory the use of ICT to their unit.

The existence of the administrative software is medium (51,9%), towards those who find the software well (30,5%).

38% of the managers evaluate medium their confidence about their digital competence through the use of ICT towards 35,8% who has high confidence. Only a 7% hasn't no confidence.

The digital skills of the managers should be taken into account in a percentage of 34,8% towards those one (26,2%) who believe that the digital competence should be taken much into account. Only 0,5% wouldn't like to taken into account their digital competence.

Conclusions- Discussion

From this survey, it is emerged that the gender of the managers doesn't affect the extent to which the managers of public institutions of vocational training or schools of second change use ICT in their administration. It has been emerged from this survey that there is a statistically important difference between the digital competence and the age of the principals. Especially, there is a difference between the age group 41-50 and the age group 61+. The large majority of managers recognize the benefits and the large influence of the use of ICT in the administration.

In addition, about their years in the use of ICT it seems that those principals who have obtained a doctoral diploma have more experience years in the use of ICT that those who have only a degree.

There is an important effect of the population of the region of the public institutes of vocational training and schools of second change and the years of experience of managers in the use of ICT. Furthermore, the population of each institute affects the digital competence of the managers.

It is very important to mention that there is no any important difference about the digital competence of managers of a public institution of vocational training and those of schools of second change in relation to years of experience in the use of ICT. But it is worth to mention that the type of unit that those managers work, affect the extent to which they use ICT in their administration. Furthermore, it seems that the type of institute or school that these managers works, affect their digital competence.

About the years in this position it seems that the years of service in the position of manager don't affect their digital competence in the administration. It is worth mentioning that the years of administrative experience don't affect the auto evaluation of the managers.

The attendance of training programs effect the digital competence of the managers and the degree to which they use ICT in the administration. The attendance of any kind of training program doesn't affect the evaluation of their digital competence.

The managers that use ICT for more than 10 years have more digital skills than those who use ICT 1-5 or 6-10 years. Consequently, managers who use ICT more than 10 years it seems that they use ICT more in their administrative work as well as they evaluate more their digital skills.

In relation to technological equipment it is emerged that the existence of adequacy technological equipment affects the digital skills of the managers about the use of ICT in the administration. Principals who use more ICT in their administrative work have better digital skills than those who haven't any digital competence or have little or medium digital skills. It has emerged, unfortunately, that the technological equipment is not sufficient in the large majority of an institute of vocational training and school of second change.

Consequently, in today's digitalization world where there are a lot of challenges, the administrative role of managers of institutes of vocational training and schools of second change is important as they face these challenges and need digital skills for their administrative digital transformation (Zeike et al, 2019; Mihardjo, et al, 2019). Especially, in the age of information society, the vocational education aims to develop occupational skills (Okolie & Yasin, 2017). In every institute of vocational training and school of second change, the principal and the teaching staff must have the philosophy of the modern, open, digital and democratic unit (Πρίντζας, 2005). This action is work of the manager and is necessarily associated today with the use of ICT in the administration and their digital skills. The digital skills of managers of institutes of vocational training and schools of second change are connected with changes, at the level of teaching, learning as well as in every administrative task. Digital skills of the managers and the further use of ICT enhances the daily school routine, program, updating the evaluation of school programs, solving individuals' or groups' as well as staff development (Oyedemi, 2015). Principals' administrative functions require the use of ICT in their administrative works in order to improve themselves in their administrative performance (Abraham & Bariyaa, 2020).

References

- Abraham, LN. & Bariyaa, J. (2020). Status of Principals' ICT Usage in Secondary School Administration in Rivers State. *African Research Review: An International Multidisciplinary Journal, Ethiopi*, 14(1), 57, 61-71.
- Arzola, D., Loya, C. & González, A. (2017). El trabajo directivo en educación primaria: Liderazgo, procesos participativos y democracia escolar. *IE Rev. REDIECH 2017*, 7, 35-41.
- Biavaschi, C., Eichhorst, W. Giuliotti, C., Kendzia, M. J., Muravyev, A., Pieters, J., Rodriguez-Planas, N., Schmidl, R. & Zimmermann, K. F. (2012). Youth Unemployment and Vocational Training. *IZA Discussion Paper*, 6890. Retrieved March 23, 2021, from: <https://ssrn.com/abstract=2158300>
- Biniecki, SMY & Schmidt (2020). *Organization and Administration of Adult and Continuing Education Programs*. IAP- Information Age Publishing.
- Boonla, D. & Treputtharat, S. (2014). The Relationship between the Leadership Style and School Effectiveness in School under the office of Secondary Education Area 20. *Procedia - Social and Behavioral Sciences* 112 (2014) 991-996. Retrieved March 3, 2021, from: doi: 10.1016/j.sbspro.2014.01.1260.
- Bush, T. (1998). The National Professional Qualification for Headship: the key to effective school leadership? *School Leadership and Management*, 18(3):321-34.
- Caena, F. & Redecker, C. (2019). Aligning teacher competence frameworks to 21st century challenges: The case for the European Digital Competence Framework for Educators. *Eur J. educ.*, 54, 356-369.
- Carretero, S., Vuorikari, R. & Punie, Y. (2017). *DigComp 2.1: The Digital Competence Framework for Citizens with Eight Proficiency Levels and Examples of Use*. Luxemburg: Publications Office of the European Union.

Council of the European Union (2018). Council Recommendation of 22 May 2018 on key competences for lifelong learning. *Official Journal of the European Union*, C 189/01.

Creswell, J. (2016). *Η έρευνα στην εκπαίδευση. Σχεδιασμός, Διεξαγωγή και Αξιολόγηση*. Επιμ. Τσορμπατζούδης, Χ. Εκδοτικός όμιλος: Ίων.

De Boer, P. S., van Deursen, A. J., & van Rompay, T. J. (2019). Accepting the Internet-of-Things in our homes: The role of user skills. *Telematics and informatics*, 36 (1), 147-156.

Fleming, J. E. A., & Caffarella R. S. (2000). Leadership for Adult and Continuing Education. *Adult Education Research Conference*. Retrieved March 3, 2021, from: <http://newprairiepress.org/cgi/viewcontent.cgi?article=2163&context=aerc>.

Garzón Artacho, E., Martínez, T. S., Ortega Martín, J.L., Marin Marín, J. A. & Gomez García, G. (2020). Teacher Training in Lifelong Learning—The Importance of Digital Competence in the Encouragement of Teaching Innovation. *Sustainability*, 12, 2852. Retrieved March 03, 2021, from: <https://doi.org/10.3390/su12072852>

Grover, K.S. & Miller, M.T. (2016). Leadership in Adult Education Agencies: Imperatives for a New Century. *Journal of Adult Education*, 45(2), 8-16.

Joshi, A., Kale, S., Chandel, S. & Pal, D.K. (2015). Likert Scale: Explored and Explained. *British Journal of Applied Science & Technology*, 7(4), 396-403. Retrieved March 03, 2021, from: file:///C:/Users/Laptop/Downloads/Likertscale_explored_explained.pdf.

Kersh, N. & Huegler, N. (2018). Facilitating Lifelong Learning through Vocational Education and Training: Promoting Inclusion and Opportunities for Young People. In: S. McGrath, and M. Mulder, J. Papier, J & R. Suart (Eds.) *Handbook of Vocational Education and Training: Developments in the Changing World of Work*. Springer: Cham, Switzerland.

Leedy, P. D., & Ormrod, J. E. (2013). *Practical Research: Planning and Design*. Boston: Pearson.

Mihardjo, L.W.W., Sasmoko, S., Alamsjam, F. & Elidjen, E. (2019). Digital leadership role in developing business model innovation and customer experience orientation in industry 4.0. *Management Science Letters*, 9, 1749-1762.

Ngang, T. K. (2012). A comparative study on teacher leadership in special education classroom between China and Malaysia. *Procedia - Social and Behavioral Sciences*, 31 231 – 235. Retrieved February, 25, 2021, from: [doi:10.1016/j.sbspro.2011.12.047](https://doi.org/10.1016/j.sbspro.2011.12.047).

Northouse, P. G. (2016). *Leadership: Theory and Practice* (7th ed.). Thousand Oaks, CA: Sage.

Okolie, UC. & Yasin, A.M. (2017). *Technical Education and Vocational training in Developing Nations*. IGI Global, Διαθέσιμο: <http://doi:10.4018/978-1-5225-1811-2>, προσπελάστηκε στις 03/03/2021).

Olofsson, A.D., Fransson, G. & Lindberg, J.O. (2019). A study of the use of digital technology and its conditions with a view to understanding what 'adequate digital competence' may mean in a national policy initiative. *Educational Studies*, 46(6), 727-743. Retrieved February 25, 2021, from: DOI: 10.1080/03055698.2019.1651694.

Oyedemi, O.A. (2015). *ICT and effective school Management: Administrators' Perspective*. Proceedings of the World Congress on Engineering, London, July, 1-3, 2015. London.

Park, Y. (2016). 8 digital life skills all children need – and a plan for teaching them. *World Economic Forum*. Διαθέσιμο: <https://www.weforum.org/agenda/2016/09/8-digital-life-skills-all-children-need-and-a-plan-for-teaching-them/>, προσπελάστηκε στις 03/03/2021

Redecker, C., & Punie, Y. (2017). *European Framework for the Digital Competence of Educators*. Joint Research Centre

Robson, C. (2010). *Η έρευνα του πραγματικού κόσμου. Ένα μέσον για κοινωνικούς επιστήμονες και επαγγελματίες ερευνητές*. Εκδόσεις: Gutenberg.

Saputra, N. & Saputra, A.M. (2020). Transforming into Digital Organization by Orchestrating Culture, Leadership and Competence in Digital Context. *GATRA Global Journal of business and Social Science Review*, 8(4), 208-216.

Schiller, J. (2003). Working with ICT: Perceptions of Australian principals. *Journal of Educational Administration*, 41(2), 171 – 185.

Shava, G.N. & Tlou, F. N. (2018). Distributed leadership in education, contemporary issues in educational leadership. *African Educational research Journal*, 6(4), 279-287. Retrieved March 3, 2021, from: <https://files.eric.ed.gov/fulltext/EJ1208340.pdf>.

Sürücü, L. & Maşlakçı, A. (2020). Validity and reliability in Quantitative research, *BMIJ*, 8(3):2694-2726 .Retrieved March 03, 2021, from: doi:<http://dx.doi.org/10.15295/bmij.v8i3.1540>

UNESCO (2015). Recommendation on Adult Learning and Education. Retrieved April, 10, 2021, from: <https://unesdoc.unesco.org/ark:/48223/pf0000245119.page=3>

Zeike, S., Bradbury, K., Lindert, I. & Pfaff, H. (2019). Digital Leadership Skills and Associations with Psychological Well-Being. *International Journal of Environment Research and Public Health*, 16, 2628. Retrieved March 25, 2021, from: www.mdpi.com/journal/ijerph.

Κόκκος, Α. (2007). Η Εκπαίδευση Ενηλίκων ως Διακριτό Θεσμικό και Επιστημονικό Πεδίο, *Διά Βίου*, 1, 45-48.

Κωνσταντινίδη, Ε., Μανιαδάκης, Ι., Μαυρικάκης, Ε., Παπαδάκης, Ε., & Πουλάκης, Ε. (2010). *Η Ευαίσθητη Διστακτικότητα των Γυναικών στην Εκπαίδευση*. (Εργασία στο μάθημα: Φύλο, απασχόληση και επιχειρηματικότητα), υπό έκδοση. Ρόδος, ΤΕΠΑΕΣ.

Νόμος 2525/1997. *Ενιαίο Λύκειο, πρόσβαση των αποφοίτων του στην τριτοβάθμια εκπαίδευση αξιολόγηση του εκπαιδευτικού έργου και άλλες διατάξεις*.

Νόμος 3879/2010. *Ανάπτυξη της Δια Βίου Μάθησης και λοιπές διατάξεις*.

Νόμος 4186/2013. *Αναδιάρθρωση της Δευτεροβάθμιας Εκπαίδευσης και λοιπές διατάξεις*

Παπασταμάτης, Α. (2011). *Εκπαίδευση ενηλίκων: Θεμέλια της διδακτικής πράξης*. Εκδόσεις: Σιδέρης.

Πρίντζας, Γ. (2005). Η διαχείριση του ανθρώπινου δυναμικού στην εκπαίδευση. Στο Α. Καψάλης (Επιμ.), *Οργάνωση και διοίκηση σχολικών μονάδων*, 231-242. Θεσσαλονίκη : Πανεπιστήμιο Μακεδονίας.