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Digital Competence and School Leadership in Greece

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Abstract: The main purpose of this study is the assessment of principals in special secondary education schools for students with special educational needs digital competence (SEN) in Greece. In addition, the main goal was to highlight digital competence principals that offer in their administrative issues. In order to collect relevant to the purposes of this research data, the quantitative method based on survey and questionnaire was mainly used. The quantification was effectuated with the use of the Statistical Program SPSS suitable for descriptive and correlation analyses of collected of data. The use of descriptive statistics allows the presentation of the demographic data of the research as well as gives the trend that is resulted from the answers of the research questions that were asked. Additionally, the reference to the methods of inductive statistics was applied. These methods are focused on the possibility to rely on findings from a sample of observations. The inductive statistics evaluates the

questionnaire confidence. The descriptive statistics described the main characteristics of individual variables. For these reasons, the questionnaire was distributed to a great number of principals of special secondary education schools of all regions of Greece. In consequence of Covid-19 and geographical distance, the questionnaire was effectuated online via Google forms. From the 198 principals that obtained the questionnaire, only 174 principals sent back the answer. The results demonstrated that the digital competence significantly contributes to the principals' administrative management. The digital competence helps saving the time and reducing the volume of documents ensuring their easy access to the digital world. It is important to evaluate the principals' digital competence and its impact on their administrative tasks in Greece in order to enrich the scientific research in Greece concerning the crucial topic and its impact on the educational community.

Keywords: special education; principals, digital competence, administrative management.

Introduction

It is evident, that today's world main trend is the digitalisation (Jackman et al., 2021). In this world, good school leadership in special schools enables effective functioning, thus maximising the contribution of each educational structure (Hatlevik & Christophersen, 2013; Pettersson, 2017). The Information Communication Technologies (ICT from now on) rapidly entered every school, so, principals, nowadays, are facing new challenges (Pettersson, 2017; Zeike et al., 2019). In the context of information and technological progress, education should respond and not just be an observer of events (Ottestad & Gudmundsdottir, 2018). So, the importance of this article is to justify the crucial role that principals of special secondary education schools have.

Of particular significance is the entrance of digital competence to school units by its leaders as well as the elimination of any type of discrimination in its sphere (Hatlevik & Christophersen, 2013; Pettersson, 2017; Zeike et al., 2019). The fact that the digital competence must be more supported and developed in the school conditions is undeniable. As the school leaders should be able to create and share information's as well as to use it in their teaching methods. Nowadays, in the age of digitalisation, every person has the right to have access to education. Besides, it the main bet that the modern education system and school units must answer (Nanou, 2013).

Taking into consideration the crucial parameters of digital competence and school leadership, this study attempts to fill the research gap concerning the topic existing in Greece. Such a research is firstly one evaluated in Greece. In this survey a possible large focus group of school leaders of special secondary school was included.

Research problem

The research problem is to examine principals' digital competence in Greece. The question is how increasing principals' digital competence contributes to better school leadership?

Research Focus

The Role of School Leaders of Special Education Schools in Nowadays Multicultural Environment. The term of special education needs is referred to any educational intervention and support that must be given to students with medical, social and bio-psychosocial disorders (World Health Organization, 2007). These programmed interventions are not limited and can take place in every country. The special

education intervention is addressed to students with “differences” or “to gifted” ones (Poulter & Timpson, 2015, p. 15).

Every democratic society must promote the same rights and access to educational and social life for every citizen and student including, of course, students with SEN (Stankovska et al., 2015).

In this complex framework, the role of every school leader is multidimensional as, except from its administrative role, every school leader has to promote a democratic culture where any kind of discrimination has no position (Pont, 2014).

Digital Competence. In Europe, the term “digital competence”, in line with digitalisation trends, means a competence that every active citizen should have (Hatlevik & Christophersen, 2013).

Additionally, to all roles that every school leader has, they must provide suitable competences, including the adaptation of digital competences to all students in order to familiarise them in correspondence with the complex social- economic needs of the 21st century (Roblyer & Doering, 2014). ICT as well as the digital competence has rapidly modified the pedagogical and administrative approaches. In this framework, the digital competence has changed the learning and teaching techniques (Area-Moreira et al., 2016).

The digital competence is expounded as the creative, analytic, and safe apply of ICT in people activity and social incorporation (Ottestad & Gudmundsdottir, 2018).

According to Janssen et al. (2013) the digital competence is referred to the legal knowledge of its role.

After all, digital competence is described as one of the eight key competences that every active citizen must master in the 21st digitalised century (Guitert et al., 2020).

Digital competence promotes the idea of innovation and active membership. For all the above reasons, in Spain the digital competence has entered to the school curriculum (Espinosa et al., 2010).

The DIGCOMP2.0 divides the digital competence into five areas including: “Information and data literacy, communication and collaboration, digital competence creation, safety, problem solving” (Brande et al., 2017, p. 78).

According to Raftoulis et al. (2021) the digital competence is so crucial for school leaders as it helps investigating the local needs and facilitating the administrative issues.

Consequently, this survey is focused on the usefulness of digital competence in leadership. Additionally, the factor that pushes and prevents the leaders from its use is examined. Finally, the self-assessment and self- evaluation of school leaders’ factors are determined.

Research Aim and Research Questions

The goal of this article is focused on the necessity of digital competence use by school leaders as well as the requirement for further training in order to involve it in administrative sections. Especially, the significance of the digital competence and the training of leaders are demonstrated.

The main research questions are the next:

- What is the gradation between the digital competence and the demographic elements of school leadership?
- Is there any connection between the digital competence and the level of self- assessment of school leadership?
- Does the digital competence affect the extent of the digital use of school leaders use it in school organisation?

Research Methodology

General Background

In this survey a large majority of school leaders of special secondary education schools from Greece was involved. For this purpose the quantitative method that allows the generalisation of the results was used. The aim was to investigate the factors that determine principals' digital competence as well as their self- evaluation. Furthermore, the factors that facilitates and make difficult the use of digital competence was analysed. Finally, this survey aim was to examine the digital competence fields that are used in school by the leadership in teaching.

Sample/ Participants/ Group

The sample of this survey consisted in 174 school principals of special secondary education schools. In Greece the following special secondary structures exist:

- Special high school
- Special gymnasium
- Special Gymnasium with Lyceum classes
- Special laboratories of professional education and training
- Departments of Integration.

In this study, 15 directors of integration faculties and one director of a special general education gymnasium-lyceum did not wish to respond to the survey. This survey was carried out during the period May-June 2020. As it has been mentioned, the questionnaires were sent in electronic form via Google forms to the mails of principals. Some questionnaires were physically given to those principals that were near to our place of residence.

After the questionnaires gathering, the procedure of entering the data to the statistical package SPSS 17 (Statistical Package for the Social Sciences, SPSS-Version 17.0) was evaluated. Roussos and Tsaousis (2002) refer that the descriptive statistics is suitable for the explanation, planning and display of data while the inductive statistics related to the rule of research questions were both used for the analysis.

The control of the questionnaires that has been made before the codification where every question took a code number ensures the accuracy of the questions (Cohen & Manion, 1994; Moser & Kalton, 1977).

Instrument and Procedures

As it has been mentioned above, the quantitative method was used. The last one significantly helps the researcher making the general proposals for all the population that it is difficult to take part in a survey. Data was collected in a numerical form consequently the analysis was made through the use of

statistics (Apuke, 2017). In the survey the answers were by using specific questions related to the topic that is researched (Check & Schutt, 2012). The survey research is suitable to explain human attitudes and behaviours (Singleton & Straits, 2009).

In terms of survey-type study use it was possible to evaluate a descriptive study that intends to explain and interpret the digital competence of school leaders (Tripodi & Bender, 2010).

The questionnaire was the main tool to gather and investigate the answers of the school leaders.

The use of the questionnaire had its main advantage. It was not subjective but it reflects the reality related to participants behaviours and beliefs (Jain et. al., 2016).

Initially, after having piloted the questionnaire to 20 principals the main corrections according to related suggestions of participants so as to be corrected (Gay, 1996) some omissions were made. Finally, the questionnaire was improved.

The questionnaire was repeatedly modified until taking its final form. The last version has the following parts. The questionnaire was sent via Google forms to all special secondary schools' e mails. Only 15 leaders of integration departments and 1 of special high school haven't answered having doubts about the results.

A cover letter that was presented and explained to them was sent to all school leaders. Additionally, there were directions and clarifications related to the completion of this specific questionnaire. One of the most important parts was the part that informed participants concerning their anonymity.

The questions of first part were about personal information's of principals.

The questions of second part concerned their agreement of using digital competence in school units and their readiness to use it, according to Likert scale.

The questions of third part of the questionnaire that included the use of the Likert scale was related to the extent of school principal's agreement or disagreement according to the need of using digital competence in administration.

The questions of the last part were part of the Likert scale making attempts to detect the self-evaluation of school leaders' digital competence as well as the factors that would be motivating to them. Moreover, the participants listed the factors that have a negative effect to them.

In this study, a close survey (questionnaire) was used. This type is suitable for the statistical analysis providing important information's according to the subject under investigation (Javeau, 2000).

Research Results

In this survey 174 people were involved. A percentage of 51% were men and 49% were women. The most school leaders are between 51-60 years old (53%).

A percentage of 59% of the participants have a postgraduate diploma.

The most leaders have 24 years of educational service while the average of years in administration is 7.6.

At a rate of 93%, these school leaders have attended a special ICT training program. The digital competence as well as their educational use was both the most frequently attended training programs. At a rate of 40% they frequently use the digital competence for administrative purposes.

Firstly, in question 16 is analysed the digital competence and its usefulness. This specific question was divided in twenty-one sub-questions. The general mean was 3,703 and the sub-means were about 2.5 to 4.5. The analysis proves a very large influence between two questions. Before their using, the questions, using Cronbach's alpha = 0.934 (Table 1) were checked for their reliability. The reliability has proven to be excellent. The exclusion of question 16.3 were excluded, would slightly increase the reliability of the questions (Cronbach's alpha= 0.951) (Table 2).

Table 1

Effectiveness of Digital Competence

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.934	.938	21

In table 2 the correlation between digital competence and its use was analysed. For this reason, a control between the type of school (Q4) and the answers of question group 17 (mean.Q17) was made.

Table 2

Digital Competence and Extend of Its Use

	Type of school where do you work (Q4)	N	Mean Rank
Do you find useful the following capabilities of ICT in the school leadership of your special education school with immigrant students?(mean.Q17)	Special Vocational High School	18	77.75
	Special Vocational High School with Lyceum Classes	31	89.98
	Special Vocational High School / High School	30	82.07
	Special Vocational Education and Training Laboratories	49	70.81
	Department of Integration	46	110.97
	Total	174	

Table 3

Chi-Square Tests: The Frequency of Digital Competence and Years of Experience

	Value	df	Asymp. Sig. (2-sided)
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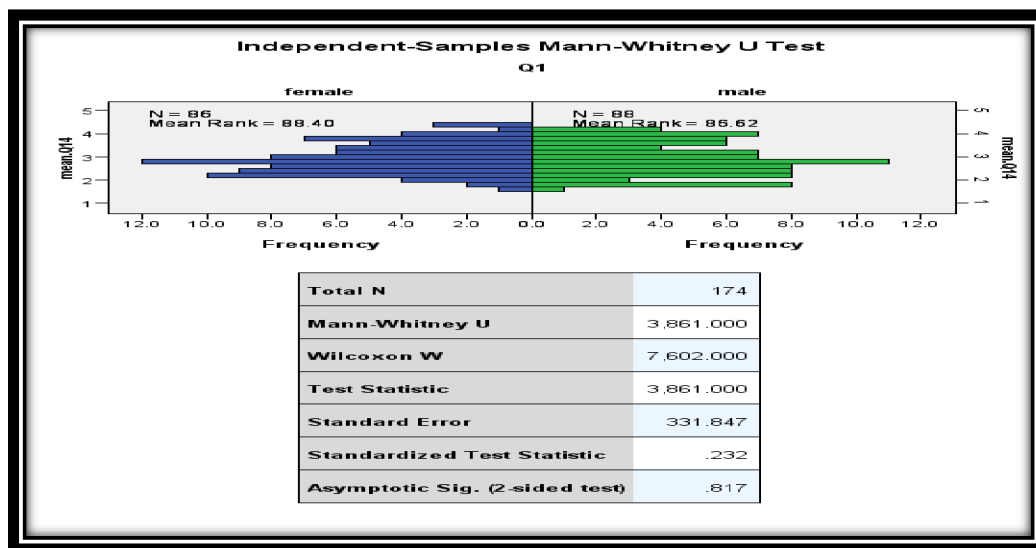
Pearson Chi-Square	148.935 ^a	9	.000
Likelihood Ratio	140.657	9	.000
Linear-by-Linear Association	98.222	1	.000
N of Valid Cases	174		

It has emerged that the rate of p-value was = 0.000. It was less than the significance level $\alpha = 0.05$. Consequently, there was a crucial correlation between the regulation of digital competence and the relative years of experience. Table 3 proves this correlation.

Next, the correlation between the gender and digital competence was examined. Accordingly, the gender (Gender, Q1) and the frequency of communication (mean.Q14) were checked.

Figure 1

Independent-Samples Mann-Whitney U Test



The above analysis demonstrates that the gender is not correlated to the frequency of digital competence in administrative issues (Figure 1). Especially, the rate of p-value = 0.817, being greater than the significance level $\alpha = 0.05$.

Moreover, the correlation of digital competence and the need for additional training is evident. To examine this correlation, the years that every leader used digital competence was controlled (Question 11) and it is shown that the need for additionally training would improve their digital competence (Q19.4) (Table 4).

Table 4

Correlations: Years & Training

	Training on issues about digital competence (Q19.4)	Years of experience in the use of ICT (Q11)
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Spearman's rho	Training on issues about digital competence (Q19.4)	Correlation Coefficient	1.000	.055
		Sig. (2-tailed)	.	.473
		N	174	174
	Years of experience in the use of ICT Q11	Correlation Coefficient	.055	1.000
		Sig. (2-tailed)	.473	.
		N	174	174

From the table 4, the conclusion emerges that the value of p-value = 0.473 being greater than the significance level $\alpha = 0.05$. Consequently, it is observed that there isn't any statistically important correlation between the above questions. Consequently, the years of experience in the use of ICT are not connected with their further training.

Furthermore, the correlation or between the digital competence of school leaders and their self-assessment is important to be examined. For the above needs, the experience of school leaders in ICT (Q11) and the digital competence of them was checked (Q15.1) (Table 5).

Table 5

Correlations: Years of Experience and Self-Assessment

			Years of experience in the use of ICT(Q11)	Perception of digital competence (Q15.1)
Spearman's rho	Years of experience in the use of ICT (Q11)	Correlation Coefficient	1.000	.626**
		Sig. (2-tailed)	.	.000
		N	174	174
	Perception of digital competence Q15.1	Correlation Coefficient	.626**	1.000
		Sig. (2-tailed)	.000	.
		N	174	174
**. Correlation is significant at the 0.01 level (2-tailed).				

From the table 5, it is proven that the rate of p-value = 0.000, it is less than the significance level $\alpha = 0.05$. From the above analysis, it is proven that there is a statistically significant dependence. Therefore as more years' experience any school leader occupies with ICT, so much better the digital competence is (cor coeff: 0.626).

Discussion

It is worth mentioning that it was the first research concerning the digital competence of school leaders of schools and, especially, of special secondary education schools in Greece.

From the above analysis the following can be concluded: The waste majority (52,3%) of school leaders of this survey were between 50-60 years old. Only a small percentage of 10, 3% of leaders seemed to be under 61 years old while only 6, 3% of participants were under 40 years.

About their level of education, more than half (59,2%) of the participants principals had a master degree diploma in contrast to the small amount those (8,6%) with PhD diploma. From this point, it must be emphasised that the educational level positively affects the digital competence. Of course, those school leaders who obtained a PhD diploma use more frequently the digital competence in administration. The two most important keys that school leaders use more their digital competence are their spherical training in digital competence issues without their own expenses as well the equipment with technological supplies.

Stuart et al. (2009) have made a survey about the correlation between the digital competence and the aim of school leaders to have more access in further knowledge. Unfortunately, it has been proved that principals must be digital leaders themselves on the other hand a large majority of them don't feel certain with their use.

In addition, the frequency of using digital competence rather than the gender seems to be a crucial factor that affects the digital competence of leaders (Krumsvik et al., 2016).

This survey showed that a large majority of school leaders have adequate digital competence finding it necessary in the administration of school organisation. Digital competence facilitates their school leadership. From the other hand, the type of special secondary school affects the digital competence of leaders. Additionally, the self- assessment of school leaders' depends on their years' of using digital competence in administrative issues.

Yuen and Ma (2002), claim that the gender plays a crucial role in the use of ICT. In the review "Factors Affecting Teachers' Use of Information and Communications Technology: A Review of the Literature", Mumtaz (2000), Christensen and Knezek (2008), Yuen and Ma (2002), and Loveless et al. (2011) refer some demographic elements that affects the use of ICT. Cox et al. (1999) and Cuban et al. (2001) reach to the same conclusion. The research by Ferrari (2012) has driven to the same results.

In the studies by Loveless et al. (2011), Howard (2013), and Sipilä (2013), there is another conclusion that teachers have no adequate digital competence despite the challenges of our digitalised society.

Krumsvik et al. (2016) came to the conclusion that the gender is the crucial factor. In their survey it was proved that women have more digital competence compared to men. Moreover, those teachers who have educational experience more than 15 years have lower digital competence. It is reasonable that 50 years old teachers have a lower level of digital competence.

Conclusions and Implications

This survey demonstrates that the digital competence of principals is very crucial in their school leadership helping them to make faster their administrative tasks. But, from the other hand the majority of them states that they can't change their way of teaching and administrate.

The self-evaluation of digital competence can facilitate principals so as to introduce special educational models and to additionally contribute to the opening of school to society.

Afshari et al. (2012) concluded that principals find ICT helpful and important as it positively contributes to a better communication with other teachers creating a friendly atmosphere.

This study is the first one that was conducted in Greece in secondary special educational structures. Consequently, important research conclusions were drawn about the topic of digital competence of school leadership. Of course, there were some restrictions that must be taken into account in future researches.

The most crucial restriction of this survey is the inclusion in the investigation only of principals avoiding teachers of special and general secondary school units. The questionnaire was distributed online. From the methodological point of view, it would be correct to use a combination of qualitative and quantitative method.

Suggestions for Future Research

In terms of the novelty of the topic, as it has been the first one that took place in Greece as well as due to its relation to digital competence of leaders of special secondary education schools this survey is rather motivating. However, it has many limitations. For this reason, there are some suggestions for future research. Especially, it could be:

- ✓ Digital competence of teachers of these special secondary structures investigation.
- ✓ Digital competence of principals before and after the COVID- 19 examination.
- ✓ Digital competence in terms of the gender.
- ✓ Digital competence of leaders of special secondary education schools after their appropriate training.
- ✓ The investigation of teachers' opinion about the digital perception of their school leaders.

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