Religious Perceptions and the Use of Technology: Profiling the Future Teachers of Religious Education

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Abstract:

This study analyzes the profile of Greek university students who will be teaching courses related to religion when they become practitioners at primary school and high school level, in relation to their views on technology. For this purpose, four factors were examined: religious beliefs, use of technology, attitude towards technology, and their views regarding the use of technology for the dissemination of religious beliefs. The sample comprised of 570 students studying at Departments of Theology and Primary School Education at Greek universities. The data analysis revealed that participants, in general, are not highly religious. Both believers and non-believers seem to have a positive attitude towards technology, which they are willing to use in an educational context. Furthermore, they do not believe that religion and technology contradict each other. The implications of the findings are also discussed.

About the authors:

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To cite this article:

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1. Introduction

Technology has a significant impact on all aspects of human activity, including religion. For example, the established religions have a strong digital presence in order to have a direct access to believers (see case studies in Campbell 2013). Technology also provides the means for the communication of a wide range of religious beliefs, which might otherwise be largely unknown to non-practitioners. Furthermore, technology allows the development of religious activities which accompany traditional ones (e.g. the study of religious texts) (Clivaz 2014) or even replace them (e.g., digital prayer, and participation in religious rituals through the Internet) (Baesler & Chen 2013).

In Greek society, religion still plays an important role in the determination of one's cultural identity (Mavrogordatos 2003). The values and ideas of the Orthodox Christian tradition are part of the official curriculum in primary as well as in secondary education, since they are the subject of a course named "Religion" (Karamouzis 2015a).

In this context, and given that certain groups of pre-service educators (students being trained for future teaching careers) will be required to teach "Religion" as practitioners, in an environment dominated by technology, it was considered important to examine: (a) how religious they are, (b) to what extent they use technology, and (c) how their religious beliefs influence their views regarding technology and how they view the role of technology in religion. Therefore, a study was conducted using a questionnaire, having as a target-group two groups of pre-service educators studying at Greek universities. The first was students studying at Departments of Theology (who will be qualified to teach "Religion" in high schools), while the second was students attending Departments of Primary School Education (who will teach all subjects in primary schools, including "Religion").

By profiling both groups, the objective was to gain an understanding of their religious beliefs, how they view technology, and how they view technology in relation to their religious beliefs. We believe that this research is the first that has the above target groups. Despite an

extensive literature review, no research was found on how Greek educators who teach courses related to religion view technology.

The paper is organized as follows. First, a brief review of the literature regarding religion, technology, and Greek society is presented, followed by the research rationale and methodology. Next, the results are presented and analyzed using two-step cluster analysis. Subsequently, results are discussed and the conclusion completes the work.

2. Religion, technology, and the Greek society

Nowadays, technology, and especially the Internet, provides the opportunity for different people, communities, and societies to create and express different beliefs and experiences (Tomaselli 2015). Therefore, religious participation, in a traditional way, is not required any more in order to access religious information; the users can create, by themselves, the religious meaning they want, but also participate in the definition or discussion of religious concepts (Bittarello 2006). In essence, this is a de-contextualization of religious information, which is lifted from its religious context and positioned in new mediated contexts, some of which are fully secular. At the same time, religion still has a place in mediated discussion, as much as any other form of thought that can be expressed (Campbell 2004). Thus, in the Information Era, religious pluralism has increased and acquired a friendly environment, which reinforces the subjective drives and needs of people (Enevoldsen 2008).

Early research on religion and the Internet (Helland 2000), identified two different trends: on one hand, there is "religion online", which provides information to users about religion, such as doctrines, hierarchies, organization, and services (Kinney 1995). On the other hand, there is "online religion", which allows the user to participate in the religious aspects of life ranging from the communication of information to participation (e.g., mass, prayer, and rituals) through the Internet (Heidbrink 2007); the cyberspace functions as a church, a temple, a synagogue and a holy place (Helland 2000).

Thus, it can be argued that technology has facilitated the communication between members of religious groups and the conveyance of information regarding community structures and beliefs (Dawson & Cowan 2004), amplifying the visibility and impact of religion in society (Karamouzis 2015a).

In Greek society, despite its significant secularization (Fokas 2012), religion, in the form of the Greek Orthodox Church, still has a strong presence and influence (Kokkosalakis 2002). The family also plays an important role in shaping Greek religious beliefs, for example through common prayer and the participation of all family members in religious celebrations (Karamouzis & Athanasiades 2011a), although the younger generations have distanced themselves from the traditional ideals (Karamouzis & Athanasiades 2011b). Research indicates that young Greeks belong to the category of "believing but not belonging" (Karamouzis & Athanasiades 2011a). However, religion influences their viewpoints, mainly as part of an identity that provides a context of social orientation. In a survey that focused on the religious beliefs of young adult Greeks, it was found that while they identify themselves as Orthodox believers (approximately 60%), fewer claim that they know what they believe in

(approximately 45%), while even fewer participate in religious groups (approximately 15%) (Karamouzis & Athanasiades 2011b).

Despite the fact that Greeks use the Internet quite extensively, recent statistical studies indicated that this use is not for religious purposes (ELSTAT 2016). This also holds true for young people, who mainly use the Internet for communicating with their peers or for entertainment (ELSTAT 2016). The use of the Internet for religious purposes does not seem to be a priority to them. The Orthodox Church has a presence on the Internet, but mainly for communicating information and less for providing online religious services. Also, religious e-journals (e.g., www.amen.gr, www.romfaia.gr, and www.orthodoxia.gr) and groups (e.g., www.orthmad.gr and www.enromiosini.gr) provide religious news and inform their viewers on religious matters. Still, the impact of the above electronic media to society is rather small, since they have a limited number of followers (e.g., www.amen.gr: 2.456, www.romfaia.gr: 3.755, www.enromiosini.gr: 930; see Karamouzis 2015b).

After the Orthodox Church and the family, the third factor that influences religious beliefs in Greece is school. As already mentioned, in the curriculum of the Greek primary and secondary education there is a course related to religion. In recent years, the content of this course has undergone various changes and its teaching was downgraded from two to one teaching hours per week (Hellenic Ministry of Education 2011). The purpose of this course is to provide knowledge and understanding of religious beliefs and religious experiences, to orient students to the variety of religious and moral concepts found in religious experiences, and to raise their awareness regarding religion and the religious dimensions of life (Hellenic Ministry of Education 2011). In general, the impact of technology in Greek schools is rather small; computers are rarely used during teaching (OECD 2015). This also applies to the teaching of the course related to religion: its teaching is mostly conducted using just the textbooks (Karamouzis, 2012b).

From the above, it becomes evident that, in Greece, religious beliefs continue to be formed conventionally, without utilizing the means offered by information technology. A plausible explanation is that the issues of religion are still being perceived as part of the nation's tradition and, thus, changes are not required or even allowed (Georgiadou & Nikolakopoulos 2002).

3. Method

As presented in the preceding section, education is one of the three factors that influence one's religious beliefs. Given that: (a) pre-service primary school teachers and trainee secondary school theology students are the ones who will be teaching the course of "Religion" when they become practitioners, (b) technology dominates individuals' everyday lives and offers means for the dissemination of religious views, and (c) the educators' views regarding technology and religion may have an impact on how they conduct their lessons (by using or not using technology), it was considered important to examine the attitudes and views of these individuals with regard to their relationship with religion and technology. The selection of both participant groups was purposeful, as the first group (students at the Departments of Primary

School Education, referred to here as the DoPSE group) will not teach only the course of "Religion" in primary schools but must teach nearly all topics on the curriculum, while the second (students studying at the Departments of Theology, referred to here as the DoTh group) will only teach this subject. The DoPSE group studies courses related to education and pedagogy, while the DoTh group studies courses related to theology.

Two sets of data analyses were conducted following data collection. The first was cluster analysis, which is used for identifying groups (clusters) of individuals sharing the same characteristics or views. This was selected to make it possible to determine the profile of the participants in terms of how they view religion and how they view technology. The second set of data analyses utilized one-way ANOVA. This would help to identify the statistically significant differences (if any) between the two major groups of participants (DoPSE and DoTh), between age groups, as well as between genders.

Research questions

On the basis of the above, the following research questions were set:
- How religious are pre-service primary school teachers and trainee secondary school theology students?
- How extensively do they use technology in their personal lives?
- Do they believe that technology can be used for the dissemination of religious beliefs or do they believe that technology and religion contradict each other?
- Does gender and age play a role to the above?

Procedure and instrument

An email invitation to participate in the study was issued, addressed to senior students studying at all the Departments of Theology (four in total) and Primary School Education in Greece (eleven in total). For data collection purposes, an online questionnaire was used that had been tested and validated in previous studies (Karamouzis & Athanasiades 2011b). It consisted of five groups of questions: (a) demographic data (four questions), (b) religious views, which were examined using six questions, (c) use of technology, which was examined using two questions, (d) attitude towards technology, which was examined using six questions, and (e) seven questions that explored the participants' perceptions and views on technology and its potential relationship with religion. The questionnaire is presented in Appendix I and a summary of the data is presented in Appendix II. All questions were compulsory. The questionnaire could only be completed once by each participant, and once it was submitted no changes could be made. The questionnaire was available for two academic semesters (Winter and Spring 2016) and, in total, answers were submitted by 570 students (out of an estimated total of 2500 senior students).

4. Results

As already mentioned in the previous section, a total of 570 students, coming from Departments of Theology (DoTh) ($N = 332$) and from Departments of Primary School Education (DoPSE)

($N = 238$), participated in the study. General descriptive statistics are presented in Table 1. For the analysis of the results, a total score was computed for each group of questions. Mean scores per group of participants and per group of questions are presented in Table 2.

		DoTh ($N = 332$)	DoPSE ($N = 238$)
Gender	Male	123	35
	Female	209	203
Age range	18-22	182	156
	23-26	53	38
	27-30	26	15
	31-40	40	19
	41+	31	10
Education level	Undergraduate	230	172
	graduate	55	39
	post-graduate	39	23
	PhD	8	4
Place of origin	Village	41	46
	small city	25	31
	medium sized city	56	52
	large city	210	109

Notes. DoTh = Department of Theology, DoPSE = Department of Primary School Education

Table 1. General descriptive statistics

	DoTh			DoPSE		
	M	SD	Md	M	SD	Md
SUM Religious (max = 30)	16.74	4.15	17.00	14.14	4.53	15.00
SUM Technology Usage (max = 10)	5.63	1.28	6.00	5.77	1.19	6.00
SUM Technology Attitude (max = 30)	21.01	3.05	22.00	20.54	3.16	21.00
SUM Technology & Religion (max = 35)	18.44	2.83	19.00	18.03	2.50	18.00

Note. The maximum score for each group of questions is reported in parenthesis

Table 2. Means, Standard Deviations, and Medians per group of questions

Two-step cluster analysis

In order to reveal natural groupings (or clusters) within the data set, the two-step cluster analysis (TSCA) procedure was utilized. TSCA is preferable compared to other clustering procedures (e.g., Hierarchical or K-means), because: (a) it can analyze large data files

efficiently, (b) it can create clusters based on both categorical and continuous variables, and (c) the number of clusters can be determined automatically (Norušis 2008). The groups' analysis contains only descriptive information; it does not include statistical hypothesis testing and calculation of the level of significance of the findings. Therefore, it is acceptable to create clusters of data that may not satisfy the assumptions for better performance. It is at the researcher's discretion to determine if the solution satisfies his/her needs (Bacher, Wenzig, & Vogler 2004).

Since question groups had a different number of items, the sums were standardized and saved as new variables. The data were then split into two so that we could separately analyze participants from DoTh and DoPSE. For the TSCA, three essential variables were included: how religious a participant was, his/her attitude toward technology, and if he/she considers that technology and religion are compatible with each other.

For DoTh participants, the auto-clustering algorithm indicated that a 3-cluster solution was the best model. That is because a good solution has a reasonably small BIC and a large Ratio of Distance Measures (Mooi & Sarstedt 2010). In our case, although the smallest BIC value was for 5 clusters, the largest Ratio of Distance Measures was for 3 (Table 3). The resulting clusters 1, 2, and 3 contained 104, 102, and 116 cases, which corresponded to 34.3, 30.7, and 34.9%, respectively.

Number of Clusters	Schwarz's Bayesian Criterion (BIC)	BIC Change	Ratio of BIC Changes	Ratio of Distance Measures
1	691.21			
2	543.54	-147.68	1.00	1.62
3	484.77	-58.77	.40	1.95
4	461.63	-23.14	.16	1.44
5	456.16	-5.47	.04	1.39
6	462.04	5.88	-.04	1.31
7	474.70	12.66	-.09	1.04

Table 3. Auto-Clustering for DoTh participants

A brief profile of each of the clusters with the characteristics differentiating each segment from the other groups is outlined below.

- Cluster 3 (34.9%). Participants in this group were on the average regarding how religious they are and their attitude toward technology was strongly negative. Also, they believed that technology and religion do not coincide.
- Cluster 1 (34.3%). This group included religious participants with a positive attitude toward technology. They also believed that technology and religion are compatible with each other.

- Cluster 2 (30.7%). Not religious participants. They had a positive attitude toward technology and toward the view that technology and religion can coincide.

For DoPSE participants, the auto-clustering algorithm, once again, indicated that a 3-cluster solution was the best model. Once more, although the smallest BIC value was for 5 clusters, the largest Ratio of Distance Measures was for 3 (Table 4). The resulting clusters 1, 2, and 3 contained 90, 57, and 91 cases, which corresponded to 37.8, 23.9, and 38.2%, respectively.

Number of Clusters	Schwarz's Bayesian Criterion (BIC)	BIC Change	Ratio of BIC Changes	Ratio of Distance Measures
1	500.22			
2	423.35	-76.87	1.00	1.47
3	381.45	-41.91	.55	1.83
4	373.35	-8.10	.11	1.09
5	368.56	-4.79	.06	1.24
6	370.96	2.40	-.03	1.96
7	388.29	17.33	-.23	1.05

Table 4. Auto-Clustering for DoPSE participants

The participants' profiles in each cluster were as follows:

- Cluster 3 (38.2%). Religious participants and above the average regarding their attitudes toward technology. As for the compatibility between technology and religion they were neither negative nor positive.
- Cluster 1 (37.8%). Strongly not religious participants. Their attitude toward technology was above the average. They were also positive toward the view that technology and religion can coincide.
- Cluster 2 (23.9%). These participants were above the average regarding how religious they were but had a strongly negative attitude toward technology. Also, they believed that technology and religion cannot coincide.

Comparing DoTh's and DoPSE's clusters, we determined that, at least in two cases, they shared common features (Figure 1):

- DoTh'S cluster 2 and DoPSE's cluster 1. Participants in both clusters were not religious, but positive toward technology and toward the view that technology and religion are compatible with each other.
- DoTh'S cluster 3 and DoPSE's cluster 2. On the average regarding how religious they were, but negative toward technology. Participants in these clusters believed that technology and religion cannot coincide.

- DoTh'S cluster 1 and DoPSE's cluster 3. Participants in these clusters were religious and had positive toward technology. On the other hand, DoTh's participants believed that technology and religion are compatible with each other, while DoPSE's participants were neither negative nor positive.
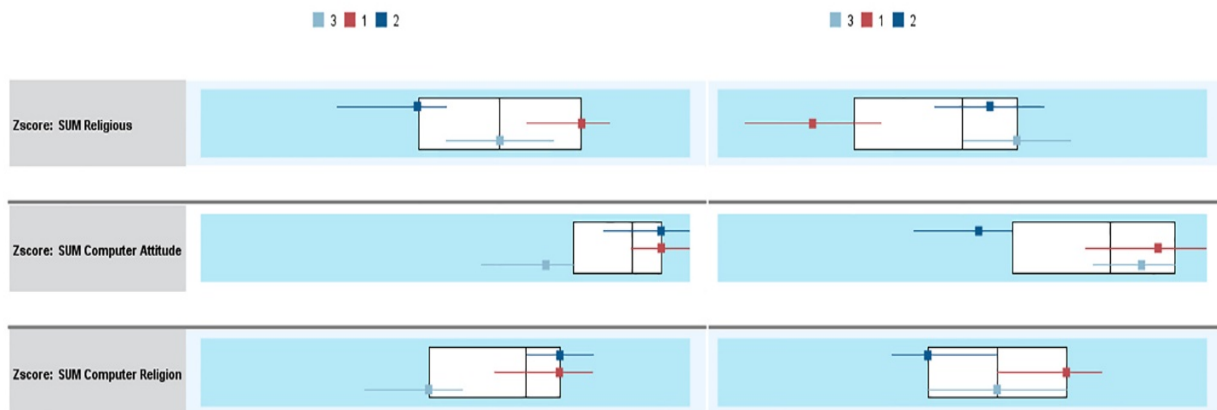
Figure 1. Clusters' comparison

Differences between groups

Prior to comparing the differences between groups DoTh and DoPSE, it was checked whether the data met the assumptions for performing *t*-tests. While there were no outliers, the groups had an uneven number of participants. Also, the normality of the data was violated in all groups of questions, as assessed by Q-Q plots and the Shapiro-Wilk test ($p > .05$). As the data was not normally distributed, the most appropriate statistical test was Mann-Whitney U test, which is a non-parametric one (Mann & Whitney, 1947).

The tests showed that:

- The participants from DoTh (*Md* = 17.00, *mean rank* = 324.74) were more religious than the participants from DoPSE (*Md* = 15.00, *mean rank* = 230.76). Mann-Whitney U value was found to be statistically significant ($U = 26481.00$, $Z = -6.74$, $p < .001$). The difference between groups DoTh and DoPSE was medium ($r = -.28$) (Cohen, 1992, 1988).
- The participants from DoTh (*Md* = 6.00, *mean rank* = 278.13) were not statistically different regarding their technology usage compared to the participants from DoPSE (*Md* = 6.00, *mean rank* = 295.78). Mann-Whitney U value was not found to be statistically significant ($U = 37062.50$, $Z = -1.30$, $p = .195$).
- The participants from DoTh (*Md* = 22.00, *mean rank* = 296.18) were not statistically different regarding their attitudes toward technology compared to the participants from DoPSE (*Md* = 21.00, *mean rank* = 270.60). Mann-Whitney U value was not found to be statistically significant ($U = 35962.50$, $Z = -1.85$, $p = .065$).
- The participants from DoTh (*Md* = 19.00, *mean rank* = 298.04) were more positive regarding the view that technology and religion do not oppose each other than the participants from DoPSE (*Md* = 18.00, *mean rank* = 268.01). Mann-Whitney U value was

found to be statistically significant (U = 35346.00, Z = -2.16, p = .031). The difference between groups DoTh and DoPSE was small (r = -.09).

The above results indicated that the participants from DoTh, compared to the participants from DoPSE, were: (a) more religious, having a medium sized difference, (b) not different in the extent to which they use technology or in their attitudes towards it, and (c) more positive regarding the view that using technology and being religious is not a contradiction. However, the difference between the two groups was small.

Gender differences in groups DoTh and DoPSE

Prior to examining the differences between genders in groups DoTh and DoPSE, it was checked whether the data met the assumptions for performing t-tests. Once again, the normality of the data was violated in all groups of questions, as assessed by Q-Q plots and the Shapiro-Wilk test. Therefore, Mann-Whitney U tests were conducted.

The tests showed that:

- In group DoTh, males (Md = 18.00, *mean rank* = 191.91) were more religious than females (Md = 16.00, *mean rank* = 151.54). The Mann-Whitney U value was found to be statistically significant (U = 9727.50, Z = -3.71, p < .001). The difference between males and females was small to medium (r = -.20). In group DoPSE males (Md = 15.00, *mean rank* = 123.14) and females (Md = 15.00, *mean rank* = 118.87) were not different regarding how religious they were. The Mann-Whitney U value was not found to be statistically significant (U = 3425.00, Z = -.44, p = .734).

- In group DoTh, males (Md = 6.00, *mean rank* = 181.20) used technology more than females (Md = 6.00, *mean rank* = 157.85). The Mann-Whitney U value was found to be statistically significant (U = 11046.00, Z = -2.20, p = .028). The difference between males and females was small (r = -.12). In group DoPSE males (Md = 6.00, *mean rank* = 157.97) also used technology more than females (Md = 6.00, *mean rank* = 112.87). The Mann-Whitney U value was found to be statistically significant (U = 2206.00, Z = -3.70, p < .001). The difference between males and females was medium (r = -.24).

- In group DoTh, males (Md = 22.00, *mean rank* = 175.89) and females (Md = 22.00, *mean rank* = 160.97) were not different regarding their attitudes toward technology. The Mann-Whitney U value was not found to be statistically significant (U = 11698.50, Z = -1.39, p = .166). In group DoPSE, males (Md = 23.00, *mean rank* = 151.93) were more positive in their attitudes toward technology than females (Md = 21.00, *mean rank* = 113.91). The Mann-Whitney U value was found to be statistically significant (U = 2417.50, Z = -3.04, p = .002). The difference between males and females was small to medium (r = -.20).

- In group DoTh, males (Md = 19.00, *mean rank* = 170.32) and females (Md = 19.00, *mean rank* = 164.25) were not different regarding the view that technology and religion do not oppose each other. The Mann-Whitney U value was not found to be statistically significant (U = 12384.00, Z = -.56, p = .576). In group DoPSE males (Md = 20.00, *mean rank* = 154.87) were more positive regarding the view that technology and religion do not oppose

each other than females (*Md* = 18.00, *mean rank* = 113.40). The Mann-Whitney U value was found to be statistically significant (*U* = 2314.50, *Z* = -3.32, *p* = .001). The difference between males and females was small to medium (*r* = -.22).

The above results revealed differences but also similarities between genders in groups DoTh and DoPSE:

- Males were more religious than females in group DoTh, while there were no gender differences in group DoPSE.
- Males used technology more in both groups.
- Males and females were not different regarding their attitude toward technology in group DoTh, while in group DoPSE, males were more positive.
- Males and females were not different regarding the view that technology and religion do not oppose each other in group DoTh, while in group DoPSE, males were more positive.

Differences in groups DoTh and DoPSE related to age

Since data were not normally distributed and there were five age groups (1 = 18-22, 2 = 23-26, 3 = 27-30, 4 = 31-40, and 5 = 41+), we decided to proceed using the Kruskal-Wallis H test, which is also a non-parametric test. Even though this test does not assume that the data fit the normal distribution, it assumes that the data in different groups have similarly shaped distributions (Corder & Foreman 2009; Siegel & Castellan 1988), as in our case.

A total of 10 Kruskal-Wallis H tests were conducted in group DoTh for determining if there were differences across age groups in relation to:

- How religious they were. The test showed that there was a statistically significant difference [*H*(4) = 43.35, *p* < .001]. The mean rank scores of the age groups 1, 2, 3, 4, and 5 were 150.43, 143.42, 147.46, 222.41, 244.16 respectively.
- How much they use technology. The test showed that there was no statistically significant difference [*H*(4) = 9.26, *p* = .055].
- Their attitudes toward technology. The test showed that there was no statistically significant difference [*H*(4) = 8.08, *p* = .089].
- The view that technology and religion do not oppose each other. The test showed that there was a statistically significant difference [*H*(4) = 12.19, *p* = .016]. The mean rank scores of the age groups 1, 2, 3, 4, and 5 were 152.26, 176.72, 212.50, 172.79, 185.95 respectively.

Follow-up tests were conducted to evaluate pairwise differences among the five age groups, by using the Dunn-Bonferroni approach for the pairwise comparisons (Dunn, 1964). The results of these tests indicated that:

- With regard to how religious they were, all age groups were statistically significantly different with each other, except the pairs 1-2, 1-3, 2-3, and 4-5.

- With regard to how they view the relationship between technology and religion, all age groups were not statistically significantly different with each other, except the pair 1-3.
    The above results indicated that:
- Ages 18-30 were less religious than the age groups 31-41-.
- There were no age differences in how much they use technology.
- There were no age differences in their attitudes towards technology.
- Ages 18-21 believed that technology and religion do not oppose each other less than ages 27-30.

Another set of 10 Kruskal-Wallis H tests were conducted in group DoPSE for determining if there were differences across age groups in relation to:

- How religious they were. The test showed that there was no statistically significant difference [$H(4) = 3.97$, $p = .410$].
- How much they use technology. The test showed that there was a statistically significant difference [$H(4) = 12.14$, $p = .016$]. The mean rank scores of the age groups 1, 2, 3, 4, and 5 were 109.84, 130.22, 142.73, 157.05, 123.20 respectively.
- Their attitudes toward technology. The test showed that there was a statistically significant difference [$H(4) = 13.21$, $p = .010$]. The mean rank scores of the age groups 1, 2, 3, 4, and 5 were 108.01, 139.79, 143.37, 137.13, 152.40 respectively.
- The view that technology and religion do not oppose each other. The test showed that there was a statistically significant difference [$H(4) = 12.34$, $p = .015$]. The mean rank scores of the age groups 1, 2, 3, 4, and 5 were 109.65, 140.36, 112.23, 150.24, 146.40 respectively.

Follow-up tests were conducted to evaluate pairwise differences among the five age groups, by using the Dunn-Bonferroni approach for the pairwise comparisons. The results of these tests indicated that:

- With regard to how much they use technology, all age groups were not statistically significantly different with each other, except the pair 1-4.
- With regard to their attitude toward technology, all age groups were not statistically significantly different with each other, except the pair 1-5.
- With regard to how they view the relationship between technology and religion, all age groups were not statistically significantly different with each other, except the pair 1-4. The above results indicated that:
- There were no age differences on how religious they were.
- Ages 18-21 used technology less than ages 31-40.
- Ages 18-21 had less positive attitudes towards technology than ages 41+.
- Ages 18-21 believed that technology and religion do not oppose each other less than ages 37-40.

As with the analysis regarding the gender, the above results revealed differences but also similarities between age groups in DoTh and DoPSE:

▪ Younger ages tend to be less religious in DoTh, while this does not hold true in DoPSE.
▪ While there were no age differences in DoTh regarding technology's usage and the attitude towards it, younger ages in DoPSE tend to use technology less and also have a less positive attitude towards it.
▪ In both groups (DoTh and DoPSE), younger ages believed that technology and religion oppose each other more than other age groups.

5. Discussion

This study examined how religious are young pre-service primary school teachers and young trainee Secondary Education Theologists. It also examined how they view technology and how they view the relationship between technology and religion. The data analysis revealed a number of interesting findings. However, the interpretation of the results is highly speculative, given the lack of studies relevant to the study at hand.

With regard to the three clusters that were discovered, it must be noted that, despite some minor differences, the characteristics of each cluster are nearly identical to both groups of participants. There is a cluster of individuals who are fairly religious (near the average), who have a negative attitude towards technology and do not believe that technology can be used for the dissemination of religious beliefs. This cluster included 34.9% of the DoTh participants and 23.9% of the DoPSE participants. A second cluster included individuals who are not religious, have a positive attitude towards technology and believe that technology and religion do not contradict each other. This cluster included 30.7% of the DoTh participants and 37.8% of DoPSE participants. Finally, the third cluster included individuals who are religious and have a positive attitude towards technology and a neutral view on whether technology and religion contradict each other. This cluster included 34.3% of the DoTh participants and 38.2% of the DoPSE participants.

These findings suggest that the above-average religiosity individuals have developed a certain form of reasoning that allows them to view technology as something essential to the young religious person, with no contradiction between technology and religion. This is in contrast with a study which found that technology, and more specifically the Internet, is responsible for the distancing of several Americans from religion (Downey 2014). In the present study, the average-religiosity individuals seem unable to understand the relationship between religion and technology. Previous research among DoPSE students found the presence of a group with the same characteristics: individuals who react against changes enforced by the needs of the modern society which are associated with the use of technology (Karamouzis & Athanasiades 2011). This group also expressed a need for stability, adopting a form of conservatism which provides safety against the new.

DoTh participants are more religious than DoPSE participants. They are positive towards technology and use it quite extensively. This suggests that DoTh students do not approach modernity negatively, especially technology (Paraskeva, Bouta, & Papagianni 2008).

Another interesting finding is that a third of DoTh participants are not that religious. This could be an indication that these individuals chose to study Theology for reasons not related to their religious views, for example, for becoming high school professors. Also, about two-thirds of the participants (in both groups) have a positive attitude towards technology and use it quite a lot. This finding is in line with previous research that examined pre-service educators' views regarding technology (e.g., Fokides 2017).

In relation to gender, it was found that, in the DoTh group, males use technology more than females, but both genders have an equally strong positive attitude towards technology and equally believe that technology can be associated with religion. Also, males are more religious than females. In the DoPSE group, the results were different. Both genders are equally religious, although males still use technology more than females. Also, males have a strong positive attitude towards technology and believe that religion and technology can be associated. In contrast, females have a far less positive attitude towards technology, and they believe that technology can be associated with religion far less than males.

In relation to age, it was found that the differences between age groups are not as strong as those between genders. However, there is an exception: 18-22-year-old participants (in both DoTh and DoPSE). The individuals in this group are less religious and believe that technology and religion are not that compatible, in comparison to the other age groups. This finding is quite interesting and requires further investigation. Further research is needed to investigate whether the results were circumstantial or indicate an emerging trend among younger generations of educators: less religious, more inclined towards technology, and with the view that religion and technology are two different domains that cannot be related.

Based on these findings, it can be argued that in the Greek society an idiosyncratic secularization has been developed, in which the religious views are adapted to the needs of people, such as the use of technology, and not the other way around (Karamouzis & Athanasiades, 2011b).

6. Conclusion

There are limitations to this study that must be taken into consideration. Despite being meticulous in methodology, one can never be certain about the accuracy or honesty of the participants' responses. Secondly, as the data were collected from Theology students and pre-service primary school teachers in Greece, the study's results cannot be generalized to other samples. Finally, while the sample size was more than adequate for the statistical analysis conducted, the inclusion of more participants would have allowed a more comprehensive description of their profiles.

Further studies are needed with larger sample sizes and in the context of different educational systems, in order to identify differences or similarities with the findings of the present study and to obtain more reliable results. Additional data collection tools can also be

used, for example interviews with the participants, so as to formulate a more comprehensive understanding regarding the impact of technology on students' religious beliefs. It would also be interesting to conduct research with university students coming from departments where theology courses are not taught. By doing so, we will obtain greater insight into the development of religious beliefs in young educators. Nevertheless, despite the above-mentioned limitations, the study's findings provide valuable insights, adding to the growing body of research that examines the interaction between technology and religion.

References

Bacher, J., Wenzig, K. and Vogler, M. 2004. *SPSS twostep cluster-a first evaluation*. Nürnberg, Germany: Lehrstuhl für Soziologie.

Baesler, E. J. & Chen, Y. 2013. Mapping the landscape of digital petitionary prayer as spiritual/social support in mobile, Facebook, and e-mail. *Journal of Media and Religion* 12 (1), pp. 1-15.

Berger, P. 1990. *The sacred canopy: Elements of a sociological theory of religion*. Garden City, NY: Doubleday.

Bittarello, M.B. 2006. Neopagan pilgrimages in the age of the Internet: A life changing religious experience or an example of commodification? *Journal of Tourism and Cultural Change* 4(2), pp. 116-135.

Campbell., R. 2004. Searching for the apocalypse in cyberspace. In: Dawson, L. and Cowan , D.E. (eds.), *Religion online: Finding faith on the Internet*. New York: Routledge.

Campbell, H. 2007. Who's got the power? Religious Authority and the Internet. *Journal of Computer-Mediated Communication* 12(3), pp. 1043-1062.

Campbell, H. 2013. Introduction: The rise of the study of digital religion. In Campbell, H. (ed.), *Digital religion: Understanding religious practice in new media worlds*. Abingdon: Routledge.

Clivaz, C. 2014. New Testament in a digital culture: A biblaridion (little book) lost in the web? *Journal of Religion, Media and Digital Culture* 3(3), pp. 20-38.

Cohen, J. 1992. A power primer. *Psychological Bulletin, 112(*1), p. 155.

Cohen, J. 1988. *Statistical power analysis for the behavioral sciences* (*2nd ed.)*. Lawrence Erlbaum Associates.

Corder, G. W. and Foreman, D. I. 2009. *Nonparametric statistics for non-statisticians: A step-by-step approach*. John Wiley & Sons.

Dawson, L. and Cowan, D. E. 2004. Introduction. In: Dawson, L. and Cowan, D.E. (eds.), *Religion online: Finding faith on the Internet*. New York and London: Routledge.

Downey, A. B. 2014. *Religious affiliation, education and Internet use*. arXiv preprint arXiv:1403.5534.

Dunn, O. J. 1964. Multiple comparisons using rank sums. *Technometrics* 6(3), pp. 241-252.

Enevoldsen, K. 2008. Virtual reality: Viewership and ethnographic film. *Visual Anthropology*, 21(5), pp. 410-428.

Fokas, E. 2012. Eastern orthodoxy and western secularisation in contemporary Europe (with special reference to the case of Greece). *Religion, State and Society*, 40(3-4), pp. 395-414.

Fokides, E. 2017. Examining Greek pre-service teachers' intentions to use computers as in-service teachers. *Contemporary Educational Technology* 8(1), pp. 56-75.

Gerogriadou, V. and Nikolakopoulos, H. 2002. Τύποι θρησκευτικής δέσμευσης, εκκλησιαστική πρακτική και πολιτικές προτιμήσεις. Μια εμπειρική ανάλυση [Religious commitment types. Church practice political preferences. An empirical analysis]. In: T. Lipovats, N. Demertzis, and V. Georgiadou, eds., *Θρησκείες και Πολιτική στη Νεωτερικότητα* [Religious and politics in modernity]. Athens: Kritiki.

Heidbrink, S. 2007. Exploring the religious frameworks of the digital realm: offline-online-offline transfers of ritual performance. *Masaryk UJL & Tech*. 1(2), pp. 175-184.

Helland, C. 2000. Online religion/religion online and virtual communitas. In: Hadden, J.K. and Cowan, D.E. (eds.), *Religion on the Internet: Research prospects and promises*. London: JAI Press/Elsevier.

Hellenic Ministry of Education, 2011. *Unified curricular framework*. Available at: <http://www.pi-schools.gr/programs/depps/> [Accessed 19 October 2017].

Karamouzis, P. and Athanasiades, E. 2011a. *Θρησκεία, Εκπαίδευση, Μετανεωτερικότητα* [Religious, education, postmodernity]. Athens: Kritiki.

Karamouzis, P. and Athanasiades, E. 2011b. Religiosity and education: The views of Greek student teachers on the religious education course. *Religious Education* 106(3), pp. 312-331.

Karamouzis, P. 2012a. Ο ρόλος της θρησκευτικότητας στην κατανόηση και αξιολόγηση των κοινωνικών αντιλήψεων που αφορούν τη θρησκεία. Μια περιπτωσιολογική μελέτη [The role of religion in understanding and evaluating social attitudes relating religion. A case study]. *Επιστημονική Επιθεώρηση του Μεταπτυχιακού Προγράμματος Σπουδές στην Ορθόδοξη Θεολογία* [Scientific review of the postgraduate program Studies in orthodox theology], pp.148-180.

Karamouzis, P. 2012b. *Πολιτισμός και διαθρησκειακή αγωγή. Η συγκριτική διδακτική των θρησκειών και της θρησκευτικότητας στο σύγχρονο σχολείο* [Culture and interreligious education. Comparative teaching of religions and religiosity in modern school]. Επίκεντρο.

Karamouzis, P. 2015a. Η αναπαραγωγή των θρησκευτικών δομών εξουσίας στο διαδίκτυο. [Reproduction of religious power structures on the Internet]. *Παιδαγωγικά Ρεύματα στο Αιγαίο, 8*, pp. 1-8.

Karamouzis, P. 2015b. Religious capital in relation to teacher's views on RE. A comparative study in the Greek educational context. *British Journal of Religious Education,* 37(2), pp. 170-181.

Kokkosalakis, N. 2002. Παραδοσιακή θρησκεία και κοινωνία στην ύστερη νεωτερικότητα [Traditional religion and society in the late modernity]. In: *Θρησκείες και Πολιτική στη Νεωτερικότητα* [Religions and policy in modernity]. Athens: Kritiki.

Kinney, J. 1995. Net worth? Religion, cyberspace, and the future. *Futures* 27(7), pp. 763-776.

Mann, H. B. and Whitney, D. R. 1947. On a test of whether one of two random variables is stochastically larger than the other. *The Annals of Mathematical Statistics* 18(1), pp. 50-60.

Mavrogordatos, G. 2003. Orthodoxy and nationalism in the Greek case. *West European Politics*, 26(1), pp.117-136.

Mooi, E. and Sarstedt, M., 2010. *Cluster analysis*. Berlin: Springer.

Norušis, M., 2008. *SPSS 16.0 statistical procedures companion*. Upper Saddle River, NJ: Prentice Hall Press.

Organisation for Economic Co-operation and Development-OECD, 2015. *Students, computers and learning: Making the connection*. Paris: PISA, OECD Publishing.

Paparizos, A., 2001. Θεός, εξουσία και θρησκευτική συνείδηση [God, authority and religious consciousness]. Athens: Ellinika Grammata.

Paraskeva, F., Bouta, H. and Papagianni, A., 2008. Individual characteristics and computer self-efficacy in secondary education teachers to integrate technology in educational practice. *Computers & Education* 50(3), pp.1084-1091.

Siegel, S. and Castellan, N.J., 1981. *Nonparametric statistics for the behavioral sciences*. New York: McGraw-HiU Book Company.

Tomaselli, K.G., 2015. Virtual religion, the fantastic, and electronic ontology. *Visual Anthropology* 28(2), pp.109-126.

Appendix I

Items in the questionnaire:

Demographic data
1. Gender
2. Age range
3. Education level
4. Place of origin

Religious views
1. Do you believe in the existence of God?
2. Is religion important in your life?
3. Do you see yourself as religious?
4. Do you practice what is defined by your religion?
5. Do you participate in the holy rituals of your religion?
6. Do you pray?

Use of technology
1. How much do you use technology?
2. Do you believe you are informed about technology?

Attitude towards technology

1. Are you afraid that if you use technology you may cause damage?*
2. Do you hesitate to use technology or software and are not aware of basic elements of their use?*
3. Would you say you are confident and feel sure about how to use technology?
4. Does technology make you feel nervous?*
5. Would you say that you hesitate to use technology due to being afraid that you may make a mistake that is irreversible?*
6. Does technology make you feel uncomfortable?*

Beliefs and opinions regarding technology and their potential relationship to religious beliefs

1. Would you use technology (e.g., computers and the Internet) to disseminate your religious beliefs?
2. Do you believe that your engagement with technology has a positive impact on your religious beliefs?
3. Do you believe that technology is not an appropriate medium for religious bodies to communicate and inform believers?*
4. Do you believe that technology is a tool for control and to enforce the will of "dark" powers?*
5. Do you believe that the content of many web pages insults your religious beliefs and is that why you avoid using the Internet?*
6. Do you believe that your regular engagement with technology does not agree with the life of a devout and righteous person?*
7. Would you use technology (e.g., computers) to teach the course of Religion?

Note. * indicates a question for which its scoring was reversed.

Appendix II

Summary of the data

Question	N 1	2	3	4	5
1. Gender	158	412			
2. Age range	338	91	41	59	41

3. Education level	402	94	62	12
4. Place of origin	87	56	108	319
5. Do you believe in the existence of God?	57	74	172	267
6. Is religion important in your life?	65	98	200	207
7. Do you see yourself as religious?	85	211	209	65
8. Do you practice what is defined by your religion?	74	286	179	31
9. Do you participate in the holy rituals of your religion?	52	309	148	61
10. Do you pray?	94	203	207	66
11. How much do you use technology?	2	159	278	131
12. Do you believe you are informed about technology?	23	200	245	102
13. Are you afraid that if you use technology you may cause damage?*	12	33	185	340
14. Do you hesitate to use technology or software and are not aware of basic elements of their use?*	6	41	164	359
15. Would you say you are confident and feel sure about how to use technology?	34	142	249	145
16. Does technology make you feel nervous?*	7	21	171	371
17. Would you say that you hesitate to use technology due to being afraid that you may make a mistake that is irreversible?*	9	38	156	367
18. Does technology make you feel uncomfortable?*	3	19	91	457
19. Would you use technology (e.g., computers and the Internet) to disseminate your religious beliefs?	278	135	103	54
20. Do you believe that your engagement with technology has a positive impact on your religious beliefs?	223	209	96	42
21. Do you believe that technology is not an appropriate medium for religious bodies to communicate and inform believers?*	47	92	208	223
22. Do you believe that technology is a tool for control and to enforce the will of "dark" powers?*	40	119	175	236
23. Do you believe that the content of many web pages insults your religious beliefs and is that why you avoid using the Internet?*	36	73	161	300
24. Do you believe that your regular engagement with technology does not agree with the life of a devout and righteous person?*	7	20	92	451
25. Would you use technology (e.g., computers) to teach the course of Religion?	20	87	214	249

Notes.

* indicates a question for which its scoring was reversed

Question 1, 1 = male, 2 = female

Question 2, 1 = 18-22, 2 = 23-26, 3 = 27-30, 4 = 31-40, 5 = 41+

Question 3, 1 = undergraduate, 2 = graduate, 3 = post-graduate, 4 = Ph.D.

Question 4, 1 = village, 2 = small city, 3 = medium sized city, 4 = large city

Question 5 – Question 25, 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree