Research Paper

An ordinal logistic regression model on civic education usefulness in Greece: empirical research in a sample of university students

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ABSTRACT : *This paper presents a research that was conducted in the department of Political Sciences of Aristotle University of Thessaloniki, Greece. Its main aim is to determine the factors that influence students' point of view regarding civic education usefulness. Its main finding is the negative impact that extracurricular activities, such as the use of personal computers for socializing or the encounters with friends, have on civic education importance. This finding can be the result of structural problems of either the subject itself or public education in general.*
KEYWORDS: *civic education, secondary education, Greek educational system.*

I. INTRODUCTION

Controversy and exchange of views is an integrated feature of democracy, of participation theories, of institutions and, of course, of participation practices themselves. Despite the complexity of modern society and the conditions of political participation, there is a general consensus on what is or should be an active political behavior, at least in the democracies of the western world. This finding now seems to be taken for granted: at European level, political education and research are based on an expected common understanding of active political behavior, democracy and participation (Conover & Searing, 2000. Hoskins & Mascherini, 2009. Torney - Purta et al., 2001). Scholars now believe that policies of participation and active political behavior do not require further research and theoretical construction. Differences regarding cultural differences, gender or the dominant political and social narrative are considered unnecessary. Education policies at the international level are based on a single picture of political education, which now has a number of good and bad practices. The only difference is the obvious social and cultural differentiation between people, societies and states that must recognize them in order to live harmoniously. The human subject is essentially treated as a single being who is not influenced by his or her gender or culture in relation to issues of political activism (Hoskins & Mascherini, 2009). Good or bad practices in political education have the same impact depending on the background of the actor (Torney - Purta et al., 2001). It is possible that actors who are politically committed to establishing and implementing a common European model through education will inevitably have to ignore structural differences between countries in Europe. But despite the theoretical, political and educational differentiation and controversy, the unified construction of concepts such as democracy, active political behavior and participation as common models of European politics remains a challenge. This weakness is masked by the use of indirect and partly abstract concepts of active political behavior and participation, which often lack a unified interpretation. Critical analyzes of participation policies and practices show that these problems are significant and cannot be ignored (Damon, 2001. Held, 2006. Norris, 2011). That is why political education in schools, risks achieving the exact opposite result: that of depoliticization if it remains a simple pedagogical practice without the creation of conditions for political participation and intervention. In other words, political education may not yet be a part of the program schedule. It requires disconnection from the supply of knowledge only and the evaluation of students through the traditional ways of the past. It is necessary to connect the lesson directly with reality and to encourage active political participation in order to escape from the vicious circle of sterile reproduction of useless knowledge (Hoskins, 2006).

Despite all these, the question about usefulness of civic education in Greece remains unsolved. Even though, a lot of research has been conducted about the adaptation of political education to the new political

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circumstances, students' opinion has not been taken into consideration. The aim of this paper is to present a research conducted in Aristotle University of Thessaloniki in Greece and specifically in the department of Political Sciences. The particular sample was chosen due to their affiliation to the subject discussed. The effects of various variables on students' opinion about the importance of civic education will be explored. For this reason, a questionnaire was compiled, which was distributed to university students in order to capture their views on the subject.

II.   RESEARCH METHODOLOGY

A questionnaire was used as a means of data collection. Particular importance was given to maximizing the validity of the research tool. For the final configuration of the content of the questionnaire, the critical remarks of Greek and foreign experts in matters of political education were taken into account (Hoskins & Mascherini, 2009. Matsagouras, 2007). The test application of the questionnaire to a small sample of students (25 people) aimed to assess the time required to complete the process, to identify any difficulties of young people in understanding the questions and to identify any shortcomings of the questionnaire. After the adaptations, the final questionnaire was distributed to 400 students approximately. The final sample consisted of 324 responses.

Sample characteristics

The response rate was 87% per cent. The participants in the study were 324 students from the department of political sciences of Aristotle University of Thessaloniki in Greece. About 72,61 per cent were women and about 27,39 per cent were men

Graph 1. *The sex of the respondents*
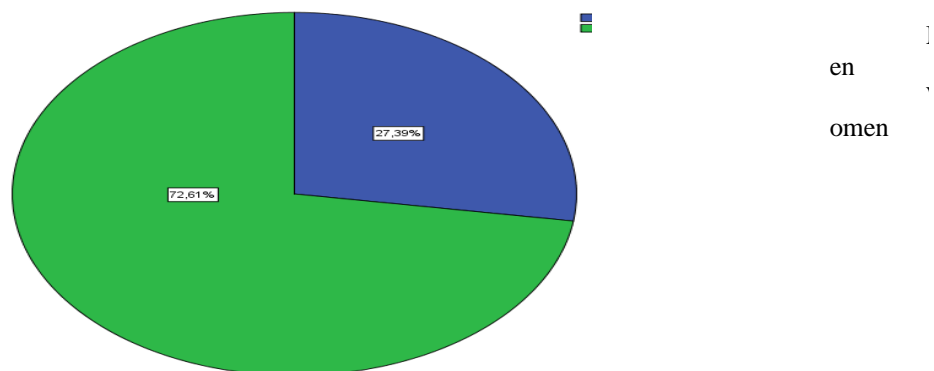
About 41,44 per cent aged 21 years, about 36.3 per cent aged 24 years old and about 22.25% per cent aged 23–25 years old.

Graph 2. *The birth year of the respondents*
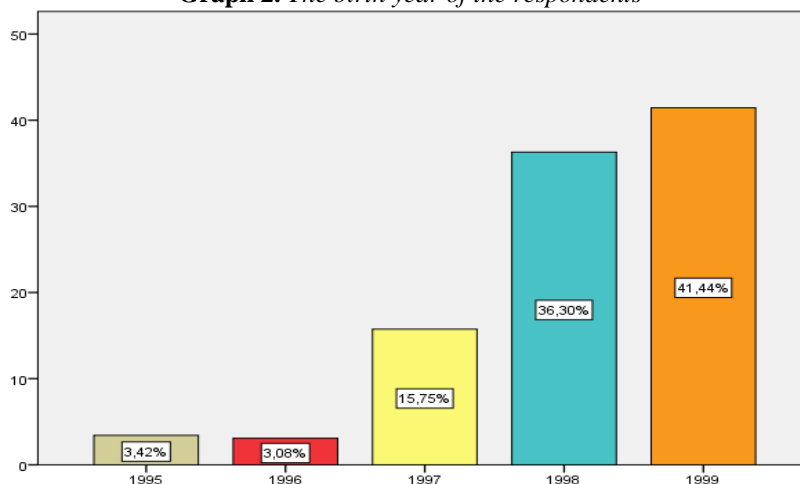
As far as the degree of graduation, we can observe that the majority of the students who participated in this research received excellent marks, a fact that shows their consistency and diligence. It has to be noted that the range of grades in Greek educational system is from 1 to 20.

Graph 3. *Degree of graduation*
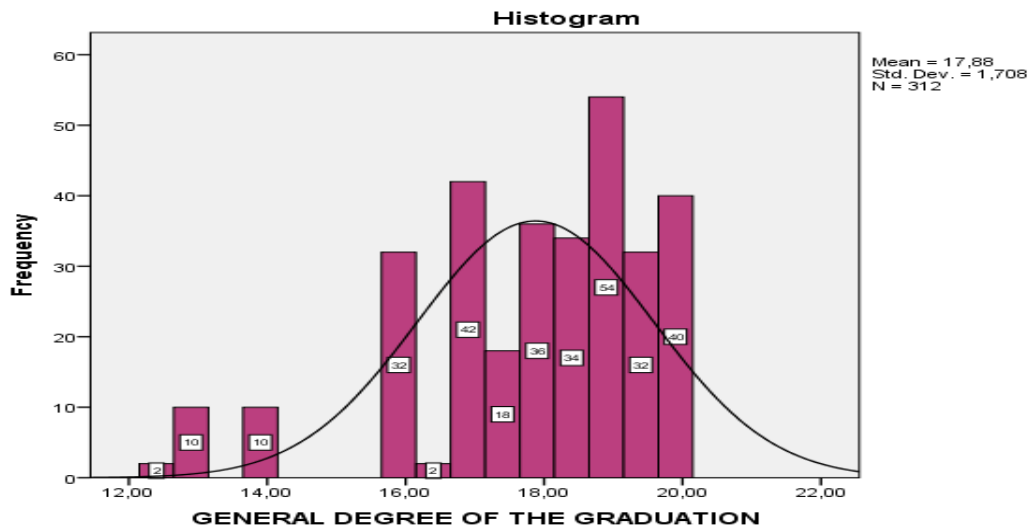
Ordinal logistic regression model

For the statistical analysis, ordinal regression model was used. Ordinal regression is a member of the family of regression analyses. As a predictive analysis, ordinal regression describes data and explains the relationship between one dependent variable and two or more independent variables. In ordinal regression analysis, the dependent variable is ordinal (statistically it is polytomous ordinal) and the independent variables are ordinal or continuous-level (ratio or interval).

There are three major uses for Ordinal Regression Analysis: 1) causal analysis, 2) forecasting an effect, and 3) trend forecasting. Other than correlation analysis for ordinal variables (e.g., Spearman), which focuses on the strength of the relationship between two or more variables, ordinal regression analysis assumes a dependence or causal relationship between one or more independent and one dependent variable. Moreover, the effect of one or more covariates can be accounted for.

Firstly, ordinal regression might be used to identify the strength of the effect that the independent variables have on a dependent variable. A typical question is, "What is the strength of relationship between dose (low, medium, high) and effect (mild, moderate, severe)?"

Secondly, ordinal regression can be used to forecast effects or impacts of changes. That is, ordinal regression analysis helps us to understand how much will the dependent variable change, when we change the independent variables. A typical question is, "When is the response most likely to jump into the next category?"

Finally, ordinal regression analysis predicts trends and future values. The ordinal regression analysis can be used to get point estimates. A typical question is, "If I invest a medium study effort what grade (A-F) can I expect?"

Regarding our research, civic education importance was the dependent variable. The main purpose was to determine the predictive factors. Sex, encounters with friends, the use of computers for socializing, newspapers reading, the degree of graduation and the year of birth were the independent variables.

III. RESULTS

A crucial step in ordinal regression is to determine whether there is similarity between the independent variables in the model. For this reason, it is necessary to perform a multicollinearity test. Similarities between the independent variables will result in a very strong correlation. Broadly speaking, if the VIF value lies between 1-10, then there is no multicollinearity. In our model, all the variables met this criterion.

Table 1. *Multicollinearity test*

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-23,239	110,848		-,210	,834		
	sex	-,006	,125	-,003	-,048	,962	,913	1,095
	Encounters with friends	-,006	,099	-,005	-,060	,952	,827	1,209
	Use of P/C for socializing	,137	,044	,242	3,122	,002	,797	1,254
	Newspapers reading	-,072	,060	-,098	-1,195	,233	,703	1,422
	Degree of Graduation	,013	,033	,030	,406	,685	,851	1,175
	Year of Birth	,014	,055	,018	,246	,806	,902	1,109
	Level of father education	-,002	,003	-,048	-,614	,540	,772	1,296

a. Dependent Variable: The_teaching_of_political_education_is_great_of_the_country_for_our_country

Table 2 shows the Model fitting information. At first, we need to determine whether the model improves our ability to predict the outcome. The Model Fitting Information table gives the -2 log-likelihood values for the baseline and the final model. The statistically significant chi-square statistic ($p<.0005$) indicates that the Final model gives a significant improvement over the baseline intercept-only model.

Table 2. *Model fitting information*

Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	421,134			
Final	360,215	60,919	20	,000

Link function: Logit.

The next table in the output is the Goodness-of-Fit Table (Table 3). This table contains Pearson's chi-square statistic for the model (as well as another chi-square statistic based on the deviance). These statistics are intended to test whether the observed data are consistent with the fitted model. We start from the null hypothesis that the fit is good. If we do not reject this hypothesis (i.e. if the p value is large), then you conclude that the data and the model predictions are similar and that you have a good model. The results for our analysis suggest the model fit very well.

Table 3. *Goodness-of-fit*

Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	750,967	226	,427
Deviance	360,215	226	,658

Link function: Logit.

Remember that the OR is equal at each threshold because the ordinal model has constrained it to be so through the proportional odds (PO) assumption. We can evaluate the appropriateness of this assumption through the 'test of parallel lines'. This test compares the ordinal model which has one set of coefficients for all thresholds (labelled Null Hypothesis), to a model with a separate set of coefficients for each threshold (labelled General). If the general model gives a significantly better fit to the data than the ordinal (proportional odds) model (i.e. if $p<.05$) then we are led to reject the assumption of proportional odds. This is the conclusion we would draw for our example (see Table 4), given the significant value as shown below ($p<.004$).

Table 4. *Test of Parallel Lines[a]*

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	360,215			
General	213,810[b]	146,406[c]	40	,000

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Logit.

The Parameter estimates table (Table 5) is the core of the output, telling us specifically about the relationship between our explanatory variables and the outcome. Here, we have the regression coefficients and significance tests for each of the independent variables in the model. The regression coefficients are literally interpreted as the predicted change in log odds of being in a higher (as opposed to a lower) group/category on the dependent variable (controlling for the remaining independent variables) per unit increase on the independent variable. We interpret a positive Estimate (b) in the following way: For every one unit increase on an independent variable, there is a predicted increase (of a certain amount) in the log odds of falling at a higher level of the dependent variable. More generally, this indicates that as scores increase on an independent variable, there is an increased probability of falling at a higher level on the dependent variable. Significant predictors of the importance of civic education are highlighted in the following table (The numbers that follow friends, pc and newspapers variables mean: 1=every day, 2=2-3 times a week, 3=once a week, 4=2-3 times a month, 5=rarely or never. As far as father education is concerned each number shows a higher level beginning with totally illiterate level).

Table 5. *Parameter Estimates*

Parameter Estimates

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[v11 = 1]	286,623	307,786	,867	1	,352	-316,626	889,873
	[v11 = 3]	288,603	307,789	,879	1	,348	-314,653	891,859
	[v11 = 4]	291,460	307,804	,897	1	,344	-311,825	894,746
Location	sex	-,652	,425	2,354	1	,125	-1,485	,181
	Year of birth	,155	,154	1,008	1	,315	-,147	,456
	Grade	,265	,115	5,294	1	,021	,039	,492
	[Friends=1]	-18,186	,800	516,650	1	,000	-19,755	-16,618
	[Friends =2]	-18,980	,861	486,110	1	,000	-20,667	-17,293
	[Friends=3]	-18,417	,000	.	1	.	-18,417	-18,417
	[Friends=4]	0[a]	.	.	0	.	.	.
	[PC=1]	-2,760	,674	16,753	1	,000	-4,082	-1,439
	[PC=2]	-2,828	,688	16,877	1	,000	-4,177	-1,479

	Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
[PC=3]	-1,959	,625	9,828	1	,002	-3,183	-,734
[PC=4]	-2,320	,766	9,170	1	,002	-3,822	-,819
[PC=5]	0a	.	.	0	.	.	.
[Newspapers=1]	-2,597	1,045	6,173	1	,013	-4,646	-,548
[Newspapers=2]	1,230	,806	2,328	1	,127	-,350	2,811
[Newspapers=3]	-3,401	1,245	7,468	1	,006	-5,840	-,962
[Newspapers=4]	-1,251	,789	2,512	1	,113	-2,798	,296
[Newspapers=5]	0a	.	.	0	.	.	.
[Father_Education=2]	17,266	9559,620	,000	1	,999		18753,777
[Father_Education=5]	-1,878	1,221	2,366	1	,124	-4,272	,515
[Father_Education=7]	-1,493	1,032	2,094	1	,148	-3,516	,529
[Father_Education=11]	,271	,986	,076	1	,783	-1,661	2,204
[Father_Education=12]	-,008	1,058	,000	1	,994	-2,081	2,065
[Father_Education=13]	-2,610	1,565	2,780	1	,095	-5,678	,458
[Father_Education=99]	0a	.	.	0	.	.	.

Link function: Logit.

a. This parameter is set to zero because it is redundant.

More specifically, grade was a significant positive predictor of the importance of civic education in schools. For every one unit increase on grade, there is a predicted increase of .265 in the log odds of a student being in a higher (as opposed to lower) category as far as his point of view is concerned. This indicates that a student scoring higher on grade were more likely to believe that civic education is an important subject in school curriculum.

On the other hand, every day and frequent encounters (twice or thrice a week) with friends are a significant negative predictor of civic education importance. For every one unit increase on meeting friends every day or meeting friends twice or thrice a week there is a predicted decrease of 18.186 and 18.960 in the log odds of being in a higher level of the dependent variable. This is a very important finding, showing the reverse relationship between intense social life and civic education in schools.

Another important finding is the negative relationship between the use of personal computers for entertaining and socializing reasons and civic education importance in schools. For every one unit increase on everyday use, twice or thrice use, once a week or even 2-3 times a month use, there is a significant decrease of 2.760, 2.828, 1.959 and 2.320 respectively in the log odds of being in a higher level of the dependent variable. It can be said that the activities that socialize the person outside school such as meeting friends and chatting in social media have a negative effect on civic education importance on behalf of students.

The last statistically important finding is the negative effect of reading newspapers on civic education importance. More specifically, for every one unit increase on reading every day or once a week newspapers, there is a decrease of 2.597 and 3.401 of the dependent variable respectively.

IV. CONCLUSION

Politicization is closely related with civic education because an active citizen is an informed citizen (Torney – Purta et al. 2001). School as one of the most important factors of socialization is the means through which a student can obtain the necessary political knowledge; civic education can become the passport for active citizenship. The ordinal regression model of this research showed that extracurricular activities such as the use of personal computers for socializing purposes as well as reading newspapers and meeting friends are in contrast with students' point of view about the importance of civic education in schools. The reason of this negative finding can be traced either in the devaluation of public school in general, or in the way civic education is taught.

As far as the latter is concerned, the introductory report of law 4186 "On the Reform of Secondary Education and other Provisions", voted by the Parliament, introduces the course of Civic Education in the A class of the Lyceum stating the following: "the goal will be the formulation of a healthy policy and social awareness as well as the multifaceted and diligent information on political, social and related economic issues. We believe that the right political culture will protect young people from fanaticism, political passions, extremism and will promote high universal values that for various reasons are currently in crisis."

The purpose of the course, as it appears from the 128595 / Γ2 / 13-9-2013 circular of the Minister of Education, "is primarily an apprenticeship in the notion of Democracy. The aim is to form a free and responsible citizen, who in time and with awareness, will understand the importance and value of Democracy, will love the State and Democracy and will fight for their defense." That is, through the teaching of the course, young people will be given a Political, Ethical Education for the defense of Democracy.

The course of "Civic Education" involves Economics, Political Science-Law and Sociology, considering it as one scientific field. This identification of fields leads to an engagement of thought, because the student is not given the opportunity to understand the diversity of sciences through their principles, purposes, content and methodology (Council of Europe, 2010). The consequence is that the purpose of learning and knowledge of the scientific objects we are discussing is not served and instead leads to an ideological use of the course.

The social sciences must be taught through different distinct subjects because:

1. They have a different object and method, which means that they have conceptually and methodologically shaped questions - problems, which correspond to different fields of physical and social reality.

2. They have different principles and different purposes.

3. The different subjects and methods must be taught to the student as complete scientific objects. That is, to have a correspondence between science and course.

4. There is confusion, disorder and lack of systematization of the knowledge that will be taught to students, with the operative cause the arbitrary unification or identification of scientific objects.

5. With the lack of distinction of science courses, a substantial and fundamental integration of sciences is not achieved, but a technical integration

6. In order for teaching to be done properly, there must be a correspondence between each science and the teacher of a specialty. When with this option the specialty is abolished, then each teacher forgets his own subject and teaches through a package an area of knowledge that he stores and connects it only with thematic applications or projects (Gollob, Krapf & Weidinger, 2010a, 2010b).

All the above need to be taken into consideration due to the fact that together with the family, public school is a major socialization factor. The negative relationship between extracurricular activities and students' opinion about civic education shows a deep and structural problem in greek educational system that consequently has negative repercussions in the politicization creating misinformed future citizens.

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