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*Maria Paradia, Sotirios Glavas, Napoleon Mitsis, Athanassios Kyriazis, Haido Samaras, Kostas Aggelakos*

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### Βιβλιογραφική αναφορά:

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**Exploitation of Information and Communication Technologies relating to the instruction of the subject of Modern Greek Language in Greek Junior High schools: Ideas and attitudes of teachers (philologists)**

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**Abstract**

Modern technologies have permeated all areas of human life, education being one of them. As in any wide-scale process, one has to consider the total extent of benefits it offers and difficulties it leads to; using the Information and Communication Technologies (ICT) for teaching and learning is no exception.

A research team by members of the Greek Pedagogical Institute and the teaching staff of Greek Universities carried out a study in the academic year 2008-09 in the districts of Attica and Thessaloniki, concerning the subject of Modern Greek in Junior High schools (gymnasium). The purpose was to investigate the extent to which the affordances of ICT have been exploited during the instruction of Modern Greek in Junior High School (years 12-15) through the use of the new textbooks that include activities based on the integration of ICT.

The present article describes the section of the research that was carried out with the aim of determining to which degree teachers (philologists) made use of these activities. The study also aimed at investigating their opinions and attitudes towards the use of ICT for the support of the Modern Greek Language course and their proposals for increased exploitation of ICT in this subject.

**Keywords**

familiarization with ICT, ICT-based activities in Modern Greek language learning

**1. Introduction**

Computer assisted learning has been established as a demand growing in popularity among those involved in the teaching process and the responsible for the education policy (Kyriazis and Bakoyiannis 2003). The wide application of computers, digital technologies, multimedia learning environments, web services and e-learning applications has changed the model of language teaching that has been in place for the past century. Given the new Internet tools, e-learning capabilities and the explosive growth of digital content available on the Web, enormous possibilities of enhancing what until now has been considered the traditional way of teaching language courses and improving learning out-

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comes have emerged in the past two decades. Survey results indicate a high level of both student use and student familiarity with a wide variety of new tools, technologies, services and information resources. Web-based learning has posed challenges to the academic community. Teachers in all levels from universities, colleges to K-12 need to respond to these challenges in order to promote student learning, increase student motivation, support their teaching, and enhance educational activities. The quality and value of the new tools and e-Learning applications is dependent on the use of available technology and the design and development of applications (Huffaker 2004). Words like “integration”, “interaction” and “collaboration” are playing a key role in the new Information and Communication Technologies (ICT)-supported teaching model.

The application of ICT has considerably enriched the variety of methods, resources and a range of activities for language learning. Among the most widely used tools and resources pointed out by the 2008 EU-funded SOCRATES project ODLAC (Effective Innovative Language Learning) for language learning were various digital or online learning environments (such as WebCT, Moodle, etc), CD-ROMs and DVDs, online presentations, texts, pictures, discussion boards, chat-rooms, e-mails and others. The project also identified numerous on-line resources that incorporate various approaches to learning and can be creatively used in blended learning (Rozgiene, Medvedeva & Straková 2008). Thus language teachers need to acquire initially skills in basic ICT tasks and ensure that they are familiar with essential generic software and gradually become acquainted with more sophisticated emerging technologies (Davies 2007, 2009; Liang and Bonk 2009).

Since 2001 with the emergence of the Cross Thematic Curriculum Framework for Compulsory Education (D.E.P.P.S. – the overarching framework towards which all individual subject curricula must converge) the integration of ICT into the Greek educational system has been occurring systematically and efficiently in the primary and secondary school levels although the Framework has not been fully implemented yet. The Framework has, among other changes, stipulated for the development of content (books) and the wide scale integration of ICT in Education (through the upgrading and expansion of computer labs in schools, initial and in-service teacher training in the use of new technologies, the establishment of a Panhellenic School Network, the integration of ICT in teaching).

Deriving from the implementation of D.E.P.P.S. which supports a communicative approach in language teaching, the following effects emerged:

- It has motivated a gradual change in the traditional attitude and initiated the adoption of a modern attitude towards the language lesson. Certain principles of the communicative approach such as individualized teaching, the new form of the teaching process, taking feedback and self-checking by students themselves, researching hypothetical questions, retrieving a variety of information without great effort, accessing texts etc. (Littlewood 1981; Mitsis 1996 and 2004) seem to be fully implemented by exploiting the means that ICT exclusively provide.
- Reinforcing the idea that a series of a communicative type learning activities (Haralabopoulos and Kostouli 2000; Haralabopoulos and Hatzisavidis 1997) may be accomplished effectively and efficiently through the use of computer.
- Realizing the current demand for adopting a new educational theory and policy that will support positively the integration of computers in education and particularly language instruction.
- Writing a series of new language teaching guides corresponding mostly to the modern requirements, conditions and ideas.

More specifically, new textbooks for the Modern Greek Language courses were introduced into the Greek high school system in the academic year 2006-07 (Agelakos et al 2006; Gavriilidou et al 2006; Katsarou et al 2006). The content of these textbooks include a large number of activities that are based on the integration of ICT into the teaching-learning process and aim at improving learning in the subject of Modern Greek Language, while at the same time facilitate the enhancement of ICT skills related to:

- information seeking, retrieving, analysis and evaluation from various sources (on-line resources, e-books, e-dictionaries, e-encyclopedias, etc.)
- the processing, distribution and retrieval of information with the use of a-synchronous and synchronous technologies (such as e-mail accompanied by file attachments and chat-rooms)

- the production and processing of texts (written speech)
- the creation and processing of information in order to produce individual or group assignments
- the support of various school tasks within the curriculum as well as extra-curriculum activities (electronic publications, announcements, web pages, web sites, etc.)

For Greek language teachers the challenges are twofold: on the one hand they need to achieve a higher level of familiarization with the ways of integrating ICT into their classes and on the other hand they are expected to apply the knowledge they acquire in supporting the curriculum according to the D.E.P.P.S. Thus the introduction of the new textbooks-series that supports ICT-linked activities is a great opportunity for Greek philologists to update their teaching methods.

The present article refers to a study conducted by a research team consisting of members of the Greek Pedagogical Institute and academics from Greek Universities during the academic year 2008-09 concerning the teaching of the subject of Modern Greek Language in Junior High schools. It presents conclusions related to the extent to which Greek language teachers have been exploiting and integrating new technologies in the Modern Greek language course. Furthermore, the study aimed at investigating the opinions and attitudes of teachers toward ICT and also their proposals for its further exploitation in the Modern Greek language course. Finally, an attempt was made to reach conclusions concerning the familiarization of the teachers with ICT and their effective exploitation during the instruction of Modern Greek in Junior High schools.

## 2. Sample Method

The research was conducted on a sample of 74 philologists that are currently employed in 10 Junior High schools. The sample included both day public Junior High schools as well as corresponding private school units of Attica and Thessaloniki prefectures. For the selection of high schools, apart from the geographic criterion, several other criteria were taken into account, after a pre-investigation, such as the existing technological infrastructure, the use of ICT within the framework of the approved programs by the Ministry of Education, as well as the exploitation of school computer labs in the teaching of various subjects. The sample of philologists per school complex is presented in Table 1.

## 3. Collection Method

The research data were collected by the use of a suitable questionnaire that included closed questions aiming at the quantitative depiction of figures and open questions, which gave participants the opportunity to report their opinions. The questionnaire included a total of twenty six questions. The questions can be divided into three categories:

- Demographic questions (such as sex, age, teaching experience, level of knowledge in the use of new technologies, etc.)
- Questions regarding the use of new technologies (such as the extent to which computers or internet services are used, the application of ICT-supported group work activities, the sources of computer assisted educational materials, etc.)
- Questions related to the assessment of the educational process via the exploitation of ICT and to the general attitudes towards the application of ICT to the instruction of Modern Greek.

The questionnaires were distributed to school complexes after previous contact with the administration of each school and were completed by the philologists. The completed questionnaires were coded and for the purpose of quantitative analysis the data was entered into a relevant database. The analysis of the results includes tables, charts and frequency diagrams while most of the variables were categorical. The association between the type of answers that the philologists gave and the demographic or other parameters was quantitatively analyzed through the use of a chi-square test ( $\chi^2$ ). All the statistical analyses were conducted by the use of SPSS 13.0 statistical software with a significance level of 5% ( $\alpha=5\%$ ).

## 4. Results – Description of sample

74.3% of the philologists were women while 25.7% were men. A significant percentage (45%) of the philologists has more than 12 years of experience in teaching the course of Modern Greek language in

Junior High school. Roughly 24% of the philologists have 6-11 years of teaching experience while 31.1% have less experience that does not exceed five years of teaching this subject. In the same school year, the sample of philologists is distributed in the three grades of Junior High school. 39% teach in the 1<sup>st</sup> grade, 41% teach in the 2<sup>nd</sup> grade and 20% teach in the 3<sup>rd</sup> grade. However, almost 2 out of 3 philologists stated that they have taught in all three grades of high school within the last five years. Despite the relatively higher percentage of philologists with an average teaching experience of 6-11 years that were assigned to 1<sup>st</sup> grade classes this year, there is no statistically significant correlation between teaching experience and the current teaching level (p-value=0.509).

When asked “What is your level of knowledge in the use of computers and the Internet?”, a limited percentage of philologists declared a high level of familiarization with ICT. From the 72 philologists that answered this question, only 5 (6.8%) declared a high level of knowledge in the use of computers and Internet usage. The percentage of the teachers who characterize their knowledge in new technologies to be good/high, including the percentage of those who declared that they have a good level of knowledge, accounts for 37,5%. On the other hand, 43.1% consider their knowledge to be average, while almost 1 in 5 teachers consider their level of knowledge to be low/very low.

One of the most important interpretation parameters associated with the level of familiarization of philologists with ICT is the teaching experience of the subject of Modern Greek Language (p-value <0.001). The above element is potentially connected with the age of the teachers as well as with more general experiences of training on issues regarding technology that are strengthened in persons of a younger age. As a result, 60.9% of all philologists that have less than a six-year instructive experience, declare that they have a high level of familiarization with the use of computers and the Internet as opposed to nearly 22.6% that have more than twelve years of experience. On the other hand, as regards more experienced teachers, 41.9% declare low familiarization with ICT, while for those that have had up to six years of experience, no participant in the sample was found with a low familiarization with computer and internet usage.

Yet another factor that differentiates the degree of ICT familiarization is the factor of sex (p-value<0.001). Male teachers display a significantly higher familiarization with computer and Internet usage (57.9%) in comparison to their female colleagues (30.2%). There is no evidence of a significant differentiation between the familiarization with technologies and the previous or present class levels (which grade the philologists taught in the past or were teaching at present).

The familiarization with ICT is fundamentally for the philologists a result of personal effort and study despite organized classes and teacher training courses that may have been conducted. 64.3% of philologists acquired knowledge of use of computers and the Internet via personal use and hands-on practice. 48.6% of teachers acquired their knowledge through training in ICT programs while an important percentage (41.4%) has acquired some knowledge in the use of computers and the internet through collaborations with colleagues. Postgraduate studies in the field of ICT were for the philologists a limited means of acquiring knowledge in ICT and correspond merely to a percentage of 1.4%. Personal effort and hands-on practice can be observed more intensely in lower experience philologists (p-value=0.01) and also more in male rather than in female teachers (p-value=0.04, Table 2).

At the same time, among all philologists that have acquired their relative knowledge via personal effort and hands-on practice, the indicator of familiarization with ICT is considerably higher than the other groups and it reaches 47% against 31% that acquired knowledge through colleagues and 38% through training (p-value<0.05).

#### **4.1 Results – Use of new technologies in the subject of Modern Greek language**

Despite the fact that 37% of philologists evaluate their level of familiarization with the new technologies as high, the very frequent use and exploitation of ICT in the course of Modern Greek Language barely adds up to a percentage of 15.1%. On the contrary 31.5% of philologists did not make any use of computers or the Internet along the school year and 26% made limited use.

The frequency of exploitation of ICT in the subject of Modern Greek Language does not depend on the form or on the socio-demographic characteristics of the philologists (years of teaching or sex), but

is exclusive associated with the level of familiarization. This conclusion constitutes an essential condition for the incorporation of ICT in the instruction of Modern Greek. It should be noted that 7 in 10 philologists with a low level of familiarization do not implement ICT-assisted tasks in their classes. Furthermore 4 in 10 philologists with a high degree of familiarization make limited use of computer and the Internet (little or none at all) along the course ( $p\text{-value}<0.01$ ).

Out of all philologists that made little use of a computer during the school year, the vast majority used search engines in order to seek information (95.5%) and word processors for student assignments (90.9%). The posting of work on school web pages or the electronic creation and publishing of a school newspaper is associated with the 32% of philologists, whereas the student-student and student-teacher interaction was relatively low (18% and 15% respectively). At the same time when asked the question: "Which type of activities did your students use on the computer?" the highest percentage (97.9%) answered "the production of written speech". Also roughly 1 in the 2 users of computers used it for the enrichment of vocabulary, 1 in the 3 users as a spell checker and around 1 in 4 for text formatting, in order for the text to be published on a web page or on an electronic newspaper and in order to check spelling. The percentage of all students that used the computer for the creation of web pages is limited (1 in every 8 users, Diagram 1).

The assignment of computer-based group work for the Modern Greek language course was also limited. Only 1 in every 20 philologists (a percentage of 4.1%) systematically assigned (varying among occasionally/quite frequently/often) this type of work, while 36.5% did not assign such work and 31.1% did so infrequently. The frequency of assigning group work tasks to students, just like other parameters of the study, is associated with the level of teacher familiarization with ICT. Consequently, roughly 86% of those philologists with a low degree of familiarization with computers and the Internet seldom assigned group work to students.

The corresponding percentage of teachers with a high level of familiarization was approximately 40%, which although lower, confirms the fact that ICT is not exploited completely even by the comparatively more proficient faculty ( $p\text{-value}<0.01$ ).

In an open-ended question-description regarding the way students worked in groups, some philologists reported the compilation of student assignments without clarifying whether the work had been presented in class, while others declared that the assignments had been presented in class, without explicitly stating whether students had previously compiled written work to accompany their presentations. In total, among all the philologists who submitted some sort of answer, the use of the Internet to search for information and the compilation of assignments were the key applications of ICT for group work tasks (36.2% and 25.5% respectively). Furthermore, the students made use of ICT for assignment presentations (12.8%), for assignment presentations with POWER POINT (8.5%), for the creation of diagrams or catalogues (2.1%) and for picture processing (2.1%).

For all philologists who made even a limited use of ICT for the Modern Greek Language course, the basic source of the teaching material was the content of the new textbooks combined with individual creativity. Almost 1 out of 2 teachers used material that was prepared through collaboration with colleagues, 1 out of 4 used materials that was distributed during the teacher training workshops and 1 out of 5 used material that was created for graduate and post-graduate courses (Diagram 2).

#### **4.2 Results-attitudes towards the use of Information and Communication Technologies in the course of Modern Greek Language**

Among all philologists that made use of computers and the Internet in the course of Modern Greek language, the prevailing opinion is that students' reactions were positive (47.8% declared positive or very positive reactions). Nevertheless, a considerable percentage of philologists that made use of ICT consider that the reactions of students were relatively positive (41.3%) or even moderately positive (10.9%).

In this manner, out of those that made use of technology and declared a high familiarization with the use of computers and the Internet, two in every three (a percentage of 66.7%) regarded the reactions of students to be positive/very positive. On the contrary hardly one in three philologists with mediocre

familiarization that used new technologies views the result from the point of view of the students as positive/very positive ( $p\text{-value}<0.01$ ).

Results regarding the individual elements of the evaluation of the application of ICT in the course of Modern Greek are similar (Diagram 3). In this respect, the positive evaluation elements are the following:

- 83.3% of philologists that made use of ICT faced limited problems
- 65.9% was left with the impression that a spirit of collaboration was developed among students through the group work activities
- 60.8% declared that the interest of students for the Modern Greek Language course was increased. More specifically, from the philologists that answered, 42.4% spontaneously stated that student interest had been enhanced through the information searching on the Internet, 18.2% through the use of computers in general, 12.1% because students increased their creativity and their interactivity and 6.1% through the use of pictures and sound
- 46.6% believes that new technologies have helped students to become critical thinkers.

On the other hand:

- A considerable percentage (53%) thinks that the students' critical thinking skills were not enhanced adequately through the exploitation of ICT,
- One out of three philologists that used technology do not find the results related to the creation of an atmosphere of collaboration due to computer-based group work sufficient
- Four out of ten philologists who had made use of ICT found the increase of student interest to be limited,
- One in six philologists that made use of computers and the Internet encountered problems when teaching the class. When asked "What type of problems did you face?", 38.9% of those that answered did not provide a clear answer, however, 27.8% stated they considered the uncritical use of material from the Internet, such as vocabulary, as a negative aspect, 16.7% condemned the disinformation found on various web pages and only 11.1% complained about technical problems, such as the absence of computers and other facilities.

Consequently, despite the overall positive assessment of ICT use, the degree of ICT exploitation for daily instruction could certainly be increased. No significant differentiations in assessment attitudes were recorded with regard to the demographic characteristics of philologists that were involved.

The overall attitudes of teachers that participated in the study (regardless of whether they had made use of ICT) were documented in the two questions that follow:

- Question 1 regarding the positive results: "Do you believe that the use of computers and the Internet has a positive impact on the Modern Greek Language course?"
- Question 2 regarding overall attitudes: "To which extent do you believe that the Modern Greek Language course should be integrated with activities that are computer-based or Internet-based?"

On the whole, positive teacher attitudes regarding the integration of ICT into the Modern Greek Language course exceed negative ones. 63.8% of philologists believe that the Greek Language course should be enriched with activities that are based on the exploitation of ICT against 36.2% that disagrees. Similarly, 57.4% think that the use of ICT has a positive impact on the course of Modern Greek Language against 46.4% that believe the opposite.

When asked which were the positive results that can be accredited to the use of ICT in the teaching of Modern Greek Language, 30.6% of philologists answered that these are several skills such as searching, exploiting and evaluating information that is collected through the Internet. These skills are followed by activities that are connected to the subject of Modern Greek (22.2%), the use of technology as to motivate and engage students in the course (19.4%), the increase of critical initiative and activeness (8.3%). Smaller percentages were assigned to answers such as time reduction and the development of collaborative skills.

As was expected, the attitudes toward the results and the contribution of ICT vary based on whether they were adopted or not in the instruction process. Consequently, out of those teachers who used computers and the Internet to teach the course of Modern Greek, the vast majority hold positive atti-

tudes regarding its exploitation (90.9% believe that the use of ICT can lead to positive learning results  $p\text{-value} < 0.01$  and 81.8% has an overall positive attitude,  $p\text{-value} < 0.01$ ). On the other hand, among those who didn't use computers or the Internet in the course of Modern Greek, the negative attitudes (64.3%) surpass the positive ones (35.7%) (Diagrams 4 and 5).

## 5. Conclusions – discussion

The results of this study unquestionably call attention to the fact that although new textbooks comprising many ICT-based activities were introduced to Greek schools in the school year 2006-07, these were not exploited fully. Undoubtedly, the process for a critical mass of philologists to feel comfortable and become familiar with ways of integrating ICT into their daily instruction is time consuming. There are still several problems that need to be overcome, the predominant one being the necessity to change attitudes towards using ICT and integrating it in such ways so as to achieve good teaching practice while capitalizing on learning outcomes. Among teachers of Modern Greek, views regarding the impact, contribution and potential that technology has to enhance learning vary, depending mainly on the extent to which teachers have already been exposed to the various applications of ICT for language learning. Teachers that have made some attempt at using ICT already have an overall positive view about the necessity to integrate ICT into their teaching whereas those that have not adopted ICT in the instruction process until now are generally negative and reluctant to incorporate ICT-based activities into their courses. There is no doubt that the development of ICT has brought about a revolution in the language learning environment. The possibilities, applications and tools easily accessible through the Internet and especially innovative tools offered through Web 2.0 technologies, interactive multimedia learning environments and virtual learning environments have gradually become more and more reliable, user-friendly and capable of engaging students in activities that are more suited to their current needs and preferences. The possibility of individualized teaching, information searching and retrieval, communication, cooperation and the subsequent benefits are consistent with the basic principles of an education model emerging as a result of modern developments. However the study has shown that teachers are still relying mainly on traditional uses of ICT (such as using the technology mainly for information searching and text processing) and are far from using more sophisticated Web 2.0 and Semantic Web features and tools. Making effective use of these technologies by the teachers could potentially bring a positive impact to applying other activities in the framework of the modern Greek language course, such as group work written tasks, which is being widely accepted in the area of Applied Linguistics, accomplishing additional activities related to comprehension and production of the various text types through gaining efficient and functional vocabulary etc. Finally, an important point to bear in mind, deriving from the media-method debate (Clark 1983; Kozma 1991, 1994; Bagui 1998; Hede 2002), is that media in and of itself is not capable of affecting learning, thus ICT cannot organize or run our lesson. In fact Clark's words seem to be ever more critical today: "there are no learning benefits to be gained from employing any specific medium to deliver instruction; regardless of the media used, which can in the end influence only the cost and speed of learning, what actually contributes to a learning improvement is the instructional method that the teacher employs" (Clark 1983; Jonassen et al 1994). Therefore the teacher is clearly a crucial component in the success or failure of a language lesson. Computer applications, the Internet and its tools, innovative Web 2.0 technologies or "intelligent" semantic web services are useless without careful organization of a course design and preparation of materials. And simply providing passive notes over computer technology or the Internet is not the answer. Careful and most probably timely lesson planning, classroom management and continuous training of both learners and teachers are surely required in order to exploit the best educational opportunities of using the ICT in language teaching and learning. More specifically, the present study clearly shows that teacher (re)education and training within the framework of established programs set by the Greek Ministry of Education/Pedagogical institute, the Universities etc. are essential/fundamental so that: (I) teachers increase their level of familiarity with the use of computers and the Internet services or become informed about the recent technological advances, (II) become capable of using technology effectively as a basic teaching, learning, promotion, communication and information tool, thus extending the existing possibilities provided by the traditional teaching aids, (III) receive further training related to language teaching, planning appropriate teaching scenarios and activities, developing educational material and making effective use of the



software and environment that have been designed to facilitate and build knowledge. Such an effort has been made successfully up to a certain degree by D.E.P.P.S., within the activities of the new textbooks for Modern Greek language in Junior High School. Nevertheless, the majority of teachers believe that the school textbooks should be enriched with additional activities aiming at effectively using the capabilities of Information and Communication Technologies.

Finally, a conclusion with broader applications could be that the appropriate use and exploitation (of new technologies) may be a considerable effective teaching aid in general and particularly in language teaching, since they are considered as teaching tools, according to the modern educational approach, that support the goals pursued and at the same time have a supplementary role to the traditional teaching aids. What we really need is to expand the learning process "... from what the technology can do for the student to what the student can do with the technology" (Godwin and Jones 1999, 2008).

## Tables and Diagrams

### Tables

Table 1. *Sample distribution of philologists by school complex.*

School complex	Number of philologists	Percentage (%)
4 <sup>th</sup> Gymnasium of Peristeri	8	10,8
46 <sup>th</sup> Gymnasium of Athens	8	10,8
6 <sup>th</sup> Gymnasium of Galatsi	8	10,8
Anatolia College	13	17,6
Gymnasium of Avgouleia-Linardatou	4	5,4
Gymnasium of Efkarpia	9	12,2
Gymnasium of Lagkada	3	4,1
Mandoulidis Gymnasium	10	13,5
Aristotelian Experimental Gymnasium	6	8,1
University of Macedonia Experimental Gymnasium	5	6,8
Total	74	100,0

Table 2. *Actions undertaken in order for teachers to acquire ICT familiarity by experience and by gender*

Action undertaken	Total	>12 years	6-11 years	<6 years	Males	Females
Personal study and practice	64	45	83*	74*	84*	57
Teacher training in ICT applications	49	55	50	39	47	49
Help from colleagues	41	45	39	39	47	39
Relevant postgraduate studies	1			4	5	
Other	16	7	11	30	11	18

\*Statistically significant differences ( $p$ -value<0.05)

## Diagrams

Diagram 1. *ICT processes that were used in the Modern Greek Language course*

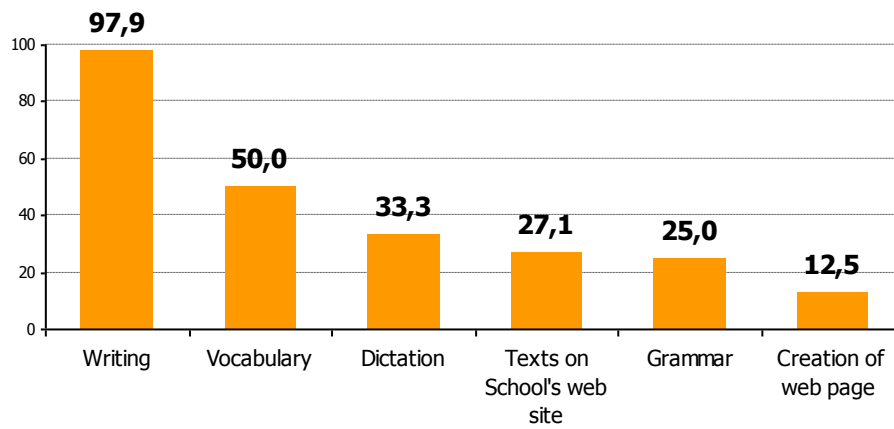


Diagram 2. *Sources made use of for the creation of the material used during the instruction of the Modern Greek Language course*

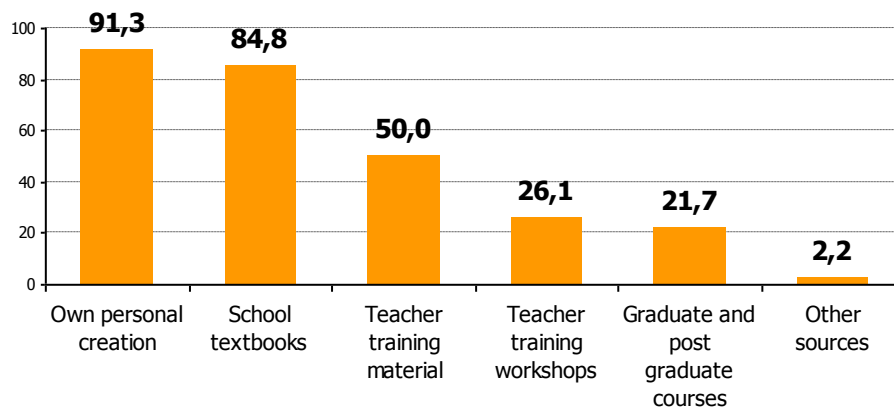


Diagram 3. Evaluation of specific elements regarding the use of ICT in Greek language course.

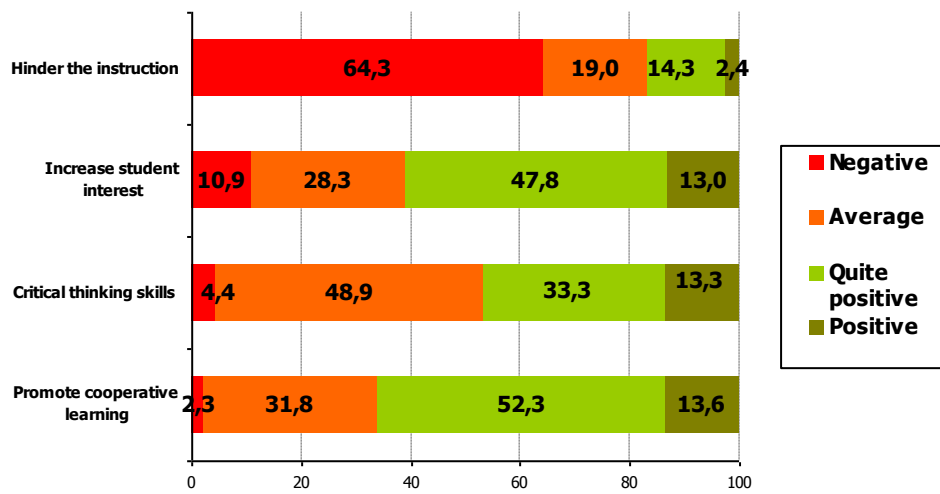


Diagram 4. Attitude against the results of the utilization of ICT in the Greek Language course regarding ordinal use.

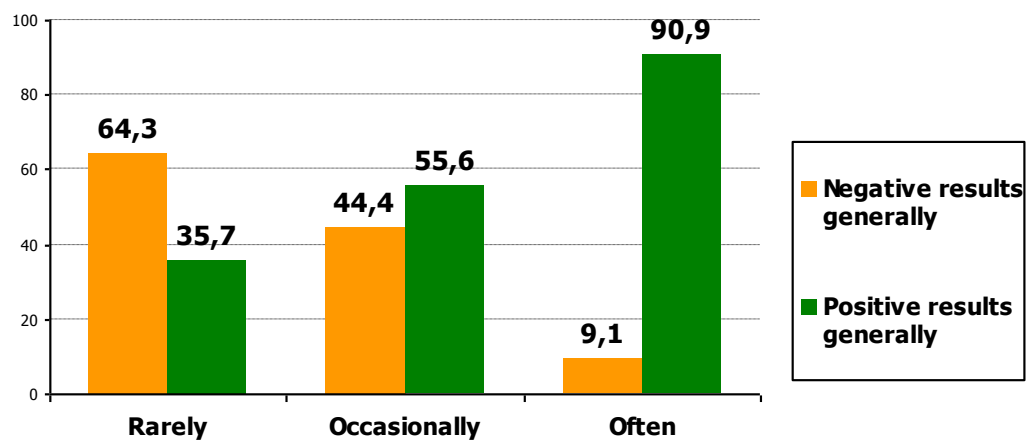
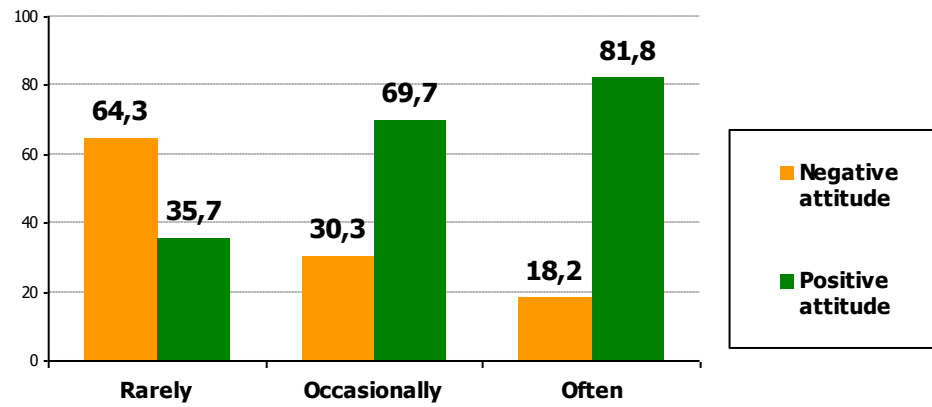


Diagram 5. Attitude against the application of ICT in the Greek Language course regarding ordinal use.



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