Journal of Modern Education Review, ISSN 2155-7993, USA
May 2020, Volume 10, No. 5, pp. 358–363
Doi: 10.15341/jmer(2155-7993)/05.10.2020/009

http://www.academicstar.us

Information Literacy at The Primary School Level: Implementing an ICT Project in the 5th Class of Elementary School

Nafsika Tegousi, Vasileios Drakopoulos
(University of Thessaly, Greece)

Abstract: A teaching proposal for the learning object "Information and Communication Technology" which is part of the thematic submodule "I am implementing ICT projects" at the elementary or primary school level is presented. This action was implemented in pupils of the 4th grade of the Ochialia Primary School of Trikala during the school year 2016–2017 and involved the realisation of a project in the form of a WebQuest. The pupils worked in small groups and participated in cross-thematic approaches to explore and study "The history of our place". The evaluation of the action revealed that the implementation of the project with the use of digital applications was feasible and contributed to the cultivation of the users' social skills through cooperation, critical thinking, metacognition during the investigation of questions as well as the acquisition of ICT skills during the education act.

Key words: web 2.0, primary education, WebQuests, project, information literacy, curriculum, ICT

1. Introduction

In modern curricula, or courses of study, information literacy aims at problem solving and ultimately at learning, as well as at the continuous development of pupils in order to use modern digital technology. The embedding of Information and Communication Technology, or ICT for short, in Primary Education promotes the capacity of building each student's computational thinking. By using ICT, the curriculum has been formulated by supporting exploratory, constructive and collaborative learning activities. The method of projects, through versatile, collaborative and flexible teaching activities to utilizing educational applications, software and ICT tools, enables a multi-modal approach to a single module while utilizing multiple brain functions.

Students through interaction with not only classmates and teacher, but also their surrounding, are involved in managing complicated projects, thus developing their critical thinking and collaborative skills, through an experiential, collaborative and multi-sensory approach of knowledge (Chrysafidis, 2000).

The purpose of this article is to present the design of an experiential research or work plan through Web 2.0 in primary education.

Nafsika Tegousi, Teacher of Informatics, 2nd Primary School of Ichalia. E-mail: ntegousi@sch.gr.
Vasileios Drakopoulos, Assistant Professor, Department of Computer Science and Biomedical Informatics, University of Thessaly. E-mail: vdrakop@uth.gr.

2. The Term Web 2.0 and the Use of Its Features in Education

The conceptual significance of Web 2.0 according to Tim O'Reilly is: “The Web 2.0 is the revolution in the field of Informatics because of the change of philosophy in the flow of information on the Internet. The main point of Web 2.0 is to create applications that lead to a greater network so as to be approached by more users worldwide” (O'Reilly, 2005).

The use of Web 2.0 tools, though they are not exclusively designed for educational use, can be used effectively during educational process (Tzimogiannis, Tsiotakis & Roussinos, 2012).

On the one hand, the Web 2.0 tools have greatly improved the relationship of Internet users with the Internet itself, on the other hand, they do not tend to be integrated into the classroom learning process as learning environments in order to reinforce the traditional way of teaching (Jimoyiannis et al., 2013).

Nowadays, with the development of technology, ICT may affect significantly the field of education, teachers and students, pushing them towards the development of knowledge and skills (Angellana et al., 2010). According to surveys conducted, social media is an indispensable tool in utilizing the pedagogical process and it has lead to the need for further research and development (Karathanassis, 2012). Learning the internet through social software or social applications in relation to traditional teaching methods helps students understand complex concepts, since they are now able to exchange material with each other and communicate through workgroups (Jimoyannis, 2010). In addition, the teacher, using social software in the learning process as an auxiliary tool, interacts with the course content emphasizing key points and data so that the students can process and gather relevant information on the topic of the unit they are studying (Zhang, 2010).

In this way, both teachers and students reinforce the traditional and conventional method of teaching with new social software tools that help make the lesson more enjoyable and therefore to achieve the optimum result of learning teaching. Some typical examples of the interactive Web2.0 tools are blogs, wikis, online social services networks and collaboration platforms (Angellana et al., 2010). Moreover, an interesting field for the teacher who is trying to update his/her lesson and make it interesting and enjoyable, and to provide opportunities for self-action to students are also WebQuests.

3. Web Quests

In the last decade, WebQuests has been the most popular form of internet use in school practice (especially in the English speaking countries). The inspirer of this idea, Bernie Dodge, describes it “as a research activity through which some or all of the information that interacts with the learners comes from the web, and is optionally framed by video tracking” (Dodge B., 2001).

The resonance and rapid acceptance of web exploration is related to the overall structure of the activity as it forms a well-organised exploratory learning framework. Activities within its framework adopt a specific structure of research process that is specified by the teacher in five distinct stages or parts and is addressed to the students in the form of a web page. WebQuest is a short- or long-term targeted search activity, with flexible design and time management for teachers, promoting peer learning by involving students in work groups and taking up discrete activities according to their interests and individual interests (Yang, Tzuo & Komara, 2011). It allows students to engage in authentic learning processes rather than something that has to do only in the classroom, I contributes to the creation of learning communities to solve real-world problems by streamlining and submitting

the results of their research to processes evaluation and feedback ((Allan J., Street M., 2007; Papanikolaou K., 2009).

4. The use of a WebQuest Within a Project

In the context of pedagogical planning to explore an authentic problem, the didactic scenario "The History of Our Country" was designed and developed by the teacher and students. It was developed through a web design tool and the Web 2.0 tool of WebQuest was used for the teaching information subject "Information and Communication Technologies" integrated into the thematic module "Implementing ICT projects" of the 5th Grade of Elementary School.

The following didactic scenario was carried out under the framework of the learning subject "Information and Communication Technologies"[1] and is recommended as an indicative activity in cross-section frameworks which are associated with other postgraduate courses such as — in our case — History, Geography that aims to teach learners how to choose, evaluate ICT resources, information and tools by implementing a research project in the form of WebQuest. The work/research project was implemented using the project method, which is based on cooperation, mutual support and active participation of all persons involved.

The project (work plan or synthetic creative work or small programs or projected energy) is a study or a thorough research on a specific topic, which can be processed by a small group of students in a classroom or occasionally by an individual student (Nicholas, 2000, p. 220). It is, therefore, a complex creative task that can occupy the classroom or a part of it from a few hours to the whole school year (Souliotis, 2005, pp. 11-12).

The structure of web searches is in itself a web design lesson for the realization of a project: These tools contain an **introduction**, a description of **the project**, a description of **the process** to be followed step by step, **sources** in the form of internet links, the key points of both the **evaluation** and the process and finally the **conclusion** (Macrogiorgou & Hostelidou, 2014).

5. Phases or Stages of Application of the Method

The process of planning and completing a project is ultimately shaped by four stages (Fried-Booth, 2002, p. 8; Stoller, 2002, p. 117; Fotiou & Souliotis, 2006):

5.1 Phase 1/Stage: Questioning and Design of a Research Topic

It involves selecting, raising awareness and planning the subject. In the beginning, the students discussed, exchanged views, became concerned about which of the topics the teacher proposes will be more interesting in making their participation more creative and productive. The initial impetus for choosing the subject came from reading an authentic text (article, announcement, protest, letter), which was brought by the teacher in the classroom. By using the computer and the projector, students used web exploration as a teaching tool and explained its targets, steps and evaluation points of the task that had to do with both the final product and the process.

Finally, with the brainstorming technique, all the members of the working group expressed their ideas or views that came to their mind and wrote it on the board. After discussion, they structured the framework and the

[1] Ministry of Education Research and Religious Affairs, Marousi (2016). Teaching Guides and Elementary School Curriculum 2016-2017 for the lesson in Information and Communication Technologies.

structure of the subject radically, focused on the subject, which determined the purpose and its content.

5.2 Phase B/Stage: Performing and Carrying Out Activities

The students applied what they planned, each group in the IT room was reading information on specific pages from the sources of the WebQuest, and as a result they gathered their material, they processed it and analyzed the data by using search engines to locate information sites, digital libraries, blogs, digital video/image repositories, while they selected information into a Google document that was processed simultaneously by all groups.

Each group reported on the completed activities and information and ideas were exchanged for the final presentation. The teacher advises and coordinates the activities, observes and evaluates students, acts as a communication pole, gives meaning and coherence to their efforts by giving feedback. As long as the students required some help, the teacher interfered.

5.3 Phase C/Stage: Presentation of Thematic Work Modules by Students

The activities were designed by the team members with the help of the teacher. This is the stage at which they form their final research. Students processed the information gathered in the Google document and discussed the subsequent course of their project.

In order the planned activities to be implemented with appropriate information and feedback, the students used the web searches as a means of exploring and searching for relevant information sources on our theme that was “The History of Our Country”.

The sources used by the pupils were:

1) https://el.wikipedia.org/wiki/Οιχαλία_Τρικάλων (Figure 1), from the free encyclopedia of Wikipedia, where they gathered useful information about their place (Oichalia Trikala).
2) Browsed by the Google search engine, and other related websites as well as images, news, digital archive library and videos related to the cultural activities of their place (Figure 2).

Figure 1 Free Encyclopedia of Wikipedia.

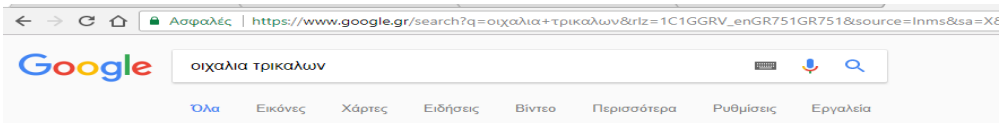

Figure 2 Google Search Engine

The presentation of their work is particularly important, since its final preparation gives students moral satisfaction and is done in a variety of ways, depending on the nature of the work (oral, written in multimodal texts, presentation by various supervisory means). The presentation took place in the computer science room for students in this section by using the image projector to provide the necessary feedback and produce the final

product of the task at the final stage of the project.

5.4 Phase D/Stage: Presentation of the Work in Its Final Form and Evaluation of the Project and Processes

The presentation of the work in its final form is the final stage of the project, so that students would have the opportunity to make their own criticism and the evaluation of their experience. In the fourth stage, therefore, they evaluated the outcome of their work. That way they realized the knowledge they have gained while the teacher in order to see if the children were satisfied with their involvement in the project, used various self-assessment and hetero-assessment tools, for example free discussion to give them the opportunity to express themselves and their feelings.

6. Conclusions

In this small-scale study, the teacher involved 20 students from the 5th Grade of Elementary school in carrying out a work plan within a web exploration. Students managed online texts

and they were guided by web exploration with a goal in mind; writing their own project on the history of their village located in Oichalia Trikala. Their web exploration provided a safe environment for internet research and in the end the students were inspired, created their own final products and enjoyed the process.

The use of web exploration as a new technological tool enhanced the learning process by cultivating students' attitudes towards cross-section issues related to ICT connectivity with other lessons, such as History and Geography. The implementation of a research project that has been utilized by web exploration, promoted learning targets that focused on developing the idea of sustainable development and inter-group collaboration to explore an authentic issue.

However, in this plan, the obstacles arising from the existing conditions, such as the limited usability of the IT room and the deadlines (Law, 2013) did not allow for a larger scale research and therefore the conclusions cannot be generalized.

We can summarize the conclusions, coming to agree with the conclusions of another research by teachers (Fotiou & Souliotis, 2006; Goudouma & Kouklatzidou, 2013; Macrogiorgou & Hostelidou, 2014) where: the project method using web exploration is assumed to improve the quality of teaching and constitutes a flexible learning environment, rich in stimuli and experiences, enabling the learner to exploit their existing potential and the experience of others. It successfully prepares the student's social integration while at the same time it releases the teacher from the grid of a strictly hierarchical organization in education and contributes to promote the idea of an education system open to the wider society.

Therefore, we consider necessary for the teacher to be constantly updated and trained in contemporary teaching and pedagogical approaches and adopt them as an alternative to teaching in order to respond to the main goals of school. What we can do as teachers, in spite of some difficulties, is to “embrace ICT, subdue it with pedagogical principles and adjust them according to the needs of our students and our teaching goals” (Carrier, 1997).

Acknowledgements

An earlier version, written in Greek, of the proposed method was published in the 9th Conference on Informatics in Education 2017 which took place in the University of Piraeus in Greece.

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