

Evaluation Study of Pedagogical Methods and E – Learning Material via Web 2.0 for Hearing Impaired People

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Abstract. The primary goal of this paper is to study whether WEB 2.0 tools such as blogs, wikis, social networks and typical hypermedia as well as techniques such as lip – reading, video – sign language and learning activities are appropriate to use for learning purpose for deaf and hard of hearing people. In order to check the extent in which the choices mentioned above are compatible with the features of the specific group and maximize the learning results we designed an empirical study which will be presented below. The study was conducted in the context of SYNERGIA, a project of Leonardo da Vinci of Life-long Learning Programme, in the section of MULTILATERAL PROJECTS TRANSFER OF INNOVATION, The evaluation was conducted on data that came up through questionnaire analysis.

Keywords: empirical study, Web 2.0, e-learning, social networking, wikis, blogs, video – sign language, lip – reading.

1 Introduction

Around 90’s web (Web 1.0) appeared as a store-house of information and as a means of access to static content. However, in just a few years the content turned into dynamic and the user was then able to receive results. The philosophy of the new Web 2.0 aims not only to high quality communication but also to accomplishing cooperation and networking among users’ community. Education has also been affected by this evolution and from chat and forum new technological tools have come up, tools that seemed to enhance collaborative and cooperative learning. Especially in cases

like the studied one, where the aim is adult learning, a task known to mainly be based on group working, internet tools could be the solution that provides users with opportunities of easy networking and collaborating.

Consequently, with the abundance of new technological tools, virtual communities of practice and virtual learning communities keep getting more and more popular in higher education [1]. To be more specific, current computer systems provide with a combination of synchronous and asynchronous communication for access from and to geographically dispersed communities as well as for exchange of information in world scale [2]. Additionally, those tools constitute a powerful aid to “learning by doing” and to “addressing real problems” and that is a proof that new technologies and the famous Situated Learning theory are more than compatible.

Indeed, especially during the last decade numerous applications of WEB 2.0 tools in education have been listed in relevant literature and the results were in most cases impressive. Important research has been conducted on the use of blogs in education and very interesting results have come up especially when it comes to the use of this tool as a digital diary [3]. A research, sought in University of Minho, Portugal, investigated the application of blogs as flexible educational tools that not only enhance learning process but also develop important social skills [4]. The participants in this project were 23 undergraduate students who enrolled to an Educational and Communication Technology (ECT) class. They were separated in small groups and were asked to keep a blog during the semester in order to have access to a common portfolio of the group work. The project may be considered successful as at the end of the semester the participants thought of weblogs as powerful educational and communication tools that promote cooperative learning and stated that the weblog experience helped them obtain a deeper understanding of the course subject. Wikis also have been widely introduced in education. For example, it was attempted to analyze the use of wikis in online learning classes in the context of a symbolic logic class and later, as a collaborative environment in several online classes [5], [6]. Another study, after the implementation of wiki technology in the context of statistics classroom at the University of Haifa, proposes the wiki - based version of every collaborative discipline as from the studies conducted so far very encouraging results have come up [7]. It’s a common remark that deaf and hard of hearing people are a group that has very limited access in information and learning in the Internet. Thus, it is quite challenging for the research community of the specific field to determine efficient ways of familiarizing in a smooth way the specific group with new technologies and even better to give them the possibility to incorporate those tools in their learning and professional activities.

2 Empirical Study

The program was realized in 2007 – 2009 and four countries –partners (Greece, Cyprus, Italy, England) were involved. Several formal features are listed below:

Technology used: LMS Moodle

Tools and Services: Blogs, Wikis, social networking tool Ning.com, Hypermedia

The learners’ participation and interaction model: In this community Hybrid Learning was set as the participation model, as both synchronous and asynchronous instruction took place.

Target group: 10 – 20 learners from every involved country, chosen by the partners of the project in cooperation with unions of hearing impaired people.

The learning system, which consists of the educational scenario, the learning material and the used technological solutions were tailored to the special needs of deaf and hard of hearing people of every country – partner.

The most important targets of the specific project were the following:

1. The expansion of the employment horizon of the hearing impaired people,
2. The familiarization of impaired people with Internet and digital education,
3. The promotion of equal access in the initiative and continuous training of impaired people, who have limited access,
4. The empowerment of vocational training policies, especially for the unemployed deaf and hard of hearing people, for their lifelong training in the fields of e-business, e-commerce, and economy, via innovative e-learning content.

2.1 Process/ Methodological Approach

2.1.1 Actions/Methods of Instruction and Learning Process

In the first phase of the program, the material was studied and the learners' prior experience and tacit knowledge was explored while the second one was mainly about finding appropriate resources and extracting from them the educational material. In addition, in the second phase of the program learning groups were formed and different activities were assigned to each individual group.

2.1.2 Assessment (Assessment Criteria)

Two assessment criteria were taken into consideration. Firstly, in what extent the e-learning proved to be useful for the participants of the project and secondly, whether they would be able to integrate e – commerce in their professional life or not.

2.1.3 Sample Description

The sample in this study consisted of 45 hearing impaired individuals, who participated in the courses offered in the context of SYNERGIA. Demographic data concerning the learners are in our possession.

2.2 Data Collection Tool

Data collection for this survey took place via questionnaires, consisted of closed type questions. The questionnaires were designed in increasing Likert scale (not at all, a little, enough) so that the respondents would specify their level of agreement to the statements of the study.

2.2.1 Questionnaires

AGE: 20 – 30, OVER 30,

SEX: MALE, FEMALE,

EDUCATION: HIGH SCHOOL, UNIVERSITY,

DEAFNESS: DEAF BY BIRTH, HARD OF HEARING BY BIRTH,

LANGUAGE: NATIVE, SIGN,

ENGLISH: YES, NO.

After the completion of the program, the participants were asked to answer the following questions:

1. Do you think that lip – reading which was used in the context of the course concerning dyscalculia has been a useful method?
2. Do you think that wikis are useful as a tool in the context of a course?
3. Based on your experience via SYNERGIA, do you think that wikis are easy to use?
4. Do you think that blogs are useful as a tool in the context of a course?
5. Based on your experience via SYNERGIA, do you think that blogs are easy to use?
6. Do you think that text with no sign language but supported by hypermedia was efficient?
7. Based on your experience via SYNERGIA, do you think that video – sign language was useful?
8. Do you think that the activities set up in the context of e – commerce course were helpful?
9. Would you say that the enrolment and navigation process in our social networking tool was easy?
10. Do you think that social networking helped in acquiring team spirit?

3 Questionnaires Analysis

Many important conclusions can be drawn after thoroughly studying the answers extracted from the filled out questionnaires. Consequently, it is important that we point out the most primary results with the help of the respective diagrams.

From the answers to the question concerning lip – reading, it is more than obvious that in general, the participants consider the specific method a very valuable one. Indeed, the great majority (80%) of the hearing impaired people that took part in this study claimed that lip – reading proved very helpful in facilitating the learning process in the context of the course concerning dyscalculia.

According to the following question, which meant to determine the usefulness of wikis in the context of a course, only a few learners in this study (7%) consider the specific WEB 2.0 technology a much helpful tool in learning and working after using it for their participation in the course introducing e-commerce.

In addition, based on their experience via SYNERGIA and on their participation in the wiki – based course of e – commerce, most of the participants (75%) came to the impressive conclusion that wikis are not at all easy to handle.

The question that follows examines in what extent the blogs are considered useful by our sample. Here, exactly as happened in the respective question concerning wikis, only a small fraction of our sample (7%) shares the opinion that blogs can be useful in a satisfactory level.

As it is probably expected, conclusions drawn from the respondents' answers to the question concerning the easiness of use of blogs for learning activities are similar to those concerning wiki use. Indeed, most of the participants (93%) in SYNERGIA believe that blogs also were a little or not at all easy to use in order to achieve the learning goal of the program.

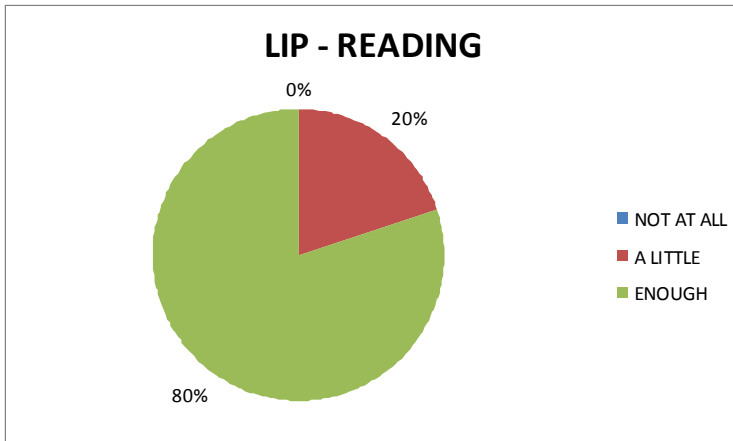


Diagram 1. Lip – reading

A much important question is the following one which explores whether plain text with no sign language but supported by hypermedia is a fruitful way for hearing impaired people to absorb learning material or not. Only a small percentage of the participants (4%) claimed that plain text supported by hyperlinks, a method that was used in two courses (e – commerce and International Account Standards), was a considerable help in learning process.

Via the following question, respondents, based on the acquired experience in the context of the course introducing e – commerce, showed almost unanimous preference in video – sign language,. Indeed, the great majority (91%) of the students was very positive towards video sign language as they consider that it has been a much valuable help for the understanding of the learning material.

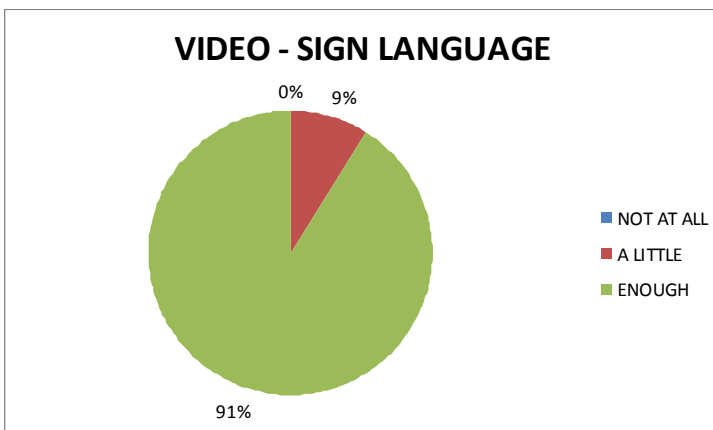


Diagram 2. Effectiveness of video – sign language

Activities set up in the context of the course introducing e – commerce proved to be an important ally in acquiring knowledge and developing skills via learning material. To be more specific, most of the participants (71%) shared the opinion that the activities taken over during the project SYNERGIA were an efficient way to enhance their learning performance. The answers to the question exploring whether the enrolment and navigation process in the social networking tool was easy or not, made it clear that our sample handled the specific tool significantly more easily compared to wikis and blogs. In fact, more than half of the respondents (55%) claimed through the questionnaire that handling the social networking tool was simple enough for them to use without serious problems coming up.

Finally, in the last question that examines the extent in which the social networking tool that we used in project SYNERGIA managed to promote a healthy team spirit among the participants, a large percentage of the participants (78%) answered that Ning.com helped them bond as a team and consequently promoted cooperative learning.

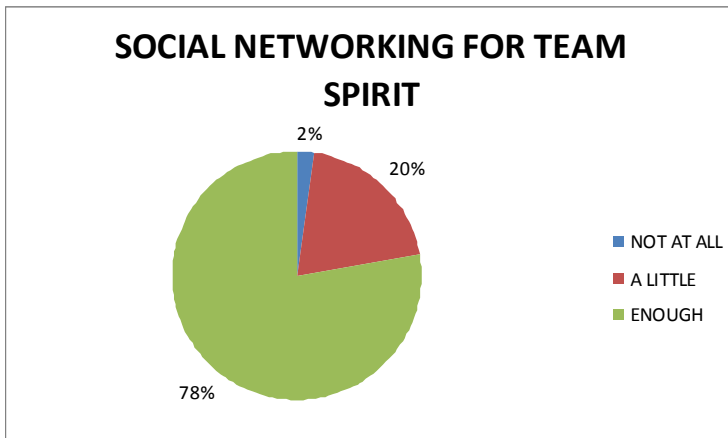


Diagram 3. Effectiveness of video – sign language

4 Conclusions

The empirical study that was conducted in the context of SYNERGIA, a project of Leonardo da Vinci of Lifelong Learning Programme, was presented in this paper in order for a general stream of hearing impaired people’s preferences for specific technologies and learning strategies to be expressed and diagnosed. Indeed, based on the filled out questionnaires one can easily conclude that deaf or hard of hearing people tend to be really positive when it comes to using lip – reading as it is a method that provides them a natural way to communicate and learn. Additionally, video – sign language is almost unanimously considered a very efficient method for facilitating absorbance of learning material and activities taken over by the learners in the context of a course seem to be a fruitful way to maximize learning results. However, commonly popular WEB 2.0 tools such as blogs and wikis as well as typical internet tools such as hypermedia do not seem to help them in the learning process and in general

are considered non practical in their use. Finally, in spite the fact that in several cases social networking has proved uneasy to handle, it finally earned a large percentage of the sample due to its usefulness in empowering team spirit. The important conclusions that were drawn from this program could be the starting point for further determination of efficient methods to promote the physically impaired individuals' digital education as well as to expand their professional activities in numerous innovative fields.

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