

Virtual Environment, Multimedia Materials and the European Higher Education Area: Good Practices in Physical Education

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The adaptation of the Spanish university system to the European Higher Education Area (EHEA) involves a significant change in the way of understanding teaching and learning processes, both from the viewpoint of the teacher and of the students. Training aimed at the attainment of skills, independent learning for students, the new role played by teaching materials and curricular linkage with Information and Communication Technologies (ITC), along with the shortcomings detected in the development of the subject of Physical Education Teaching Practice (Practicum), constitute the focus of interest on which this work is based.

Key words: Multimedia materials, Independent learning, European Higher Education Area, Physical Education.

1. THEORETICAL FRAMEWORK

As a result of the research carried out by Blasco (2002) regarding conformity in the application of the subject of Practicum, we discovered a series of problems with teaching management and communication between students and teachers that occurred while this subject was being taught in the current curriculum for the degree of Primary School Teacher - Physical Education Specialist at the University of Alicante. Students performed their teaching practice during the second term of the third year of the degree course, once they had already passed most subjects (they were only allowed to do their teaching practice when they had 9 core credits left to obtain). Some of the conclusions we reached as a result of the intervention of a Collaborative Research-Action project between a group of Physical Education teachers and their corresponding students on teaching practice allowed us to see the need to increase and improve communications between tutors – the teacher-tutor and university tutor-, and the benefits gained from teamwork. Among the implications and proposals for improving Teaching Practice, we included the use of Information and Communication Technologies because they allow closer relations between colleagues through virtual space, they facilitate access to information and data sources and they help with the exchange of knowledge between professionals and those on teaching practice.

These intentions have a suitable scenario for action in the new orientation of university studies as can be perceived from reading some of the documents prepared by experts as a framework for action. Thus, we can read that the Declaration of the Sorbonne (1998)¹ and the Declaration of Bologna (1999)² involved the start of the process of convergence, aiming to reach by 2010:

“a new approach to education and training, an approach that makes us see the need for European education and training systems to adapt to both the

demands of the information society and to the need to improve the level or quality of jobs”.

In turn, the Council for University Co-ordination considered that “it has thus become necessary to have a learner-based concept of academic training”. Finally, we must not forget the guidelines laid down in the Framework Document prepared by the Ministry of Education, Culture and Sport (MEC, February 2003)³ when it proclaims that “pilot experiences between universities are highly recommendable. These can be carried out in the area of specific degree courses and results can be extracted and applied to the design they eventually adapt to/apply”.

Taking all of the above into account, we designed a project entitled “TusPr@cticas” which aims to start up a new teaching-learning model based on independent learning by students with a view to integration of Spanish university studies into the European Higher Education Area. Royal Decree 1125/2003 of 5 September 2003⁴, established the European credit as:

“the unit of measure of academic credit represented by the quantity of work carried out by the student to attain the objectives of the study programme. Integrated into this unit of measure were theoretical and practical teaching, as well as other supervised academic activities, with inclusion of the hours of study and work that students should carry out to attain the training objectives specific to each subject in the study programme”.

Furthermore, article 4.3 specifies that for allocation of credits “the number of hours of work required will be calculated” including in this calculation “theoretical or practical classes, study time, hours dedicated to carrying out seminars, work, practicals or projects, and those required for preparing for exams and assessment tests”.

In this context, our efforts on putting this experiment into practice were aimed at searching for educational strategies that made it possible to change from a teacher-oriented learning experience to independent learning by students, the new role played by teaching materials and training aimed at the attainment of skills. The preparation of Support Materials in disk format related with the student’s performance in class, and the Forum for Exchange and Multimedia Materials are some of the tools we used to make communication and information between all participants more effective. The experiment proposed in [TusPr@cticas](#) has so far addressed and complied with each of these aspects.

The intention of the work group on preparing the materials was twofold. On the one hand, we aimed to have a framework based on the work carried out by students during the academic year so that, in this manner, they could search for and select the information most suited to their purposes. And, on the other hand, based on the knowledge acquired during the previous academic years, students could make their own materials, thus complying with one of the new aspects identifying the new university teaching method, independent learning by students. We shared with Zabalza (2003:187)⁵ the assessment that he makes of the support materials when he said that: “the basic characteristic of these supplementary materials is not the information load they contribute (new texts, cuttings, data, etc.) but their content in terms of a guide for learners”.

Based on these considerations and our awareness of some shortcomings in Teaching Practice as a subject, to which we had access after reading some of the reflections made by students in their Reports on teaching practice, we followed the guidelines suggested by the above-mentioned author for the preparation of Support Materials:

“1. Importance and usefulness of each topic; 2. Most important aspects of each topic; 3. Highlighting important information through the preparation of tables, charts, formulas, etc.; 4. Offering practical examples when the topic requires in-depth understanding; 5. Self-assessment activities for checking the reliability of their knowledge; 6. Bibliography and reference materials where they can extend their knowledge”.

To summarise, it is a question of promoting and making independent learning by students possible and avoiding dependence on teacher-centred lecture sessions where attendance is required. As a result, this line of work that is being put into practice could be applied in the preparation of materials for students along the lines required by the EHEA and ECTS credits. Rico Vercher and Rico Pérez (2003:15)⁶ look in depth at this new method of learning for university students and define it as, “a method of learning in which students are responsible for organising their work, acquiring knowledge and assimilating it at their own rhythm”.

In their explanation, the authors determine the skills that students should be able to put into practice to be able to carry out “their learning” satisfactorily. And they thus talk about “*organisational skills*” (Rico Vercher & Rico Pérez, 2003:15) which we have reproduced below since we consider them all necessary for students while carrying out Teaching Practice and they can be found on the [TusPr@cticas](#) web site.

ORGANIZATIONAL SKILLS

1. Finding information
2. Ordering information
3. Analysing information
4. Selecting information
5. Comparing data
6. Being able to assess different options and make a choice
7. Summarising-condensing
8. Relating new information to previous information
9. Making a work plan including schedules
10. Making systematic observations and keeping a record of them
11. Handling audiovisual resources
12. Handling computer and telematic resources
13. Recalling information correctly after some time has passed
14. Preparing new products

Table 1. Organisational skills to be developed by students for independent learning. (Rico Vercher & Rico Pérez, 2003:16).

ICT and, in particular, multimedia resources –videos, sound and text– integrated into TusPr@cticas, allow students to design their teaching practice Report with sufficient guarantees of information. As a result of the implementation of this virtual platform and the subsequent assessment carried out by teaching practice students from the 2003/2004 academic year, we have introduced some new features, such as FAQs. Following the seminars and subsequent reading of the reports from the previous year, the tutors

selected those questions that students asked most often, and on the basis of these they prepared the FAQs, thus offering additional information prior to students joining their schools. So that when students join their schools and their first questions arise, it is possible that the solution to them can already be found posted on the web site.

In this way, students have the opportunity of finding the answer without waiting for the weekly seminars that take place at the university. Furthermore, the system allows the inclusion of new FAQs as new questions arise that require answers.

Recently, authors from different academic disciplines have investigated ICT utilities in teaching. Thus, for example, Calvo and Blázquez (2002)⁷, based on recommendations suggested by Silverman (1997) regarding the use of ICT in teacher training and especially in in-service training, assert that these applications would be centred on online training and the possibility of sharing information and resources through the creation of virtual learning communities. One of the methods of implementing online training is the creation of virtual learning environments (VLEs) in which, according to Calvo and Blázquez (2002:87), “different technologies and applications are combined to generate a space for interaction in which teachers and students can carry out teaching and learning activities”. The same authors point out the characteristics that VLEs should comply with, among which we highlight: flexibility and interactivity; allowing links with other virtual learning environments and, finally, the possibility of accessing study materials and resource banks. In this respect, we consider that the approach based on learning objects is currently one of the pillars of learning via the Internet (Roig Vila,

2004)⁸. The resources existing on our *TusPr@cticas* web site may be considered learning objects in the process of creation of curricular materials.

2. OBJECTIVES

The objectives we aim to reach with this work are:

1. Finding out the opinion of students regarding the relevance and use of the *TusPr@cticas* web site
2. Assessing multimedia resources –videos, materials, forums, fax, etc.
3. Identifying the time and frequency of consultations.

3. METHODOLOGY

The study has been implemented through a quantitative methodology. Access to this information was obtained through a structured questionnaire that we prepared for the occasion, and which was completed by students. Participants were all students -102- from the third year of the Teacher Specialist in Physical Education degree course at the University of Alicante, during their teaching practice period –*Practicum* – which took place in the third year, second term –from 28 February to 31 May– of the 2004/05 academic year, from which only 70 students presented the final report and the questionnaire. Since the purpose of the work is to understand the feasibility of a possible study with a group of subjects that covers all specialities in Primary School Teaching and the 2nd Cycle of Physical Activity and Sports Science, the number of

subjects in the sample is not sufficient for it to be considered an experimental study, but it does provide sufficient data to sustain a study with a broader scope.

4. RESULTS

Obtaining of information on access to the <http://www.dgde.ua.es/tuspracticass>, web site was carried out using the free source: “AWStats Free real-time logfile analyzer to get advanced statistics” (GNU GPL), while analysis of the data obtained through the questionnaires designed for the occasion took place with the SPSS 12 (Statistical Package for the Social Sciences) statistical analysis program.

In the analysis of the data, first of all there is the item on which the students expressed an opinion, followed by the corresponding charts and the interpretation of the information.

Item 1: Do you consider that consulting the materials and content in Tuspr@cticass has been useful for your teaching practice?

Over half of the students surveyed (61.4%) considered that the materials made available on the web site were very useful during their teaching practice. These materials referred to topics related with the design and preparation of teaching units, teaching and learning styles and practical examples in video format, the Practicum guide, and the document analysis instruments such as the General Classroom Programming, the Curricular Project for Schools and Stages, the characteristics of the school and the pupils, in other words, the sections into which the Teaching Practice Report is structured. On the other hand, only 8.6% considered that the materials were not very useful.

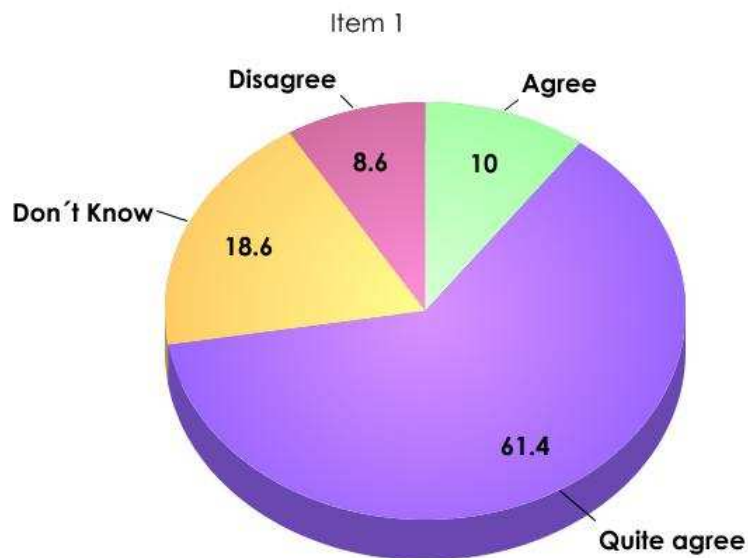


Chart 1: Question 1 Frequency Chart (expressed as percentages)

Item 2: Did you consult Tuspr@acticas to find information or answers to your questions when you had a problem?

When students accessed the web site, the majority of them did so because they were looking for answers to questions and/or information, reaching a percentage of 62.9%. This data comes very close to the values attained in *Chart 1* whose maximum value was “*the usefulness of the materials*”. This is why we can establish a significant relationship between the content offered for students to consult and the implicit objectives in the European Credits Transfer System, specifically the “*student’s learning time*”.

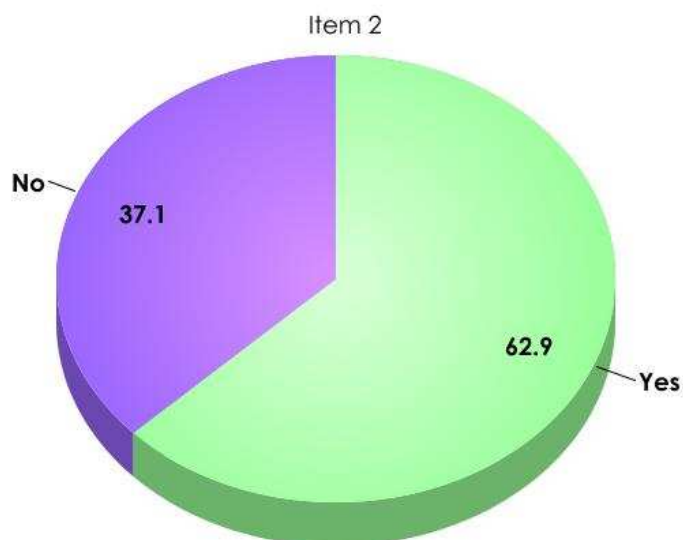


Chart 2: Question 2 Frequency Chart (expressed as percentages)

Item 3: Do you think that the content of the materials (videos, FAQs, documents, etc.) is accurate and facilitates the work of designing Teaching Units and preparing the final report?

The results shown in *Chart 3* show the high percentage (75.7%) of agreement reached by students on rating the support documents and materials used during their teaching practice period, seeing them as facilitating the work of preparation of the final report. At the same time, we can observe how the task of prior design of materials for students has been effective, since one of the objectives of the design of materials for the web site (videos, FAQs, etc.) was to offer specific, relevant resources for preparing the report and for work in the classroom. We thus coincided in the fact that adapting study programmes to the ECTS (European Credit Transfer System) should not involve an excessive offer of information by the teacher but should rather provide sufficient information for the student to cope with the learning process.

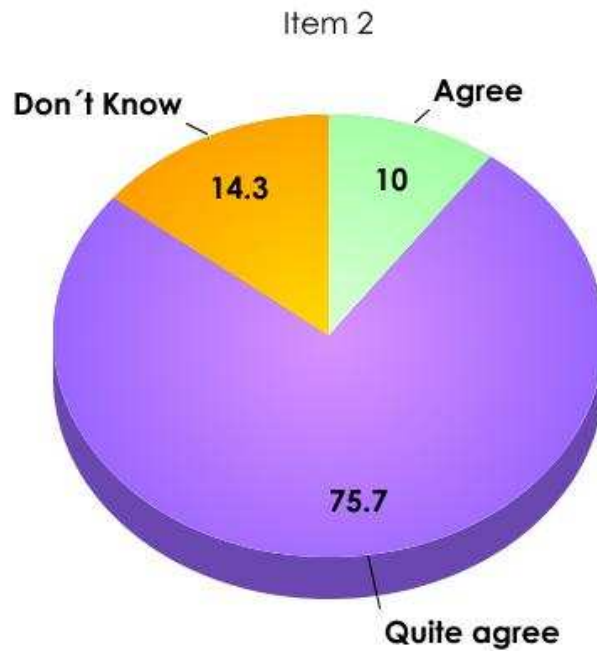


Chart 3: Question 5 Frequency Chart (expressed as percentages)

Item 4: Do you think that the content is useful and relevant from a practical point of view?

The percentage reached by this item – 77.1%– shows the usefulness of the content made available to students on the web site, since the value has increased with respect to the data obtained in items 1, 2 and 3 and all refer to the usefulness of the materials. Meanwhile, only 1.4% did not express their agreement with their usefulness, This is why this item endorses our previous contributions.

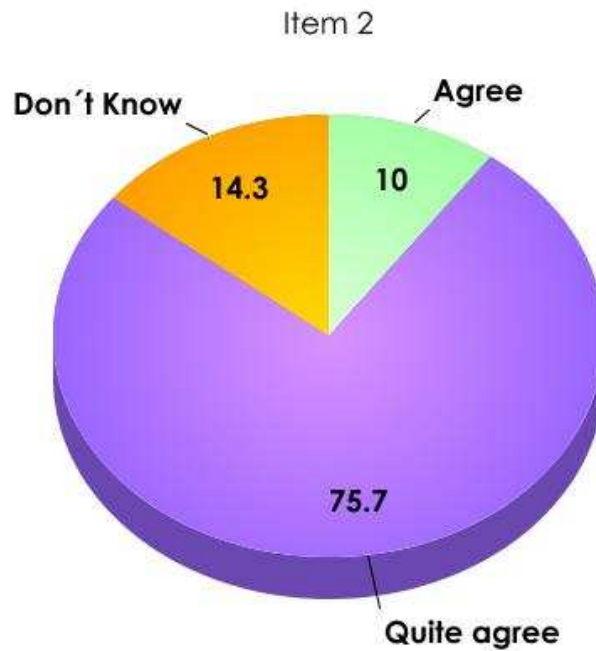


Chart 3: Question 5 Frequency Chart (expressed as percentages)

Item 5: Do you think the volume of information is sufficient?

One of the problems we have to face as teachers when we design materials is offering the necessary resources (not too few, not too many) so that students may carry out their teaching practice consistently and effectively. This is why this question is particularly relevant when it comes to planning the design and offering the essential materials in future programming within the EHEA.

The data provided by *Chart 5* shows relative equality between the level of agreement of the subjects. While only 1.4% considered it sufficient. In our opinion, this demonstrates that the information we can provide for students is never sufficient and everything can be improved.

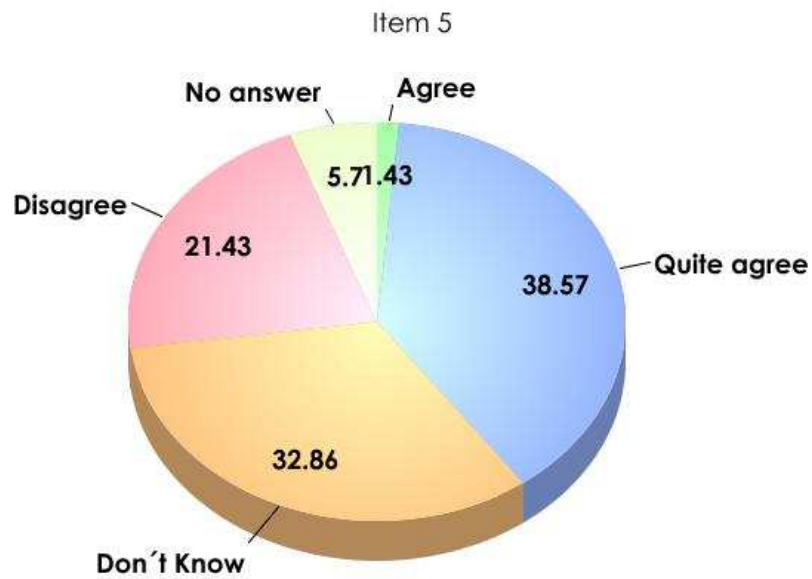


Chart 5: Question 7 Frequency Chart (expressed as percentages)

Item 6: Do you consider that the teaching and educational quality of the content is high?

On the other hand and compared to *Chart 5*, there is a high percentage of agreement regarding the high teaching and educational quality of the content. A very low percentage of students - 4.29% - thought that the materials had little educational value. Consequently, we understand that the quantity of the content that students may consult is not as important as the educational quality that the materials may provide for students in their training process.

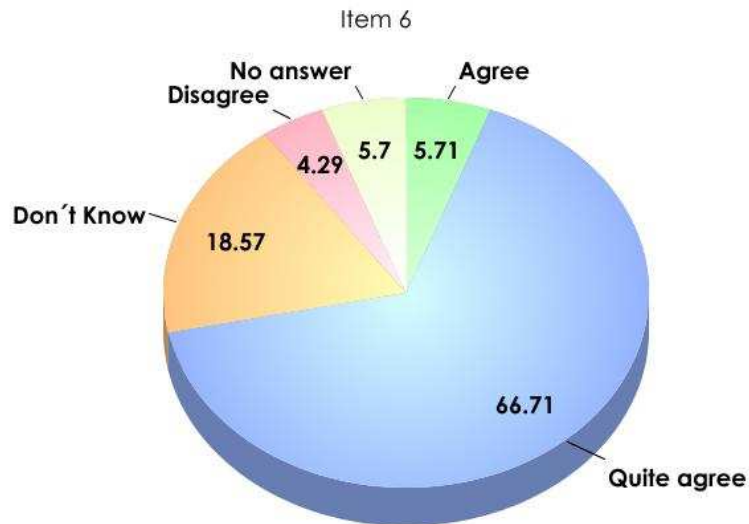


Chart 6: Question 8 Frequency Chart (expressed as percentages)

Item 7: How long were you connected?

One of the problems the EHEA area faces when it comes to establishing the type of relationship between the study programmes and the use of new technologies in the classroom is being able to determine how much time students should spend using these technologies. However, we have been able to observe that Tuspr@cticas students made synchronous and asynchronous use of Internet connection, since the strategies used by students differed significantly.

“Rather than wait for tutorials to clear up any queries, I tried to find the answer on Tuspr@cticas”

Subject connection time: between 5’ and 15’. Total: between 5 hr and 10 hr.

“It was very accessible for me because sometimes I couldn’t get down to the university and I consulted my queries on the computer”.

Subject connection time: between 5' and 15'. Total: between 5hr and 10 hr.

This is why, as we can observe in the following analyses, the connection time is not a determining variable in the use or working of the materials on offer, but rather a reference to physical access to the content.

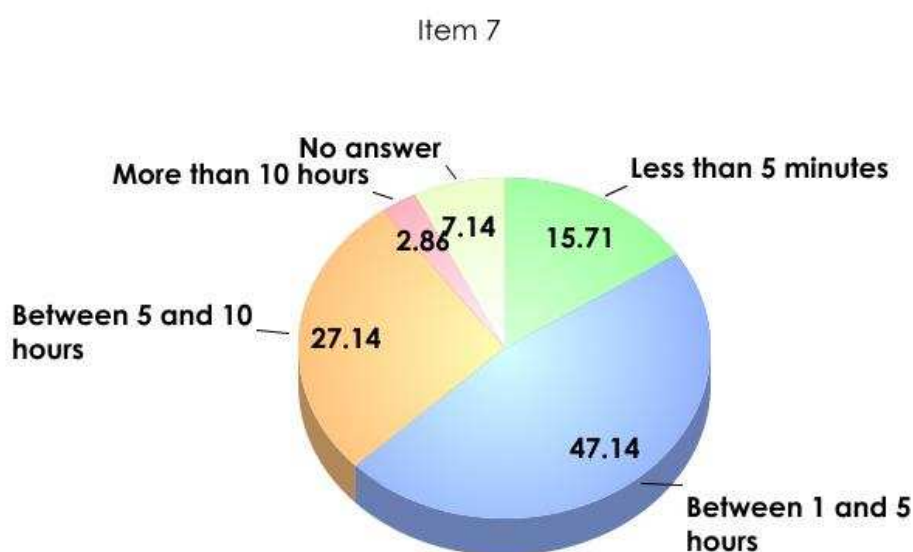


Chart 7: Question 13 Frequency Chart (expressed as percentages)

Item 8: How much time do you think you spent consulting the Tuspr@cticas web site?

Statistical control of access and estimated time of use of a platform are some of the data that SCORM (Sharable Content Object Reference) standards of virtual teaching platforms attempt to collect. This type of information allows teachers to establish the relationship of work, effort and query between students and content.

Although the Tuspr@cticas platform does not comply with SCORM standards (their implementation is not easy and was not included in the scope of the project), the statistical analyzer of access to content that was used (“*AWStats Free real-time logfile analyzer to get advanced statistics*”) allowed us to establish significant relationships regarding visits to materials by students.

In this respect, we observed that although students have not invested numerous hours in consulting the web site, the number of accesses to the content was significantly high. During the time the Practicum lasted, a total of **7839** accesses by registered users was obtained, of which a total of **357** accesses/downloads were “videos” as well as **966** accesses to other types of material on the site (Documents, PDFs, etc.). This data compares with our comment on *Chart 7*, given that there is a student profile who prefers to download the content for viewing it later, while another group of students usually consults it online, probably because they are permanently connected to the internet and access the content via the portal.

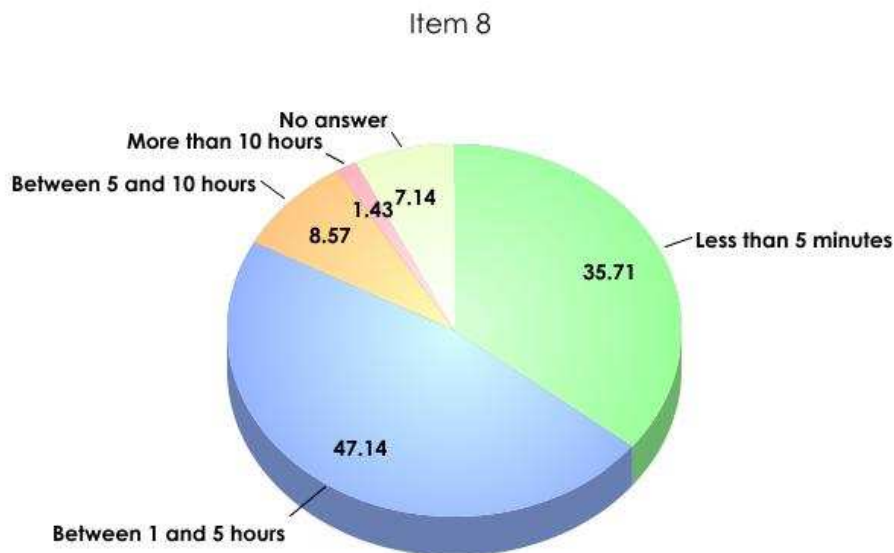


Chart 8: Question 14 Frequency Chart (expressed as percentages)

5. CONCLUSIONS

From the analysis of results made in the previous section, we can conclude that the subjects who participated in the study considered that the materials made available on the [Tuspr@cticas](#) web site were of great educational relevance, and at the same time an element that facilitated preparation of the Final Report. Furthermore, it means that the line of work used for design and preparation of the materials was effective, adapting to the requirements expected for carrying out the Practicum and interaction with the elements of the [Tuspr@cticas](#) platform.

On the other hand, even though the time of connection to the web site was not excessively high at between 5 and 10 hours, we can consider that the time variable is not a determining factor in the use of the materials made available. Whereas the number of hits has been very high –7839– which would serve to confirm the above conclusion.

Consequently, the work philosophy we are trying to implement when it comes to carrying out experiments that involve adaptation to the new ECTS system of credits favours a methodology of independent work centring the student's learning process. We agree with Rinaudo (et al, 2002)⁹ on stating that the teacher:

“will take on more of a function as a collaborator, facilitator and guide, intervening more sporadically, while students will adopt a much more important role in their training, acting as an active agent in the search, selection, processing and assimilation of information”.

This is why the new teaching strategies that will be provided by the EHEA will promote the active role of the student, a situation that will show that the teacher is not the focal point of interaction (Gay and Grosz-Bgate, 1994:421)¹⁰, but rather a mediator and facilitator model who attempts to involve students in their own learning process

To sum up and conclude, we can assert that the use of ICT and in particular the [Tuspr@cticas](#) virtual environment may be considered as an element that facilitates learning for students. Furthermore, ICT provides resources that allow the introduction of new teaching methods that may help to improve and bring innovations to teaching (Roig Vila, 2003b), showing that the interaction of ICT and the learning time of the student are directly related, which situates this way of working among the needs of the EHEA.

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**ENCUESTA CUESTIONARIO PERCEPCIÓN, USO Y UTILIDAD DE
TUSPR@CTICAS DURANTE LA FASE DE REALIZACIÓN DEL PRÁCTICUM DE
MAGISTERIO**

SOBRE LA UTILIDAD Y UTILIZACIÓN DE TUSPR@CTICAS

1. Consideras que la consulta de los materiales contenidos en Tuspr@acticas han resultado útiles para tu periodo de prácticas?
 Muy de acuerdo
 Bastante de acuerdo
 Indeciso
 Poco de acuerdo
 Nada de acuerdo

2. La presentación de la información en la pantalla es clara y accesible
 Muy de acuerdo
 Bastante de acuerdo
 Indeciso
 Poco de acuerdo
 Nada de acuerdo

3. La navegación por la página y el acceso al contenido es fácil y sencillo.
 Muy de acuerdo
 Bastante de acuerdo
 Indeciso
 Poco de acuerdo
 Nada de acuerdo

4. ¿Consultabas Tuspr@acticas en busca de información, o resolución de dudas cuando tenias algún problema?
 Si.
 No
Porque:

SOBRE LA VALORACIÓN DE LOS RECURSOS MULTIMEDIA

5. Crees que el contenido de los materiales (videos, faq's, documentos...) es preciso y facilita la labor de diseño de la Unidad Didáctica y elaboración de la memoria.
 Muy preciso
 Bastante preciso
 Indeciso
 Poco preciso
 Nada preciso

6. Desde un punto de vista práctico crees con los contenidos son útiles y adecuados
 Muy de acuerdo
 Bastante de acuerdo
 Indeciso
 Poco de acuerdo
 Nada de acuerdo

NOTES

¹ URL:<http://www.eees.ua.es/documentos/declaración_sorbona.htm [Consulted.29 June 2006]

² URL:<http://www.eees.ua.es/documentos/declaración_bolonia.htm [Consulted.29 June 2006]

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