

Are the Functions of Teachers in e-Learning and Face-to-Face Learning Environments Really Different?

Laura Alonso Díaz* and Florentino Blázquez Entonado

Department of Education Sciences, University of Extremadura, Av. Universidad s/n, 10071, Cáceres, Spain // laulonso@unex.es // blazento@unex.es

*Corresponding author

ABSTRACT

The main purpose of this study is not to compare online and traditional face-to-face instruction merely to prove which one is better, but rather it aims to highlight some of the possible risks and strengths which may help to improve the role of teachers in both methods. The scene consisted of various thematic blocks from a training programme, with teachers who taught two different groups of students, one of them face-to-face and the other online. The study was designed using a quantitative and qualitative methodological combination, and focuses on the dimensions of “theoretical content”, “practical content”, “tutor/student interaction” and “design” of the training activity. As a general conclusion, no important differences were observed in the functions of the teacher in the two teaching methods, face-to-face and online; any differences that might exist were usually a consequence of teacher involvement and of the commitment of the institution in programming the learning process.

Keywords

E-learning, Face-to-face learning, Computer-mediated communication, Online teacher, Traditional teacher

Introduction

Although e-learning is still in its infancy, the knowledge acquired by teachers who use online and face-to-face methods can be of great use in improving both types of teaching, which is the reason why researchers nowadays study issues related to these teaching methods, e.g. Urtel (2008) and Georgouli et al. (2008). It is not simply a question of retaining traditional teaching methods such as the master class and applying e-learning techniques to gain access to more information. Nor does it mean involving the students in the same learning methodology using a different medium.

Considerable progress must still be made to enable today’s society to take full advantage of the potential of online teaching. Several researchers (Wilcox & Wojnar, 2000; Mason, 2003; Rovai, 2004; Salmon, 2004; Kearsley, 2005; Cabero, 2006; García Aretio et al., 2006, among others) have reported on the peculiarities in design, contents, activities, interaction, tools and evaluation processes in face-to-face and online modes of teaching. On comparing the two methodologies, people may mistakenly regard the two processes as similar when in fact they should be seen as different from the outset. However, it is useful to carry out comparative research which might lead to improvements in each type of learning model. Coates et al. (2004) have pointed out that it is negative to explain only the differences between face-to-face and online methods and not the basic attitudes which form the starting point for each model.

At the beginning of the 1990’s education by correspondence was criticized on the grounds that it reduced education to a mere process of industrial production (Peters, 1993). Shaw (2001), however, believes that problems only arise when conventional teaching methods are simply adapted to distance learning; indeed, Johnson et al. (2000) found that there are no significant differences between the two methods when success factors are determined. In this way, students can learn just as effectively in either of the two formats, whatever their style of learning, providing that the teaching is conducted with an adult learning theory and has instructional design guides. In this respect, online learning is especially useful for students who, for reasons of work, family or social commitments, require a different way of learning (Jeffcoat & Golek, 2004).

Blankson and Kyei-Blankson (2008), among others, have investigated the extent to which students are satisfied with online, face-to-face and blended courses. They decided to integrate synchronous online discussions with traditional face-to-face instruction, and the results of their study suggested that students were generally satisfied with the blended course format. However, Lim et al. (2008) conducted an empirical investigation of student achievement and satisfaction in different learning styles, and found that no significant differences existed between online learning and traditional learning groups. So and Brush (2008), having also studied student perceptions of satisfaction in a blended

learning environment, discovered that students who perceived high levels of collaborative learning tended to be more satisfied with their distance course than those who perceived low levels of collaborative learning.

Reisetter et al. (2007) examined whether online learners and face-to-face learners are equally satisfied with the quality of their learning; their findings showed that both learning styles scored equally with regard to learning outcomes and satisfaction, despite the fact that each style has decidedly different learning experiences. This study offers insight into the nature of the experience of online learning, and suggests that online course designers focus their attention on particular elements that support the unique experiences of students who select this learning method.

The efficacy of face-to-face and online learning was compared by Solimeno et al. (2008). Overall, their results showed that asynchronous collaborative learning online can increase professional competences normally acquired only in small face-to-face educational settings; they report that online learning can be used to provide innovative educational opportunities to fit the particular needs of students who have time management problems in their learning strategies, with low anxiety, high problem solving efficacy.

A field experiment carried out by Hui et al. (2008) compares the effectiveness and satisfaction associated with technology-assisted learning with that of face-to-face learning. It showed that technology-assisted learning improves students' acquisition of the kind of knowledge which requires abstract conceptualization and reflective observation, but adversely affects students' ability to obtain knowledge which requires concrete experience. Technology-assisted learning is better for vocabulary learning than face-to-face learning, but it is comparatively less effective in developing listening comprehension skills.

It is clear that to compare the advantages and disadvantages of each system would require an examination of the needs of a diversified population. Some researchers have concluded, in this respect, that it is necessary to design flexible courses that integrate techniques from both face-to-face and online methods (Delfino & Persico, 2007). Wuensch et al. (2008) evaluated the pedagogical characteristics of their most recently completed face-to-face class and their most recently completed online class. The results showed that students rate online classes as far superior to face-to-face classes in terms of convenience and in permitting self-pacing, but they also rate online classes as inferior in a number of other ways. Online and face-to-face instructional formats, then, each have their own strengths and weaknesses. The authors cited have detailed these strengths and weaknesses with the aim of improving both methods of teaching by reducing the weaknesses and maintaining the strengths. These studies confirm the relevance of what is known as "blended learning", which consists of the combination of face-to-face and distance teaching/learning methodologies. According to Berger et al. (2008), online and face-to-face environments play different and complementary roles. In this way, the development of "blended learning" as a grounding area will enable teachers to design, develop and deliver effective mixed programmes (Chew, 2008). However, Jackson and Helms (2008) have found that hybrid classes continued to exhibit the same weaknesses of the online format, and that the addition of face-to-face interaction does not minimize weaknesses.

The University of Extremadura organizes courses for obtaining the Certificate in Pedagogical Aptitude for those graduates who wish to become secondary school teachers. These courses include a phase of general psycho-pedagogical training, in face-to-face or online mode, and it is in this phase that our study has been conducted. Online teaching is offered with the aim, on the one hand, of providing an alternative for those students who have difficulties in attending classes in the traditional manner, and on the other, of promoting teaching methods that allow teachers to make use of new advances in communication technology. The teaching process is supported by multimedia didactic material which the student must study with a computer, via Internet, using the University's Moodle platform. This material has the same psycho-pedagogical contents as that used in the face-to-face classes. The duration is the same as for class attendance, based on the estimate that a student will need to invest a maximum of 100 hours of work and participation in the various activities required for a pass in this phase. The students are also offered at least two non-compulsory though recommendable face-to-face sessions. For each of the study topics, the student has the support of a designated teacher who is responsible for clarifying doubts and questions related to the course contents. Communication between teachers and students, and students and students, is made by email, chats, forums and telephone, depending on the purpose. The teaching group which has been in charge of this programme for a number of years, and of which the researchers in this study form part, is a community of practice with a shared desire to introduce innovations in online teaching. Learning to teach is a process built on understanding, developing and effectively using personal characteristics in relations with the students.

This secondary school teacher training programme was studied in the year 2007. The scene set for our research consisted of three different thematic blocks or subjects of the training programme of the course that were taught by the same three teachers to two different groups of students, the face-to-face students and the online students (Figure 1).

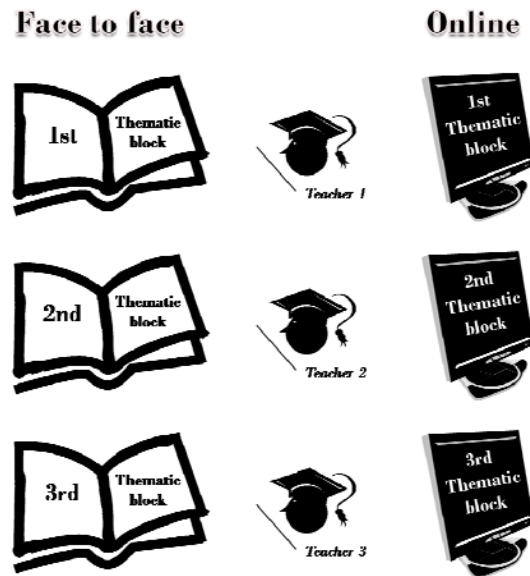


Figure 1. The scene

The purpose of this study is not to compare online and face-to-face instruction merely to prove which one is better, but rather it aims to determine possible weaknesses and strengths of each of the two methods with the aim of improving the role of teachers in online and face-to-face learning. The main objective of this research, therefore, was to determine whether differences exist in work-related tasks carried out by teachers of online and face-to-face systems, with regard to:

- *Theoretical Content*: conceptual theoretical content of the training action and its online structure;
- *Practical Content or Activities*: practical activities useful for understanding the theoretical content;
- *Interaction*: the process of the relation which occurs between teachers and students throughout e-training, and its implications;
- *Design*: management and administration aspects related to the distribution of content with regard to space and time, instructions, technical problems etc.

The following hypotheses were established:

1. Satisfaction and efficacy in the study of *theoretical content*, *practical content*, and teaching *design* is higher in the online training programme than in the face-to-face training programme.
2. Satisfaction and efficacy in *interaction* processes is greater in the face-to-face training programme as compared to the online training programme.

Method

A combination of both quantitative and qualitative methods was used.

Quantitative methodology was considered pertinent from the point of view of comparing concrete aspects of the same teaching programme taught in two different modes, i.e., face-to-face and online. It was not only effective in establishing comparisons between the two modes, but also facilitated the treatment of data on large populations.

To ensure greater rigour in the methodology and reliability of the data obtained, qualitative data were added to the statistical results. In this way the two methods complemented each other to enhance the quality of the study.

A total of 255 subjects participated in the study, two of which are renowned experts in online and distance education: Dr. Julio Cabero Almenara (Professor of Didactics and School Organization at the University of Seville) and Dr. Lorenzo García Aretio (Chairman of UNESCO Distance Education in Spain). The number of students participating in the training programme in its online and face-to-face versions was 250 (129 online and 121 face-to-face), plus three teachers who took part in both types of teaching.

For the collection of data, a triangulated technique of closed questionnaires, semi-structured interviews, and discussion groups was used, as shown in Figure 2.

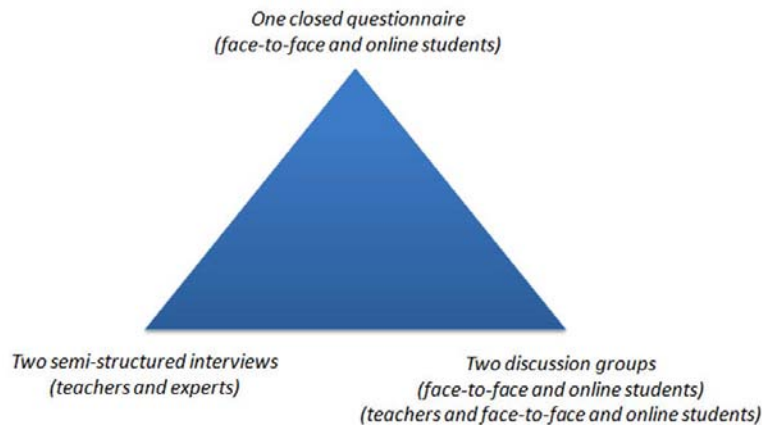


Figure 2. Techniques

The process of collection and analysis of data, and interactivity among the various research tasks, is presented in Figure 3.

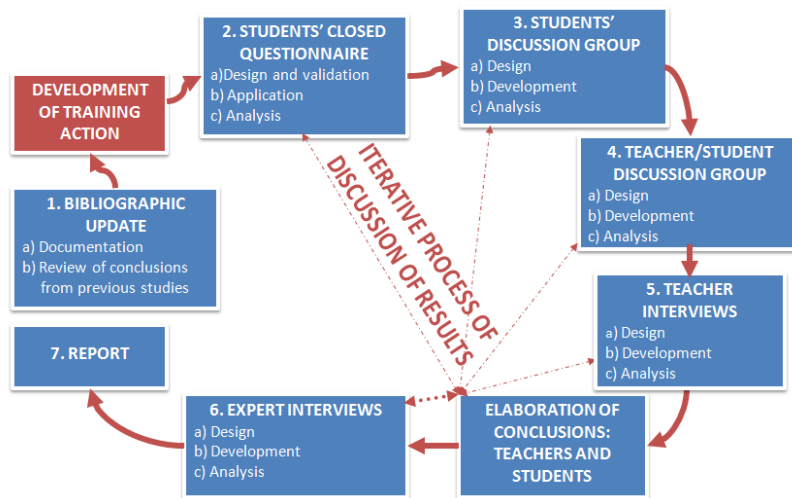


Figure 3. Process of collection and analysis of data

Closed questionnaire

A closed questionnaire was prepared to gather data on the following variables:

- A nominal variable: “group”; with two values: “face-to-face group” and “online group”.

- Twenty quantitative variables grouped in four dimensions: “*theoretical content*” of the subject-matter; “*practical content*” of the subject-matter; “*interaction*” with teachers; “*design*” of the training programme.

The initial questions on the questionnaire were prepared after a review of the literature and of previous studies (Wilcox & Wojnar, 2000; Mason, 2003; Rovai, 2004; Salmon, 2004; Kearsley, 2005; Cabero, 2006; García Aretio et al., 2006; Blázquez & Alonso, 2006). The first version of the questionnaire, with 26 questions, was submitted for judgment by the experts, by email and ordinary mail. The experts evaluated whether the 26 questions suggested were more or less pertinent using a Likert-type scale with five different values (1 = not pertinent... 5 = very pertinent); they also filled in a section suggesting possible modifications for each question. Finally, the questions that were considered by the experts to have a value lower than 4 were removed from the questionnaire.

The final questionnaire consisted of 20 questions, of which 18 solicited information on levels of satisfaction and efficacy of “theoretical content” (items 1 to 6), “activities” (items 7 to 12), and “tutor/student interaction” (items 13 to 18) for each of the three thematic blocks. Two questions (items 19-20) addressed levels of satisfaction and efficacy of the “design” of the training programme in each of the online and face-to-face teaching modes (Table 1).

Table 1. Final structure of the questionnaire

Items	Content of the items
1-3	Satisfaction with the theoretical content of thematic blocks 1, 2 and 3
4-6	Efficacy in the study of the theoretical content of thematic blocks 1, 2 and 3
7-9	Satisfaction with the practical content of thematic blocks 1, 2 and 3
10-12	Efficacy in the study of the practical content of thematic blocks 1, 2 and 3
13-15	Satisfaction with the interaction of thematic blocks 1, 2 and 3
16-18	Efficacy in the study of the interaction of thematic blocks 1, 2 and 3
19	Satisfaction with the design of the training programme
20	Efficacy in the study of the design of the training programme

With regard to the precision of the instrument designed, that is, its reliability, Cronbach’s α coefficient was used. By this means it was verified that the reliability of the questionnaire designed was $\alpha = 0.916$, so it was assumed that reliability was high and that the questionnaire would measure the previously described theoretical dimensions with precision.

At the end of the training programme the 121 face-to-face students and the 129 online students completed the questionnaire.

Discussion groups and semi-structured interviews

The discussion groups and semi-structured interviews were designed to complement the quantitative data of the questionnaire. In this way, the questions were designed following the same variables used previously in the questionnaire, as they had been validated previously by the experts. The participants were asked about satisfaction and efficacy of the “*theoretical content*”, “*practical content*” and “*tutor/student interaction*” of the training activity in the three thematic blocks analyzed; and about the “*design*” of the online and face-to-face training activities.

In the preparation of the discussion groups and interviews, the “funnel” strategy was employed, which consists of questions of a more general nature and other more specific ones on each of the categories. This strategy was only used when it was necessary to delve more deeply to obtain information (Buendía et al. 1997). Two researchers moderated the discussion groups and carried out the interviews, which were recorded with the permission of the participants.

The following discussion groups and interviews were held:

1. First discussion group: eight students from the training programme (four face-to-face and four online) took part. The aim of this discussion group was to ascertain students’ levels of satisfaction with and efficacy of “theoretical content” in each of the two teaching modes. (E.g.: “*Do you feel satisfied with the theoretical content of the first thematic block? Why?*”)

2. Second discussion group: eight students from the training programme (four face-to-face and four online) and the three teachers who taught the two teaching modes took part. The aim of this group was for teachers and students to take part in a discussion on “theoretical content”, “activities” and “tutor/student interaction” in the three thematic blocks analyzed, and on the “organizational design” of the online and face-to-face training activities. (E.g.: “*Do you think that there has been good interaction between you and the teachers in the course?*”)
3. Semi-structured interview with teachers: teachers were questioned on their levels of satisfaction and efficacy with regard to the “theoretical content”, “activities” and “tutor/student interaction” in their face-to-face and online thematic block. They were also asked about their levels of satisfaction and efficacy regarding the “organizational design” of each of the teaching modes (online and face-to-face). (E.g.: “*Do you think that the design you have prepared for the online course is as good as the design for the face-to-face course?*”)
4. Semi-structured interview with experts: experts were asked in which respect they considered that the work functions of the face-to-face teacher differed from that of the e-learning teacher. (E.g.: “*Do you think that there are differences in the way that face-to-face teacher and online teachers develop their tasks?*”)

Results and discussion

Results of closed questionnaires

For the analysis of the variables with inferential statistics, the Mann-Whitney U-test was used, since it is the non-parametric test used for two independent groups. It was necessary to use non-parametric tests because in no case was the assumption of homocedasticity fulfilled, as was previously ascertained by Levene’s test.

The table below summarises only those items which were confirmed with 95% confidence, together with the result of the Mann-Whitney U-test and its significance (see Table 2).

Table 2. Functions differentials between face-to-face and e-teachers (summary of quantitative analysis of data)

ITEM	Mann-Whitney U-test	SIG.
1. <i>Satisfaction with the theoretical content of thematic block 1</i>	5640.500	0.000
4. <i>Efficacy in the study of the theoretical content of thematic block 1</i>	6414.500	0.012
7. <i>Satisfaction with the practical content of thematic block 1</i>	5809.000	0.000
8. <i>Satisfaction with the practical content of thematic block 2</i>	6435.500	0.014
10. <i>Efficacy in the study of the practical content of thematic block 1</i>	5767.000	0.000
17. <i>Efficacy in the study of the interaction in thematic block 2</i>	6244.000	0.005
19. <i>Satisfaction with the design of the training programme</i>	6704.500	0.044

With regard to the items on *satisfaction with the theoretical content*, there were significant differences between online and face-to-face training only in the first thematic block, online structuring of theoretical content being higher (U= 5640.500 and $p<0.05$).

For *efficacy in the study of the theoretical content*, only design and structuring of the theory of thematic block one was significantly better in the online group than in the face-to-face group (U= 6414.500 and $p<0.05$).

Satisfaction with practical content in thematic block one was higher in the online version of the course (U=5809.000 and $p<0.05$). Similarly, practical content of the second thematic block was more satisfactory in online mode than face-to-face (U=6435.500 and $p<0.05$).

It was found that for *efficacy in the study of practical content*, thematic block one was more efficacious in online mode than in face-to-face mode (U=5767.000 and $p<0.05$).

With regard to *efficacy in the study of the process of interaction with teachers*, the results show that thematic block two was more efficacious in face-to-face mode than in online mode (U= 6244.000 and $p<0.05$).

Finally, it was found that the online students were significantly more *satisfied* with the *design of the training programme* than the face-to-face students (U= 6704 and $p<0.05$).

Results of discussion groups and semi-structured interviews

For the analysis of the discussion groups (D.G.) and the semi-structured interviews the qualitative method of “Content Analysis” was used, that is, a classic research technique in Social Sciences which is applied to non-structured or little-structured informative data, such as in our case.

In line with the procedure used by, amongst others, Miles and Huberman (1994) and Lacey and Luff (2001), the process of analysis of data began with the transcription of the recording of the interviews and the focus groups. With the aid of “AQUAD 6” software, a computer programme was created to serve as a base for theoretical approximation of a qualitative nature, in which the data were organized in easily recoverable sections. Then the initial codification phase was begun, which permitted us to ascertain inductively the principal categories of the study. Each of the principal categories was analyzed in order to find inferior categories or internal sub-categories. There were times when certain data that were not initially contemplated were seen as new categories, so that it was necessary to recode some levels which had been previously analyzed. Finally emergent topics and concepts were identified, which permitted us to recode and develop better defined categories, keeping in mind at all times the idea of a recurrent, flexible and iterative process.

As is shown below, firstly the interviews with teachers and the discussion group between teachers and students were analyzed; and secondly, the interviews with the experts were examined.

Results of the semi-structured interviews with teachers and the discussion group between teachers and students

This information was obtained from the three interviews with the teachers, the first discussion group between face-to-face students and online students, and the second discussion group between teachers and students in both teaching modes. In this way the second framework of categories and sub-categories was established. This is presented in Table 3, which also shows the number of comments or interventions made by face-to-face students, online students and teachers for each category and subcategory.

Table 3. Functions differentials between e-teachers and face-to-face teachers (views of teachers and students)

CAT	SUBCATEG.	DESCRIPTION	F2F. Stdnt .	On- L. Stdnt .	Tea- cher	Total	%
CONTENT	Previous approach	Anticipated reflection on structure and motivating aspects	11	4	6	21	16%
	Objectives	Aimed at comprehension, development of attitudes and orientation of the student	7	2	11	20	15%
	Elements of structure	Main ideas, extended material, terminology, summary, tests, map, subject-matter objectives, references	14	10	12	36	27%
	Intensity	Enhanced online content compared with face-to-face content	15	4	6	25	19%
	Student involvement	Student is involved in the study because the subject-matter must be studied prior to interaction and activities	10	4	3	17	13%
	Difficulties in the L/T process	Difficulties related with schedule of the training programme, and with the newness of the subject-matter	4	1	10	15	11%
	<i>Totals</i>		61	25	48	134	100%
ACTIVITIES	Approach and objectives	Design of the activities aimed at comprehension of the theory, acquisition of useful knowledge, student's motivation, development of attitudes, and evaluation	12	10	7	29	52%
	Elements of structure	Inclusion of examples and clarifying elements of the activity	0	7	0	7	13%

	Intensity	Conceding greater importance to the activities in online teaching	3	2	4	9	16%
	Student involvement	The student makes an effort to become involved in his/her development when faced with the possibility of a choice	0	3	0	3	5%
	Difficulties in the L/T process	Difficulties related with schedule of the training programme	1	3	4	8	14%
	<i>Totals</i>		16	25	15	56	100%
INTERACTION	Approach and objectives	Design of interactions which imply collaboration, comprehension, enthusiasm, explanation, motivation, guide, reflection and evaluation	17	20	10	47	24%
	Elements of structure	Characteristics of the group, tools for contact, attitudes, interaction through questions and answers, and time taken to answer	8	39	21	68	35%
	Intensity	Intensity depends on the tool used in the online case where a link is created	14	26	10	50	26%
	Student involvement	Keeping students' attention and encouraging their participation	1	0	4	5	3%
	Difficulties in the L/T process	Technical difficulties and those related to the time management	1	12	9	22	11%
	<i>Totals</i>		41	97	54	192	100%
DESIGN	Previous approach	Approach to the psycho-pedagogical, technical and organizational/administrative design of the training programme	4	5	8	17	17%
	Objectives	Design is aimed fundamentally at students' continuous learning and participation, and avoidance of isolation by means of appropriate thematic sequencing	2	5	4	11	11%
	Elements of structure	Structuring of training elements and their interface	2	0	6	8	8%
	Intensity	Design is more thorough in online training	6	3	6	15	15%
	Staff involvement	Involvement of teachers and administrators	2	0	4	6	6%
	Difficulties or barriers	Difficulties with schedule, techniques and management	7	16	20	43	43%
	<i>Totals</i>		23	29	48	100	100%

Next, some of the most important results from each of the categories are presented.

1. Theoretical content (According to students and teachers)

A total of 134 interventions or comments (100% of the interventions in this dimension) were carried out by students and teachers, in which the following sub-categories appeared: previous approach (16%), objectives (15%), elements of structure (27%), intensity (19%), student involvement (13%) and difficulties in the learning/teaching process (11%).

Of special interest are the comments from students and teachers on the structuring of the theoretical content, i.e., the resources used to reflect the theory itself. Among these elements are the objectives, the mechanisms used for the differentiation of main and secondary ideas, such as summaries, conceptual maps, etc. During DG2 the material offered was evaluated as very useful for studies, and made it easier for students to face up to the exam. This reinforces Prenades' (2003) conception that the e-teacher should be familiar with the content in order to know how to structure, organize and present it.

“The conceptual maps helped us because to study this for the exam is unbearable ... because I imagined that when I start working in a secondary school and I have to make up a project, I’ll just come along here, look at and compare the points, and get on with the work.” (Online Student, DG1)

2. Activities (According to students and teachers)

Fifty-six interventions (100% of the total interventions of this dimension) were made, in which the sub-categories were: approach and objectives (52%), elements of structure (13%), intensity (16%), student involvement (5%), and difficulties in the teaching/learning process (14%).

The appropriate approach and definition of the objectives of the activities requires previous reflection if these are to be aimed at comprehension of the theoretical content, development of attitudes or capacities, or going even further, personal development of the students. In this sense, both *teacher 2* and *teacher 3* recognized throughout the interviews the ability of the activities to generate comprehension of the content both on the online and the face-to-face plane, and also to develop attitudes and modify perceptions (*teacher 2*) mostly on the face-to-face plane. During the interviews and again throughout DG2 they reiterated that the activities had a positive influence on students’ motivation for learning.

“What I’ve done is to eliminate part of the contents that I taught and turn it into a group activity. The objective is therefore to reflect and modify perceptions of it a little.” (Teacher 3, interview)

3. Interaction (According to students and teachers)

In this category 192 interventions (100% of the interventions in this dimension) were made, which included issues relating to approach and objectives (24%), elements of structure (27%), intensity (16%), student implication (3%) and difficulties in the teaching/learning process (14%).

Although intensity of the interactions is not outstanding in percentage, the quality of the comments led us to focus more attention on the number of contacts which took place between teachers and students. The teachers said that interaction was greater with the online students, perhaps because communication is defined by default as part of the online training system, and is part of the final evaluation (as has been reported by, among others, Stigmar & Körnefors, 2005 and Stromso et al., 2007), or because there is no pressure of timetables as there is with face-to-face classes, etc. For the teachers, this led to a relationship which was more continuous with the online students than with the face-to-face students, with the result that in some cases they came to know online students better. One teacher expressed it like this:

“Because you come here, you meet one or two people who participate more, you know their faces, etc. and that’s it; and online of course you’ve got more than one day, and if somebody intervenes again, they send you the activity, ‘I’m the one who’s in the forum’, and you relate the activity with the forum, and all that. And another will say, ‘I can’t get this activity, I can’t read it. Certainly a kind of relationship is established.” (Teacher 2, DG2)

4. Difficulties with the design (According to students and teachers)

One hundred activities (100% of those on “Design”) took place, with the following sub-categories: previous approach (17%), objectives (11%), structuring (8%), intensity (15%), student involvement (6%) and difficulties in the teaching/learning process (43%).

It is worth noting at this point that the difficulties were related fundamentally to the level of dedication that was required to follow the online course, as well as technical difficulties and those resulting from the management of the training programme. The online students described difficulties caused by the design of the programme; in DG2 they commented in particular on technical problems such as the slowness of the computers, the speed of the connections, etc. Furthermore, despite the “quality” of the training programme reported by a number of students, in some cases they felt “overwhelmed” or “saturated”, and their dedication to the course was greater than they expected, as they pointed out in DG2. The face-to-face students, for their part, spoke of difficulties which arose as the result of a course which was less complete than the online one. Even so, they admitted that they did not have to spend so much time studying. As one student pointed out in DG2:

“Basically we studied the weekend before the exam.” (Face-to-face student, DG2)

Results of the semi-structured interviews with the experts

From the interviews conducted with the experts Dr. Julio Cabero and Dr. Lorenzo García Aretio, the information necessary for analysis in this section of the investigation was obtained. A framework of categories and sub-categories was established to determine the differences between an online and a face-to-face training system. This framework is presented in Table 4, which also shows the number of comments made by the experts in each category and subcategory.

Table 4. Functions differentials between e-teachers and face-to-face teachers (experts' opinions)

CAT	SUBCATEG.	DESCRIPTION	Exp.1	Exp.2	Subto-tal	Total	%
Theoretical content	Virtualize contents	Efforts to create contents for distance studying	1	2	3	5	21%
	Dynamize contents	There should not be greater dynamization in the online system	1	1	2		
Practical content	Design of activities	Adapting the design to each system	4	1	5	5	21%
Interaction	Contact	In both systems contact between teacher and student is sought	2	1	3	9	38%
	Orientation	There should not be greater orientation in the online system	1	1	2		
	Interaction abilities	Similar interaction abilities	2	1	3		
	Teacher and student involvement	Teachers and students seem to be more involved in the online system	1	0	1		
Design	Psycho-pedagogical	The psycho-pedagogical design in the online system is better defined	1	1	2	5	21%
	Technical	The design of the techniques in the online system is important but not so much as the pedagogical design	2	1	3		
Totals			15	9	24	24	100%

1. Theoretical content (According to experts)

The experts made a total of five comments on theoretical content, 21% of the total. Of these, three addressed the virtualization of the contents in the online teaching system and two were related to the need to dynamize these contents in both teaching systems.

Both doctors stated that the virtualization of the contents of a training project requires an effort on the part of the tutor (or the content designer). The contents therefore need to be specially structured so that they can be learned autonomously. A useful option is the conceptual map for guiding the student within the conceptual context.

“When the teacher is in an e-learning context, he/she has previously made an effort to virtualize the contents, not to digitalize them, which is a different concept. Virtualization is the search for a specific structure, for which a conceptual map may exist, to present the contents in a hypertextual way until important criteria are established.” (Dr. Cabero, interview)

2. Practical content (According to the experts)

The experts made five comments, 21% of the total, on the design of the activities in the two training systems.

Just as the face-to-face teacher must choose activities that are appropriate to the learning context, it is important that the online teacher selects activities and applies strategies adapted to e-learning methodology which are not reproduced in face-to-face contexts.

“The tutor in online contexts selects activities for the students and decides how to apply strategies adapted to e-learning methodology which are not reproduced in face-to-face contexts; the application of a range of strategies is also important to avoid redundant or repetitive activities which would be tiring for the student.” (Dr. Cabero, interview)

3. Interaction processes (According to the experts)

Thirty-eight percent of the interventions addressed the interaction process in the online and face-to-face learning systems. On three occasions the experts commented on the need to establish contact between teachers and students, on guiding and coaching in two interventions, and on three occasions they spoke about the abilities necessary to interact and about how teachers and students can become involved in both training systems.

It is important to bear in mind that the aim of interaction in both systems is the same: to coach the students by taking on the role of guide and mentor. It would seem, however, that this role is being played to a greater extent in online teaching due mainly, as Dr. García Aretio pointed out, to the “distance” factor. Distance implies that the teacher has to make a special effort to foster abilities such as motivation, dynamization, and facility of learning in the students. Salmon (2004) and Volman (2005) stress the abilities of moderation and ease of learning in online activities, since they are the only way to establish a relationship with the student.

“One role that tutors and teachers must adopt is that of guide (...); evidently this is much more common in digital systems, but that doesn’t mean that in other systems there shouldn’t be more dynamism. Clearly a motivating role to facilitate learning is one that stands out today.” (Dr. García Aretio, interview)

4. Design (According to the experts)

In five interventions, 21% of the total, the experts spoke about the differences in design between the online and the face-to-face systems. On two occasions they commented on the differences in the pedagogical planning of the process, and on three occasions they referred to technical differences in design.

Technical design distinguishes a face-to-face training programme from an online one. In this respect, however, it must be noted, as Dr. García Aretio points out, that on occasions the technical design in online teaching is surmounted by the psycho-pedagogical design, resulting in failure from the perspective of training. As Ellis et al. (2006) support the design of the course can act as carrier of a good practice. According to Dr. Cabero, the systems are clearly changing in this respect, and sometimes it is difficult to establish the dividing line between the online and the face-to-face.

“The designer/manager of the process plays a bigger role in online than in face-to-face learning systems. This role is necessary in both methods, but it has become much more relevant in e-learning systems.” (Dr. García Aretio, interview).

Conclusions

In this study, the difficulties and strong points of our practices as online and face-to-face teachers have been highlighted with a view to improving teaching methods. Studies like this may induce online and face-to-face teachers to reflect on their practices, and to become aware of improvements they might make in their role as teachers.

In the first place, it has been found that the design and structure of the theoretical content of an e-training programme may, on occasions, be more satisfactory and efficacious than those of a face-to-face programme because in face-to-face programmes the teacher needs to have a previous mental structure of the contents which he/she develops in the course of the theoretical explanation. In the online mode, however, this structure is previously prepared and used as a framework for the online presentation of contents. In this sense, the use of conceptual maps and schemes, etc., to keep the student on track should be a constant feature in e-learning. Conversely, in traditional training methods, the need to guide the student through the conceptual development of the subject-matter is often neglected.

The *activities* in online mode may also, on occasions, be more satisfactory and efficacious than those in traditional face-to-face training. This occurs when the activities are contemplated from the design stage as the central nucleus of the learning process. In face-to-face training, conversely, the explanation of concepts often takes priority over the practice of activities. Online learners, however, may have to cope with an overwhelming amount of practical content, which may even cause them to give up their studies.

Interaction between teachers and face-to-face students can be more efficacious than with online students. Visual contact and such contact as an encouraging back-slaps, etc. are useful resources for motivating students. Online communication, too, permits enquiries to be made of the students, which can be especially valuable not only to encourage and motivate, but also to promote reflection and conceptual understanding. Nevertheless, the handling of the tools which facilitate online communication conditions the dialectic process. In both online and face-to-face systems, the consideration that interaction is part of the final evaluation conditions the student's participation; this may have both negative consequences (students intervene without motivation) and positive consequences (students become involved in the communicative processes).

In the *design* of training courses, whether face-to-face or online, it is of fundamental importance that the teacher makes a previous consideration of the psycho-pedagogical theoretical grounds which will guide the teaching process. It is also important, though perhaps less crucial, that the technology and organizational support used are taken into consideration. The teachers and the institution which runs the training courses, however, tend to put more stress on online planning.

As a *general conclusion* to this study, no important differences are found between the functions of teachers in the two teaching modes, online and face-to-face; and if these differences do exist, they are likely to be due to the teacher's involvement and the institution's commitment in the programming of the learning process. In both modes, the importance of psycho-pedagogical, technical and organizational aspects of training has been shown. And the positively-valued tasks carried out by teachers are identical in both teaching systems, i.e., the facilitating of the teaching/learning process, combining the explanation of theoretical contents with activities, and encouraging interaction.

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