A proper policy in the permanent teacher's training: Key impulse of the ICT Centre in Andalusia (Spain)

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Abstract

This paper displays some of the results from research carried out in Andalusia (Spain) to evaluate the impact of the educational innovation policy developed by the regional government through widely introducing Information and Communication Technologies (ICT) in primary and secondary schools (ICT Centres). Specifically, the effect of the measures used to integrate ICTs on the educational administration and education centres is analysed. This integration is analysed not only at an institutional level, concerning the organization of the centres, but also in that referring to the permanent teacher's training actions and the implications and repercussions in the teaching-learning processes and the classroom and thus its repercussions in teaching-learning processes.

Keywords: Technology planning, technology integration, ICT use

Introduction

It is widely recognised that the teaching-learning process made up of both classes and IT facilities in the educational centres for all levels is something continually studied and developed in practically all countries worldwide.

It is not less true that until not long ago computers had entered in the educational centres in a punctual way or in specific classrooms. But we are contributing to an enormous political and economical effort to benefit the universal access to information technology and communication, which is based on numerous notifications, projects and programmes supported in most cases by authorities and institutions on an International, national and even regional and local level, aimed at the educational field.

Such investments in resources and maintenance of IT facilities – software and hardware -, besides being a relevant effort as regards the ability of teaching staff, often does not correspond with the necessary educational policy that processes in a coherent and sound way the resources that are available in the schools.
It is usual to detect problems as far as the adequate implementation and use of the facilities are concerned, as well as for the training in information and communication technologies of the own educational agents (above all for teachers), or for the evaluation of repercussions of equipping the classrooms with technology in the teaching-learning process.

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In the last few decades the experiences and investigations related to the integration of information and communication technologies (ICT) for different educational levels has proliferated, not only in the national field but also internationally with varying perspectives. Area (2005) shows the abundance of «empirical information about ICT in schools» distinguishing studies about quantitative indicators that describe and measure the situation of integrating computers into the educational system; about the effects of computers on the performance and learning process of the students, about the perspectives, opinions and attitudes of the external educative members (administrators, supervisors, support teams) and the teaching staff for the use and introduction of these technologies and studies about the use of computers in centres and developed classrooms in a real context.

Despite that, we are in agreement with the Area (2005) in that it exposes the lack of a theory about this particular phenomenon of the schooling reality that allows us to understand what happens when computers are introduced in schools, the reasons for teachers being reluctant to integrate these technologies into their teaching practice, or how to implement teaching incorporation strategies for the information and communications technologies successfully.

And this vision is that from which we follow our investigation that on the other hand belongs to the Plans of I+D in Spain[1].

The previously mentioned «ICT centres» suggested as a consequence to a political and social bet on behalf of the Andalucian government for the massive implementation of ICT schools, following other similar interventions within the country. And so, from the beginning of the academic term 2003/04, the plan for «ICT centres» is being developed with annual meetings in which centres are being increasingly accepted.
Our investigation has been centred on a significant show of primary promotion of Andalucian «ICT centres», from which the impact of long-distance learning techniques have been analysed together with the use of free *software*, not only on an institutional level as regards the organisation of centres, but also in terms of the

[1] R+D Project SEC2004-01421, «Observatics»: "Implementing free software in Andalusian ICT Centres. Analysis of its repercussion in teaching-learning procedures", included in the R+D National Announcement Plan 2004-2007, Spanish Science and Education Ministry. It was developed by «@gora» Research Group (PAI-HUM-648), under the direction of the main researcher, PhD. J. Ignacio Aguaded

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classrooms, and therefore in terms of the direct repercussions of the teaching-learning process.

The claim of the study that we are dealing with is aimed at describing the current state of use of means of technology in ICT educational centres to analyse the global profitability of these programmes, obtaining contrasted information about the degree of implementation of new resources and its impact on teaching-learning processes directly created in the classrooms.
We are aiming to demonstrate in these pages, in a more specific way, the contributions and results surrounding the measurements accompanied that we estimate to be necessary, in light of the information that we report in this investigation, for an efficient action for this innovative educational policy.

The information that we will put forward is taken from the application of descriptive methodology to be able to analyse the phenomenon of the technological resources for Andalucian Primary and Secondary schools and its repercussions in the educational plan. With this objective, the instruments of the questionnaire have been used [2], group interviews or target groups, analysis of organisation documents of centres and systematic observation, in a non participative way, driven by control lists and estimates amongst others.

Antecedents of the implantation of ICTs in Andalusian schools.

Various reports and research on integration of ICT in education can be found (Cabero 2001; Cattagni and Farris, E. 2001; Marchesi and Martín 2003; Area, 2005; Balanskat, Blamire and Kefala 2006; Becta 2006; Pérez and Sola 2006; Cebrián, Ruiz and Rodríguez 2007; Fandos, 2007). In them, the increasing efforts of the administrations to provide and adapt schools technologically are underlined. However, not all the conclusions are positive, as stated above. In this same area, this paper is oriented towards the study of the measures taken by the Spanish government, and more specifically by the Andalusian government, to promote the integration of ICT in education using free software.

The report carried out by European SchoolNet (EUN) by Balanskat, Blamire and Kefala (2006) examines the impact of the use of ICT in schools in Europe. Its

[2] In appendix we attach questionnaire used to research.

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recommendations for the creation of policies are good planning of ICT integration: emphasis on fields such as group work and independent study, including them in curricula and in evaluation plans, development of new ways of continuous training for teachers, support for the use of ICT and motivation for the teachers to use ICT in their classes.

Extremadura was the first region in Spain to include free software in the public administration and in primary and secondary schools in 2001. At the beginning of 2003 Andalusia began to apply this system, promoted by the *Consejería de la Presidencia* (regional ministry). Decree 72/2003, March 18, on Measures to Promote the Knowledge Society in Andalusia, set the administrative and legal grounds to work for the universalization of information and communication technologies. Three clear objectives arise from its development:

1. Guarantee the access to ICT to every Andalusian, without any kind of discrimination regarding their place of residence or social status.
2. Facilitate internet access to information and services offered by the administration (www.andaluciajunta.es).
3. Adapt the offer of basic public services, especially health and education services, to the demands and potentialities of the «knowledge society».

From that moment on, a number of official documents were drawn up as public announcements which shape this ambitious project: giving the Andalusian public schools sufficient and necessary infrastructure concerning information and communication technologies to carry out this initiative, not only regarding material, but also training. As a result, several plans and programmes were developed: Red-Aula Program, Alhambra Plan and Zahara XXI Plan, finishing with Averroes Project, still active today. «Alhambra and Zahara Plans involved really significant efforts to systematically incorporate ICT into educational institutions». One can say that «they involved the first rigorous attempts to promote their presence in schools as well as training for teachers. In some aspects we must admit that they were the first ones in our country to incorporate ICT in non-University education» (Cabero 2003a). Specifically, the Averroes Project lied in the gradual increase in equipment during the period 2001-04. So when this period was over, every pre-school and primary school centre in less favoured areas would be equipped with a basic IT

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network which would give them access to information and communication technologies[3].

In the framework of this technological philosophy, the ICT Centres Project officially took off on April 4, 2003[4].

The ICT Centre model

An ICT Centre in Andalusia is considered a compulsory education centre, a public primary or secondary school, equipped with IT material for students, to be also used by the staff. The equipment consists of: one computer for every two students, tables which are adapted to the computers in the classrooms, chairs for every table, computers with laser printer and scanner in the didactic departments, library, teacher's room, the AMPA (association of mothers and fathers) office, the secretary's office and in the directive board offices, big capacity printer in the reception, digital photo and video camera, video projector, laptop, broadband internet connection and connection to the Educational Platform where multiple activities can be found. Another distinctive characteristic of this equipment is the choice to use free software and open code in teaching as the operating system is Guadalinex, based on Debian (Linux).

To be considered an ICT Centre, the school has to respond to the announcement of the ICT projects and meet several requirements.

Andalusian schools have access, throughout the school year 2006/07, to 49000 new computers. Of these, 42255 are assigned to the 315 schools and high schools which joined the ICT Centre Network in September. With the new schools that joined the program, the Network is composed of 823 centres, 30% of active centres in Andalusia.

[3] This equipment included five multimedia computers with network card and access to the internet through a router, a digital line with cables to connect the equipment, scanner, inkjet colour printer, office automation software, an electronic encyclopaedia and the suitable furniture for the equipment. Moreover, from that year on, the aim was to offer every rural school the basic reduced equipment consisting of a multimedia computer with modem, inkjet colour printer and the same electronic encyclopaedia. At the same time, a pilot project began: offering several pre-school centres a microcomputer per classroom to create «the computer corner». Redaula Plan, to offer PC rooms to pre-school and primary education centres owned by the *Consejería* (regional government), in the framework of the Telematic Network of Schools in Andalusia (BOJA 17-03-01) (http://averroes.cec.junta-andalucia.es; www3.cec.junta-andalucia.es/index.html).

[4] March 27, 2003, *Boletín de la Junta de Andalucía* (Oficial Andalusian Government Gazette). This order regulates the announcement for the selection of educational projects to include information and communication technologies in teaching.

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The most innovative factor in this wide integration of technologies is that the computer will be an educational tool in learning and teaching. So, especially relevant is that, apart from IT equipment, centres can access an intranet and an educational platform: Anda@red. These centres integrate ICT.

The Andalusian government published the first notice[5] to select those centres which would work with information and communication technologies, and once the educational projects to integrate technologies were launched, 50 public centres were selected. Among these 50 centres, 14 were primary schools and 36 were Compulsory Secondary Education (ESO) schools. All these centres had 81000 computers with the same operating system, Guadalinex, developed from Linux by the IT research group in the Junta de Andalucía (Andalusia Regional Government) to be used in Andalusia.

The projects that the centres had to present in response to said notice had to put forward a general action plan to integrate technology in teaching. They had to include, among others, information about the experiences of the teachers regarding ICT, experiences of the ICT coordinator, the reasons or circumstances that made its introduction advisable, the objectives and the list of areas of knowledge in which ICT would be used. It is important to highlight the relevance of the coordinator, whose function was essential to advise the teachers about the available resources and the solution of technical problems, establish ways to spread experiences and exchange information, and promote improvements in the project.

Support measures to ICT Centres

The Andalusian administration specified, from the beginning, a series of measures for the support of ICT Centres. Among them we want to highlight: the broadband connection and the equipment; the offer of educational programmes and materials to be used with free software; the necessary appointment of a coordinator; an up to 10% increase in working expenses for centres; the specific training and assessment for a better use of the information resources and their integration into teaching; publishing the experiences on the internet; publishing the produced educational materials; and the acknowledgement of the participation in the project as a specific merit.

[5] Regulation on 2003-03-27 by the *Consejería de Educación de la Junta de Andalucía* (Andalusian Government Education Ministry). It regulates the announcement to select school educational projects to include information and communication technologies in teaching.

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The results of our research have shown us the faults and the possibilities to improve in the previous aspects, as we will later explain. Basically, it has proven that sometimes having a lot of material does not imply an advance in the methodology and in the teaching-learning process: the centre must set the limits about how far it can assume the process. This is why today every centre decides how to integrate ICTs in teaching practices according to different classroom organization models which have to be included in the curricular development.

Perhaps the most outstanding measure to foster ICT Centres is the use of platforms and webs as modulating elements. The educational administration, since the beginning of the project, offers the ICT Centres a resource which until then had been little used in public compulsory education: the E-ducational platform. Every centre is given the chance to develop this virtual space, which must be managed by the ICT coordinator, as a complement to the traditional methodology. Both methods require the internet but use it differently.

The investigation

Premises of the investigation

We share the idea of Cabero (2000a), that the means are exclusively curricular elements that should be analysed and perceived not in themselves in an isolated way, but rather in a tight relation with the rest of the curricular elements.

The means do not work on their own, and for that reason any pretension of tackling them does not contemplate this decisional, contextual, institutional and multi-dimensional space, will simply lead us to introduce new instruments in the classroom, that more or less are soon forgotten by the teacher and left out of recreational and motivating functions.

We have one clear premise; the teacher is the most significant element of one half within the determined context of the teaching-learning process.

When the time comes to follow up the investigation, we consider that the following question should be: Does the mere presence of equipment, programmes and technology suppose *per se* a better educational process?

Which, in any case, leaves no doubt that it is the current society that demand changes in the educational systen, fundamentally, to promote «innovative

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experiences in the teaching- learning process supported in the ICT, that affect the didactic strategies of the teachers, the communication systems and the teaching material, instead of stressing the availabilty and potential of the technologies. The IT resources should be immersed in powerful and collaborative teaching environments, as tools that surrport the active process of teaching construction and skills development» (Ávila y Tello, 2003: 179).

The investigation design

The study that we present is presented within the line of investigation of means of education that have been happening in the last few years (Area, 2005; Cabero, 1995; Castaño, 1994), that abandon that comparative line to tackle the investigations in which the integration process is studied in the context of the teaching-learning process.

As Area (2005) shows, the process of use and integration of computers in the educational system is a complex process, subject to many pressures due to multiple instances (of a political, business, social, pedagogic nature) so that the problems and methods of investigation have been evolving since the concern of teaching individuals with computers in concrete teaching situations using experimental methodologies, carried out more longitudinal studies and with quantitative techniques aimed at case studies in real teaching contexts.

That way, managing the programmes from the educational adminstiration, organisational factors like teacher training processes taken place in the centre and the educational concepts of the teachers about the technological resources, are going to condition the didcatic use that is made of them.

From this point of view, the investigation that we have developed tried to test the incidences of ICT in schools for both the students as well as for the teachers.

The objectives

The objectives that we set out for this investigation project – which without doubt, are far more ambitious than what we had initially put forward, for obvious space reasons – its aimed therefore at describing the current state of use of the means of Andalucian educational centres, where computers have been introduced in a massive way in the classrooms the transform the teaching-learning process with its normalised and universal use for all students, that is, the so-called Andalucian ICT

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centres, which try to make the long distance learning technology a real occurrence in the life of the centres, implementing new virtual resources, all of them free software, looking for an educational impact in the teaching-learning process directly created in the classrooms.

The concrete objectives of the investigation are the following:

1. Describe the progress and the current state of the use of technological means of Communications in ICT centres in the autonomous region of Andalucia (Spain).
2. Know the different uses of the information and communications technologies by the teaching staff within the framework of the teaching-learning process.
3. Know the influence of the professional situation of the teaching staff in the use of the technological resources in their teaching activity.

These objectives apply especially to the I+D National Plan (2004-07) in the National Programme of Social Sciences by the Ministry of Education and Science by the Spanish government, and in particular serve the «didactic, methodological and technological components of the teaching-learning programme», as well as the line «new information and communications technologies throughout life», «learning in virtual contexts» and open and distance teaching-learning.

Sample

The population that carried out the investigation constituted in reality of the Andalucian ICT centres of the first 2003 promotion, that is, 50 centres in Andalucia; and of those 14 were Infant and Primary Education and 36 Secondary Education.

Our study has been done with 800 teachers from 16 teaching centres that participate in the first ICT project meeting, selected at random, of which 5 of them are Infant and Primary and the other 11 are Secondary teaching.

There is a certain bias by the larger amount proportionally of Infant and Primary Education (a 31% of our study, versus a 28% of the total sample), which we have rejected, given that choosing more Secondary schools, in detriment of the Primary that would have equally meant a biased sample (in this case in favour of the Secondary schools). For many reasons (good part of them being logistical) we could not extend the sample to more than 16 centres.

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Techniques for the collection of data

Given the objectives set out and the information that we are trying to obtain, a detailed investigation with an educational context has been chosen. We are interested in describing the integration of the ICT, as Cabero points out (2003b: 26-27), from the point of view that they are, therefore, instruments to transmit information, «instruments of thought and culture».

However, in this article, for obvious questions of space, fundamentally, in the interviews and target groups, of a qualitative character, that offers us more detailed information to determine the means of urgency for the Andalucian ICT centres.

In the last trimester of 2005 we notice the dates when the interviews and focus groups are carried out, following a negotiation phase to be able to access the field.

Two interviews are carried out for each centre, one with the Head teacher and the other with the coordinator of the ICT project, to estimate that their opinions could be different and complementary. The script for both differs in some areas, in order to be able to notice the possible differences of opinion, above all in terms of organisation, techniques or related to administration.

Given that our investigation is based on a sample of 16 Andalucian centres, the interviews carried out have been 31, so in one of the schools the Head Teacher was also the coordinator of the ICT project.

We record the interviews for their posterior digitalisation and finally the procoesses of Word, ASCII format for their posterior qualitative analysis via the computing program HyperResearch; and finally, it has been analysed using the following system of categories previously defined with intention to make the definition and formulation easier once we have registrated and depending on, naturally, the objectives of our investigation.

In terms of our target group, we conceive them as «a carefully planned conversation, designed to obtain information in the defined area of interest, in the permissive environment, none directed script by a moderating expert» (Krueger and Case, 2000: 24).

The first meeting was attended by the coordinators of the ICT projects, for both the Head of the school as well as the coordinators of the project, along with the

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investigators, and other relevant figures for the setting up and development of the projects referred to.

The task of these target groups centres on their opinions, expectations, interests, etc… about the incorporation and the use of the ICT in the educational centres.

In this way, new target groups are developed, which deal with the topics presented in the following table nº1:

Table of topics
Facilities and organisational obstacles,
Alternative measures,
Teacher training,
Didactic use of the material,
Educational platforms and free software, and
Competence of teachers and students

Table nº1: Relation of topics covered by the target groups

Once the sessions are finished, and the content transcripted and analysed, we carry out the second target group with those involved, with the aim to recognise the conclusions and to corroborate the data found, as well as incorporating new contributions, experiences, opinions and proposals to improve the projects from within the centres.

We understand that for this type of evaluative investigation, as we have already drawn on above, the detailed methodologies are most pertinent when we want to know a determined social phenomenon in all of its complexity.

The questionnaire, as method of the investigation, is able to give answers for problems for both detailed terms as well as for variable factors, with the aim to describe reality, identify rules and patterns of conditions and actions and to determine relationships between events (Buendía, 1997).

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We undertake this work with the design of transversal investigation, with different corresponding temporal moments to the different phases of investigation.

In this study the questionnaires have been complemented with group interviews or target groups that permitted the qualitative and clarified expression of the information obtained, serving as a contrast, confirmation and triangulation of information.

On the other hand, there was a process of document analysis, detailing and interpreting the information contained in the documents from the organisation of the centres, as regards the implementation of the ICT within them.

Naturally, but also in a complementary form, we made use of the observational methodology, as a procedure to understand the significance of the conducts in their natural context, with rigorous registers.

The analysis of the availability and use of IT and distance learning facilities in the ICT centres was carried out by means of systematic observation, without participating, but rather driven by lists of control and scales of estimation.

In the summary that we set out here we pay special attention to the results taken from the work carried out during the interviews.

Some results taken from the interviews

Without doubt, the interviews have been an important focus area in our investigation that we have been able to evaluate, from a quantiative perspective:

a) The results obtained via different sources;

b) Contrast and extend the information obtained, and

c) Create a relationship and adequate atmosphere between the investigators and informants from the centres actively involved in the study.

The corresponding documentation for the Head teachers has been coded in 1.466 units of codification as is reflected in table nº 2, whilst the coordinators give a result of 1.278 split as follows:

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Frequency of codification		
Codes	**Head teachers**	**Coordinators**
Gestation and project design	276	216
Project development	481	285
Teaching-learning	163	189
Administrative support	189	261
Teacher training	190	191
Evaluation	161	136
TOTAL	1.466	1.278

Table nº 2: Units of codification and frequencies

This gives us an idea of the interest of those responsible for the ICT projects in the centres for the project development, that means that the main topics of the implementation of ICT, the changes in the centre, the management and coordination, the setting up of facilities, working areas and technical support, key aspects that motivate the reflection, and in many cases, the demand on behalf of the Head teachers.

In table 2 presented above, we can check that:

- The codification referred to as «Gestation and project design» has a high number of codifications on behalf of the coordinators (216) as well as for the Head teachers (276).
- The codification relative to project development has a percentage of codification notably higher on behalf of the Head teachers (481) than the coordinators (285).
- However, the codification relative to the input frequency «Administrative support» has a greater consideration on behalf of the coordinators (261) than the Head teachers (189). What is comprehensible, given that the coorindators are the main consultants in the centre of the relationship with Administration and work as mediators between the two just as the members of the educational community do (teachers, parents and students). The

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consideration of «Administrative support», from the point of view of the Head teachers, the greater frequency is found in the collaboration between the two to confront the difficulties (34) and in relative questions for the model of managment and solving problems (31), tasks with which the management has very relevant functions. On the other hand, the coordinators are more critical about the model of management and resolving problems with 56 negative codifications and 25 positive ones: they are also critical about the colloboration of the administration in terms of the dificulties, where only 17 positive ones are counted versus 26 negative ones.

- In terms of «Teacher training», with the results being practically the same, it is necessary to say that the Head teachers focus their interest on the developed training categories in the centre.

The analysis of the data obtained in the interviews related to the topic focused on here, the urgent measures in the «ICT centres» in Andalucia, have had to be based on relative information to the *Gestation and project design, Project deveoplment and Administrative support.*

> It was almost a personal initiative which some teachers with previous experience in the field of new technologies quickly joined (DIR16, GDI, TEXT, char 1311 to 1470 of page 1 of DIR16A.TXT) [6].

The thoughts and opinions of the coordinators show us that the initiative in launching the project, their previous experience in IT, their belief that ICT would be positive for the centre, the administrative promises about the revolutionary nature of the project and the accompanying investment were defining factors for this first stage.

An idea was very clear to us: the enrichment that this could mean from every point of view (students, teachers, family...). Although later everything has been developed at a pace that (...) has been criticized, we did know it was a way of getting on the new technologies train, especially thinking of the novelties that it would bring to the teaching-learning process (DIR01, GIP, TEXT, char 1026 to 1522 of page 1 of DIR01A.TXT).

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Another piece of information which arises from the coordinators and the directors' opinions is that the centres have actively taken part in other plans or projects which were linked to technologies and computers, so we could say they were previously motivated to use ICT. The initial expectations for most of them were very high, taking into consideration what it meant in terms of change of furniture, technologies and infrastructures, communication, teaching models and even of environment.

One of the basic factors for the success and thrust of ICT Centres is the logical implication of those in charge. The directive board manages the projects as it is seen in many comments:

> The project was particularly motivated by a director who is not here anymore, and he was very enthusiastic about projects in general. There was another colleague who was very skilful with computers, so it was almost natural that they put themselves forward. It was suggested in a teachers' meeting (COOR06, GDI, TEXT, char 3071 to 3371 of page 1 of COOR06A.TXT).

The role of the coordinator stands out as the key to understand the whole process around him. He is the central dynamization element, together with the directive board. However, disappointment, disillusionment and weariness, especially due to false expectations which were not satisfied, also appear in some coordinators. Expectations of change and novelties are the factors which were underlined by the coordinators. The satisfaction of having taken part in a project with great social and educational scope and which has dramatically changed the environment in the centres is an often-highlighted aspect.

> There is indeed a bit of personal implication, but the importance it has in my life, I don't know if that is the question... At a personal level, well, let's say it has dropped when I have seen the daily routine of the project. I understood it from a didactic point of view, more pedagogic, about work among colleagues, etc., more than being the school technician. That really does not motivate me much (COOR07, GIR, TEXT, char 4639 to 5072 of page 1 of COOR07A.TXT).

As far as the students' implication is concerned, directors and coordinators point out that, in general, the project generated a high level of acceptation and motivation, especially among the less wealthy communities who did not have access to these resources at home.

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> Most of our students are not wealthy and having the computers allows them to access the internet and any resources that can be accessed through them (DIR07, GIA, TEXT, char 4439 to 4672 of page 1 of DIR07A.TXT).

The families' implication is strongly connected, in most cases, to the communicative capacity of the centre towards the parents. The mobilization, which the massive entrance of computers meant, generated both uncertainty and optimism. Some centres prepared communicative strategies: open days, communication through AMPA, town councils, leaflets, press releases or even local television programmes.

> At the beginning there was a lot of expectation, but the participation rate has not been very high until now (DIR10, GIF, TEXT, char 1304 to 1415 of page 1 of DIR10A.TXT).

Regarding the teachers' receptivity, in the first place, they admit the fears, doubts and initial lack of knowledge that the implementation of the project created. The fear of the unknown, especially among those teachers who were less skilled with technologies, could be felt in the stage of initial receptivity. Consequently, beginning a macroproject with little time and almost «blindly» created a state of confusion that differed according to the teachers' level of technological culture.

> At the beginning everyone was scared because they thought that it would mean a dramatic change in their work. They thought it would mean leaving the chalk and the book and being forced to use the computer for hours (DIR02, GRP, TEXT, char 3878 to 4126 of page 1 of DIR02A.TXT).

The perceptions from the directors and coordinators regarding the *Project development* give us an idea about the consolidation of ICT Centres. The delays at the first stage of the process are underlined, as well as the revolution caused by the change of furniture and communication in the centre and the students' motivation faced with these changes. They were surprised and delighted by the massive appearance of computers in the classrooms.

> We began without internet connection, the platform did not work; in short, a little bit... a lot of work had to be done (DIR12, DIP, TEXT, char 3449 to 3564 of page 1 of DIR12A.TXT).

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The teachers' adaptation was initially more varied and even internal conflicts arose.

> During the first years there was more effervescence and more conflicts. I think some teachers even had internal conflicts thinking «I look like a bad teacher because I don't use this enough, I don't feel able to do it, it is too late for me...» I think by now it is all more balanced (DIR09, DIP, TEXT, char 8492 to 8867 of page 1 of DIR09A.TXT).

Implementing the project did not imply an overall revolution in its functioning concerning timetables, organizational and academic aspects, etc. Its start-up was harmonically integrated in the daily life of the centres. On the other hand, an important sector states that the ICT Project has developed many wanted transformations regarding the organization and especially in the curricular field. According to them, the traditional model began its crisis when the computers for didactic use appeared. To solve it, they demand more flexibility for the centre regarding timetables and curricula.

> The project itself implied from the beginning a completely different organization from what we were used to working with in the centre. In our school only the smallest classrooms have no computers, as the equipment could not fit in them because of their size. In all the other classrooms there is one computer for every two students, so the centre organization had to change: behaviour rules, use and maintenance rules... all that needed new organization (COOR10, DCC, TEXT, char 6541 to 7054 of page 1 of COOR10B.TXT).

The directors themselves are aware of the important investment that the project has implied, sometimes excessive, in their opinion. The directors underline the huge benefits that the ICT Centre project has brought to the life of schools and high schools: material resources, computers, furniture, etc. They openly describe it as a revolution, especially for those centres which originally had less equipment. The economic allowance for the operation grew exponentially.

> The idea of ICT is very positive. Many means have been offered and as we can see they have sometimes been excessive: 500 computers are too many, but it is the only way to access the ICT Centres (DIR07, DIN, char 2735 to 2946 of page 1 of DIR07C.TXT).

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The administration criticizes the deficiencies caused by the absence of a professional technician in the centre. The model of a centralized technical service has its advantages, recognized by the coordinators, but it also creates malfunctions. These, often, have to be assumed by the coordinators, who initially had to play a merely didactic role.

> The technical help should not be the ICT coordinator's responsibility. The figure of a technician should be created, who would not always be in the centre, but could go there when necessary (DIR05, DTI1, TEXT, char 6820 to 7010 of page 1 of DIR05B.TXT).

Among the measures taken to guarantee the success of the ICT Centres, the *Support from the Administration* is revealed to be fundamental by the comments from both the directors and the coordinators. Opinions are expressed about its help when facing difficulties, the management and problem-solving model and observations about introduction of demands from the centres influencing the new proposals.

Taking into consideration the fact that all the analysed centres belong to the first year, we should point out that, in their opinion, the administrative support has decreased with the inclusion of the new ICT centres in the following years, both in attention and response. They stress its lack of sensitivity when facing the difficulties generated in the project: the training problems, the technical difficulties, breakdowns and even the Service Inspection in some cases, because the organization of these new centres is substantially different from the traditional model. This lack of attention is made evident by the lack of acceptable and satisfactory answers to the technical problems that undoubtedly arise. The feeling of carelessness is the one that causes most frustration and stress, especially among directors and coordinators.

> The administrations should be much more sensitive if they want all to give this the importance it deserves. (DIR01, ACO, TEXT, char 5252 to 5487 of page 1 of DIR01C.TXT).

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The mobility of the teachers' completely breaks the philosophy of the project. Some of the teachers who began it leave and other teachers arrive and don't know the dynamics of an ICT Centre. As far as training responses are concerned there is a lack of general contentment: moral support is of a higher demand than strictly conceptual support.

> Our demand is commitment from the administration, especially in those centres where some of the teachers are temporary staff. These members of staff should have more stability, especially when they are engaged in this kind of project. There has not been a high level of commitment in this sense (DIR01, ACO0, TEXT, char 8803 to 9111 of page 1 of DIR01B.TXT).

Directors and coordinators are also aware of the doubts about the future. Doubts about equipment maintenance, warranties, repairs and the exponential growth that this projects supposes for the educational administration. Problems of saturation of the centralized service are very common when describing the difficulties.

> The service obviously gets worse as the number of ICT Centres increases (DIR12, AGE0, TEXT, char 6979 to 7084 of page 1 of DIR12D.TXT).

Finally, among the suggestions made to the administration, they demand higher consideration for the ICT coordinator. His role should be more focused on didactic assessment and less linked to technical problems. Moreover, this function is not rewarded economically or regarding transfers and promotions, so this is a cause of complaint.

[6] The mode of codifying is an internal key developed by the investigators to be able to locate and quantify the qualitative contributions of the different cases that have participated in the investigation and which have been processed with the software Hyper Research.

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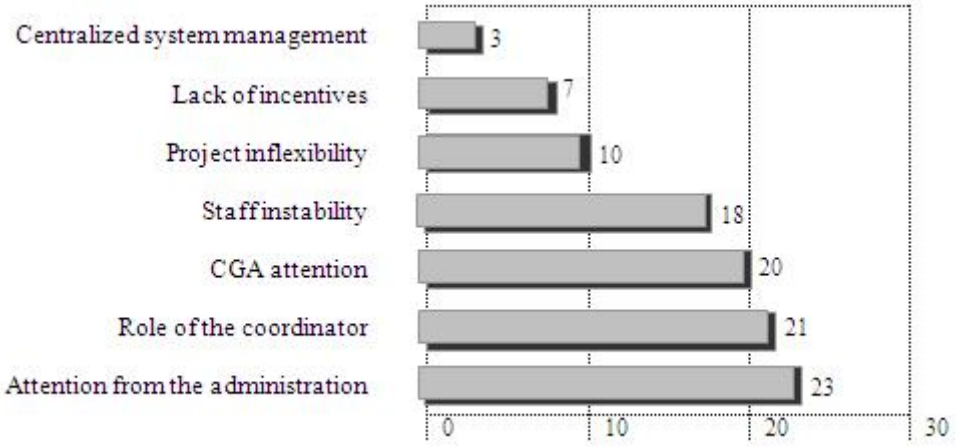
Focus groups

The analysis of the information provided by the focus groups corroborates much of the data supplied by the interviews. Regarding the resources and organization handicaps, which are basic for the development of ICT Centres, these sessions allowed us to share more explanations and opinions concerning the identification of organization problems: necessary equipment, space management, attitude and implication by the educational community, staff stability, effects on teaching routines, etc. The issues which have caused most debates refer to organization factors, such as *support from the administration*, *coordinator role, CGA attention* and the problem with *staff instability*. Thus, everything indicates that these are the main problems that the centres must solve in order to optimally develop their projects, as shown by the analysis of the interviews.

Organization factors (frequency)



The frequent references to the administration, both by ICT coordinators and by centre directors, indicate their unrest due to the carelessness perceived when developing their projects. The comments refer to a lack of attention to the first demands by the agents in the centres, aggravated by the lack of reasonable arguments. In other cases this lack of attention is seen in unfulfilled promises (statements by some of the administration representatives). Almost unanimously stated is the difficult and scarce relationship between the centres and the administration. Directors and coordinators express an important lack of confidence towards it. Opinions like this one are shown:

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> A growing gap exists between the administration and the centres, between what facilitates the implementation and assessment and what is actually done... Moreover, people in the CGA think that those in higher positions don't pay attention to them... The inspection does not really get involved... (Informant 23).

The assessments about ICT Centres don't capture the actual problems and reality of these centres. Furthermore, the educational inspection, the main communication between the administration and the ICT Centres, seems to be, in general, insufficiently carried out in the project monitoring.

> The crucial problem is that in many centres less than 50% of what was presented in the project has been carried out... not that the projects are not properly designed... but other changes and much more support are needed... (Informant 23).

Finally, the alternative measures, which are emphasized in the results we have analyzed, are those regarding the *Project assessment and update*. An external and internal assessment in the ICT Centres is demanded, as well as improvement plans that are consistent with the results and with the support from the administration. In short, the aim is to really integrate the ICT Project in the PEC (Centre Educational Project). It will then become a living instrument which can be developed and adapted to the centre's specific characteristics and needs.

One of the most commented suggestions for improvement is the constant maintenance of the equipment and the programmes. Technical assistance is indispensable in order to allow the coordinator to have more spare time to devote to focus group dynamization and to adopt a leadership role in the project:

> But we also understand that if we go into a classroom and the computers do not work, what do we want so much dynamization for? The project must be complemented with other things. We have suggested the creation of a sort of internal ICT commission (session 1.3.a, maintenance, 8, char 18311 to 18537 of page 1 of S13A~1.TXT).

The role of the coordinator should be recognized and, in order to promote the development of the project, his consideration as a member of the directive board is demanded:

> The coordinator of an ICT Centre should be part of the directive board… If not, the directive board and the director should be extremely involved in this project and in

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> many cases this is not the case. So the only solution is including the ICT coordinator in the directive board (session 1.2.a, coor_equipo_directivo, 2 char 283 to 685 of page 1 of S12C~1.TXT).

Regarding the answers to the staff instability and the lack of implication by the teachers, the suggestion is defining specific posts for ICT Centre teachers. This measure would allow the temporary workers arriving at the centre to get involved in the project, supporting and reinforcing the work of the teaching staff as a whole.

> I do not know if the teachers' mobility has a solution, but at least those who come to an ICT Centre should have specific training because there are people out there looking forward to being in an ICT Centre (session 1.2.a, plazas_especificas, 3, char 9042 to 9662 of page 1 of S12C~1.TXT).

Another suggestion is related to the incentives for the teachers. The directors could inform of the work done by the teachers in an ICT Centre, and this could be implemented as an incentive.

Conclusions

The success of the measures taken by the Andalusian government to create a «knowledge society», specified in the ICT Centres' program, only makes sense if ICT is integrated in the day-to-day life of these centres. This integration is achieved through innovative projects which imply an improvement in teaching-learning processes. This must be generated gradually, not through «shock» policies of mass instalment of technological equipment which would only cause conflicts and organizational chaos due to lacking real integration of technologies in the curriculum and in the school system.

These measures require an appropriate policy. The teachers have made great efforts, but due to the lack of incentives, encouragement and support by the administration there is a risk of the teachers' involvement decreasing. This kind of plan cannot be limited to material, equipment, furniture and technical support. The design and start-up of a logistical system which facilitates the development of innovative projects should be planned. This measure, apparently technical but actually pedagogical, can be improved through mechanisms for the involvement of teachers and can maintain their enthusiasm about the results obtained.

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The role of the ICT coordinator, who manages the dynamics of the processes of didactic innovation, is essential and indispensable. However, the lack of support and resources has distorted his function. His work is more devoted to technical assistance tasks instead of dynamizing focus groups. This situation ends up in disappointment and, in many cases, resignation. This matter demands necessary measures such as the creation of the maintenance IT technician role. Other measures would be the introduction of ICT coordinators in the directive boards and considering limited working hours so they can devote more time to the issues for which this role was conceived.

The centralization of the system can raise objections as it favours project standardization. It consequently limits its capability to adapt to the individual needs of the centre. The possibility to adapt programmes so that every centre has its own will make it possible for the projects to define their own characteristics. An ICT Project is part of the curricular project of the centre and, consequently, it must respond to an educational project with its own identity.

The processes of professional development based on focus groups (in the area or the department) are restrained when these teams break due to the temporary workers turnover. This causes discouragement among the colleagues who stay in the centre. This causes the momentum of the project to decrease and it wears down the staff. The administration should consider the requests for permanency from teachers who are involved in focus groups created to implement ICT Projects. They should also consider creating specific posts within these centres, which would allow the centre to choose part of its temporary staff depending on their training, interests and commitment towards the use of ICT. The teachers accept this kind of measures and we think they are appropriate, at least during the curricular integration process of ICT in the centres and until their use is normalized in the educational system.

The assessment and monitoring of the projects are essential aspects for their improvement and growth, regarding teaching, organization and administration. It could be appropriate to strengthen the role of the ICT inspector and his specific training. This would allow for strong criteria in the evaluation of the projects.

Suggesting a priori computer equipment for every classroom in a centre is a mistake, because in many subjects and in certain contexts their use is not necessary, so the equipment becomes a handicap in developing other activities. The presence

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of ICT, in their different formats, necessarily means new organization of the space. Their didactic possibilities must be exploited without preventing other dynamics to be carried out. In the last proposals other material options have been suggested with implications in classroom organization.

Creating a centralized and up-to-date software database has to be one of the pillars of a policy to promote ICT in educational centres.

The impulse for these projects, taking into consideration the above considerations, will be faster with the support of new technologies and if the administration promotes the proliferation of professional networks of teachers from several centres and playing different roles: advisors, ICT coordinators, disciplinary and interdisciplinary focus groups, material developers, etc.

Limitations and suggestions for future research

This research has been focused on the first years of the ICT project, so future studies will be needed to corroborate or discard our prediction for the near future regarding curricular integration and organization of ICT. Thus we consider it is urgent to promote policies that encourage the cooperation among schools and universities for the development of R+D Innovation projects in this area.

The development of professional networks for didactic innovation, the creation of original and adapted materials, the collaborative learning experiences among centres, the cooperative work through platforms, the generation of accessible databases which are friendly, intuitive and handy, the internal and external institutionalization of mechanisms which promote innovation... are areas of work which can solve the problems and dilemmas we have presented.

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Appendix

Questionnaire for teaching staff
Free software implementation in Andalusian ICT centres
Analysis of teaching and learning processes impact
Ministry of Education and Science – (Plan Nacional I+D 2004/2007) – Proyecto I+D SEC2004-01421
GRUPO ÁGORA - UNIVERSIDAD DE HUELVA

Dear teacher,

The main aim of this investigation is to get to know the impact of using free software in learning and teaching processes in Andalusian ICT centres. Your centre has been chosen for being a pioneer using ICT in Andalusia.

We need to count on your support so that this project's results are useful and so that we can share them with you afterwards. For this reason we would earnestly appreciate you answering the following questionnaire truthfully. We obviously guarantee anonymity in your answers and thank you in advance for your collaboration in this project.

Centre	
City	

1. TEACHING STAFF DETAILS

1.1. Stage which you teach:

☐	Second stage of Primary Education
☐	Third stage of Primary Education

1.3. . Administrative situation :

☐	Acting teacher
☐	Civil servant

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☐	First stage of Secondary Education
☐	Second stage of Secondary Education
☐	College
☐	Vocational courses
☐	Others

1.4. Teaching experience (years):

1.5 Age (years)**:**

1.2. Subjects you teach more hours(say which ones)):

1.6. Years working in this centre:

1.7. Gender:

☐	Male
☐	Female

1.8. Have you got a computer at home?

☐	Yes
☐	No

1.9. Have you got Internet access at home?:

☐	Yes
☐	No

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2. ICT RESOURCES AT THE CENTRE:

2.1. . What is your level of satisfaction Please mark with a cross (0 lowest level of satisfaction and 5 the highest)**:**

		Level of satisfaction					
Network	Speed	0	1	2	3	4	5
	Stability	0	1	2	3	4	5
	Security	0	1	2	3	4	5
IT equipment	Tower (CPU)	0	1	2	3	4	5
	Laptops	0	1	2	3	4	5
	Monitors	0	1	2	3	4	5
	Printers	0	1	2	3	4	5
	DVD drives	0	1	2	3	4	5
	Centre Server	0	1	2	3	4	5
	Junta Server	0	1	2	3	4	5

3. . DIDACTIC USE OF ICT

3.1. Do you use ICT regularly in you classes?

□	Yes
□	No

If you answered "no" g to section 6.

3.2. What has you personal progress using TISs in class been?:

	2000	**2002**	**2003**	**2004**	**2005**
Never	□	□	□	□	□
Occasionally	□	□	□	□	□
At least once a month	□	□	□	□	□
At least once a week	□	□	□	□	□
Daily	□	□	□	□	□

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3.3. What school year and subjects do you use the IT resources in at present? (State all the school years and subjects you teach and their use and frequency):

School year	Subjects	I don't use it	Daily	Al least once a week	At least once a month	Occasionally	Never
			☐	☐	☐	☐	☐
			☐	☐	☐	☐	☐
			☐	☐	☐	☐	☐
			☐	☐	☐	☐	☐
			☐	☐	☐	☐	☐
			☐	☐	☐	☐	☐

3.4 Asses the organizational change that computers have made in your Centre:.

In the classroom	It has improved	It has worsened	Indifferent
Communication among the students	☐	☐	☐
Teacher – student communication	☐	☐	☐
Group dynamics	☐	☐	☐
Atmosphere in the classroom	☐	☐	☐
Students participation	☐	☐	☐
Individual work	☐	☐	☐
Other learning activities (specify)	☐	☐	☐
In the centre	**It has improved**	**It has worsened**	**Indifferent**
Communication among teachers	☐	☐	☐
Communication with parents	☐	☐	☐

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Communication with the management team	☐	☐	☐
Staff participation	☐	☐	☐
Collaboration among staff	☐	☐	☐
Collaborating duties with parents	☐	☐	☐
Others (specify)			

3.5. Put in order the reasons why you use ICT (1 the most important and 5 the least important)

☐	Practise skills
☐	Learning reinforcement
☐	Work in co-operation with other centres
☐	Search for information
☐	Others (specify)

3.6. Has the incorporation of ICT resources in your classroom generated a change in the methodology you use?

☐	Yes, always.
☐	Yes, depending on the subject
☐	Sometimes.
☐	No

3.7. If you answered "yes" to question 3.6., say how your methodology has changed:

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3.8. Mark the frequency with which you use each of these applications:

	Level of use					
Webquest y Treasure Hunt	0	1	2	3	4	5
Web-blog	0	1	2	3	4	5
Presentations	0	1	2	3	4	5
Tutorials	0	1	2	3	4	5
Image creation programme	0	1	2	3	4	5
Educational games	0	1	2	3	4	5
Practice	0	1	2	3	4	5
Simulation	0	1	2	3	4	5
Cooperative learning projects	0	1	2	3	4	5
Other appliactions:	0	1	2	3	4	5

Please, mark with a cross (0 is the lowest level of use and 5 the highest)

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4. USE OF THE EDUCATIONAL PLATFORM

4.1. What educational platforms do you use in your centre?

E-ducativa	Moodle	Interact	Pasen	Séneca	Others

4.2. Which ones do you use and what is your level of satisfaction regarding these platforms?

	Not used	Used – Level of satisfaction					
E-ducativa	☐	0	1	2	3	4	5
Moodle	☐	0	1	2	3	4	5
Interact	☐	0	1	2	3	4	5
Pasen	☐	0	1	2	3	4	5
Séneca	☐	0	1	2	3	4	5
Other portals (please specify):	☐	0	1	2	3	4	5

Please mark with a cross (0 is the lowest mark and 5 the highest)

4.3. Do you upload materials to the platform?:

☐	Yes
☐	No

4.4. Give a mark to the platform you use more often. *Please mark with a cross (0 is the lowest mark and 5 the highest)*

	Not used	Used – Level of satisfaction					
Browsing	☐	0	1	2	3	4	5
Easy to use	☐	0	1	2	3	4	5
Visually attractive	☐	0	1	2	3	4	5
Materials organisation	☐	0	1	2	3	4	5
Communication with students	☐	0	1	2	3	4	5
Cooperative work tools	☐	0	1	2	3	4	5
Tools for communications between students	☐	0	1	2	3	4	5
Tools for the students to organise their work	☐	0	1	2	3	4	5

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Types of materials on the platform	□	0	1	2	3	4	5
Others (please specify)							

5. FREE SOFTWARE EDUCATIONAL APPLICATIONS

5.1. Mark your satisfaction regarding the following tools:

	Not used	Used – Level of satisfaction					
Hotpotatoes	□	0	1	2	3	4	5
Clic	□	0	1	2	3	4	5
Openoffice	□	0	1	2	3	4	5
Composer	□	0	1	2	3	4	5
GIMP or image editor	□	0	1	2	3	4	5
Impres	□	0	1	2	3	4	5
Mozilla	□	0	1	2	3	4	5
Evolution	□	0	1	2	3	4	5
E-ducativa	□	0	1	2	3	4	5
Moodle	□	0	1	2	3	4	5
Interact	□	0	1	2	3	4	5
Pasen	□	0	1	2	3	4	5
Séneca	□	0	1	2	3	4	5
Andared	□	0	1	2	3	4	5
Others (please specify):							

Please mark with a cross (0 is the lowest level and 5 the highest)

5.2. What is your level of satisfaction with the following applications?

	Not used	Used – Level of satisfaction					
Practice	□	0	1	2	3	4	5
Presentations	□	0	1	2	3	4	5
Educational games	□	0	1	2	3	4	5
Educational platforms	□	0	1	2	3	4	5
Webquest	□	0	1	2	3	4	5
Treasure hunt	□	0	1	2	3	4	5
Browsers	□	0	1	2	3	4	5
Tutorials	□	0	1	2	3	4	5
Simulation	□	0	1	2	3	4	5
Others (please specify):							

Please mark with a cross (0 is the lowest level and 5 the highest)

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5.3. ¿Do you develop or design any free software?

	Yes	No
Develop	☐	☐
Design	☐	☐

5.4. If so, what kind of free software do you develop or design?

	Develop	Design
Practice (Clic, Hotpotatoes)	☐	☐
Presentations	☐	☐
Tutorials	☐	☐
Educational games	☐	☐
Webquest	☐	☐
Treasure hunt	☐	☐
Educational platforms	☐	☐
Webpages	☐	☐
Other applications (please specify):		

6. TEACHER TRAINING FOR THE USE OF ICT

6.1. After the approval of the ICT Project in your centre, have you participated in organised training activities?

☐	Yes
☐	No

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6.2. How much do you know about and how important are the following didactic applications for you?

	Knowledge						Importance					
Information/data search on the web	0	1	2	3	4	5	0	1	2	3	4	5
Webquest	0	1	2	3	4	5	0	1	2	3	4	5
Treasure Hunt	0	1	2	3	4	5	0	1	2	3	4	5
Co-operative learning environments	0	1	2	3	4	5	0	1	2	3	4	5
Practice programmes	0	1	2	3	4	5	0	1	2	3	4	5
Evaluation pages	0	1	2	3	4	5	0	1	2	3	4	5
Tutorials	0	1	2	3	4	5	0	1	2	3	4	5
Digital video and diaporams	0	1	2	3	4	5	0	1	2	3	4	5
Multimedia presentations	0	1	2	3	4	5	0	1	2	3	4	5
Use of training platforms	0	1	2	3	4	5	0	1	2	3	4	5
Other didactic applications (please specify):												

Please mark with a cross (0 is the lowest level and 5 the highest)

6.3. How much do you know about each of these tools? Please mark with a cross (0 the lowest level and 5 the highest):

6.4. How has the didactic use of ICT changed? Mark with a cross the activities that were carried out each year:

	2000	2002	2003	2004	2005
No training	☐	☐	☐	☐	☐
CEP courses	☐	☐	☐	☐	☐
Blended course	☐	☐	☐	☐	☐
Online course	☐	☐	☐	☐	☐
External course	☐	☐	☐	☐	☐
Self-teaching	☐	☐	☐	☐	☐
Innovation projects	☐	☐	☐	☐	☐
Training in centres	☐	☐	☐	☐	☐
Others (please specify)					

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	Knowledge					
Hotpotatoes	0	1	2	3	4	5
Clic	0	1	2	3	4	5
Openoffice	0	1	2	3	4	5
GIMP or image editor	0	1	2	3	4	5
Composer	0	1	2	3	4	5
Impres	0	1	2	3	4	5
Mozilla	0	1	2	3	4	5
Evolution	0	1	2	3	4	5
E-ducativa	0	1	2	3	4	5
Moodle	0	1	2	3	4	5
Interact	0	1	2	3	4	5
Pasen	0	1	2	3	4	5
Séneca	0	1	2	3	4	5
Andared	0	1	2	3	4	5
Others (please specify)						

6.5. What is your level of satisfaction with the training in the didactic use of ICT you have received? (Please mark with a cross: 0 is the lowest level and 5 the highest)**:**

	Satisfaction					
Through CEP	0	1	2	3	4	5
External courses	0	1	2	3	4	5
Blended course	0	1	2	3	4	5
Online courses	0	1	2	3	4	5
Self-teaching	0	1	2	3	4	5
Teaching innovation projects	0	1	2	3	4	5
Training in centres	0	1	2	3	4	5
Others (please specify)						

6.6. The training you have received about the use of ICT was based on(choose the three most significant ones):

☐	Theoretical and practical sessions with good professionals
☐	Good materials, well-illustrated and clear
☐	Acquiring knowledge and abilities to make the most of the ICT
☐	Theoretical mastering of author tools.
☐	Assimilation of suitable models of use.
☐	Simulations of the different models of use and materials
☐	Finding a model of use suitable for our programmes
☐	Develop our own models of use with the help of tutors
☐	In the debate and team work of our groups of

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	teachers
□	Reflection about the direction of innovation with the use of ICT
□	Constant reflection about the effects of innovation
□	Innovation that involves all the education fields and staff
□	Others (please specify)

6.7. Mark the importance that the use of ICT in the centres has in an innovating process (Please mark with a cross: 1 is the lowest mark and 5 the highest)

	Importance					
The staff	0	1	2	3	4	5
The administration	0	1	2	3	4	5
A group of teachers	0	1	2	3	4	5
The school council	0	1	2	3	4	5
Management team	0	1	2	3	4	5
Others (please specify):	0	1	2	3	4	5

6.8. Mark the three aspects that you consider most important in your training. (Underline them. Then in the left column mark 1 to 3 according to its importance)**:**

□	Theoretical and practical sessions with good professionals
□	Good materials, well-illustrated and clear
□	Acquiring knowledge and abilities to make the most of the ICT
□	Theoretical mastering of author tools
□	Assimilation of suitable models of use.
□	Simulations of the different models of use and materials
□	Finding a model of use suitable for our programmes
□	Develop our own models of use with the help of tutors
□	In the debate and team work of our groups of teachers
□	Reflection about the direction of innovation with the use of ICT
□	Constant reflection about the effects of innovation

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☐	Innovation that involves all the education fields and staff
☐	Others (please specify)

7. STUDENTS' ABILITIES

7.1 Mark the abilities you think your students should acquire through ICT as a learning method (Please mark with a cross: 1 the lowest mark and 5 the highest)

	Mark					
Know how to download software	1	2	3	4	5	6
Know the hardware, software and file formats	1	2	3	4	5	6
Know reliable information sources	1	2	3	4	5	6
Find information on the Internet (knowledge of search engines)	1	2	3	4	5	6
Digital organisation of information	1	2	3	4	5	6
File and information exchange	1	2	3	4	5	6
Team work through the Internet	1	2	3	4	5	6
Use of forums and chats	1	2	3	4	5	6
Knowledge of educational platforms	1	2	3	4	5	6
Information analysis and synthesis	1	2	3	4	5	6
Information spreading (website design)	1	2	3	4	5	6
Knowing how to surf the Internet and use the software	1	2	3	4	5	6
Generate ideas	1	2	3	4	5	6
Other (please specify):	1	2	3	4	5	6

8. ATTITUDE TOWARDS THE USE OF ICT IN TEACHING

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8.1 To conclude, here are 30 statements. We would like you to mark them carefully (Please mark with a cross: 1 is the lowest mark and 5 the highest)

	Mark					
The access to ICT is a person's right	1	2	3	4	5	6
The use of ICT can bring us closer to knowing other cultures	1	2	3	4	5	6
Equality in the access to ICT can reduce socio-cultural differences	1	2	3	4	5	6
When they are used correctly, ICT can help us change humanity	1	2	3	4	5	6
They allow me to be connected with other people from other educational centres	1	2	3	4	5	6
I use them when I see that my colleagues use them and get involved	1	2	3	4	5	6
ICT make students communicate less	1	2	3	4	5	6
ICT do not live up to our expectations	1	2	3	4	5	6
They make class routine more stressful	1	2	3	4	5	6
They make it difficult to separate free time from working time	1	2	3	4	5	6
The Internet is a dangerous resource to be used by children	1	2	3	4	5	6
I do not use them and do not believe I will end up using them either	1	2	3	4	5	6
We can make ICT evolve at the service of values such as solidarity	1	2	3	4	5	6
I would use them if we previously thought about the moral sense we want to give their use	1	2	3	4	5	6
I always use them if we periodically evaluate their results	1	2	3	4	5	6
I always use them if we have a reasonable educational project in which we can integrate them	1	2	3	4	5	6
I use them if the school council gets involved in this decision	1	2	3	4	5	6
Before using ICT I prefer studying where this decision can lead us to	1	2	3	4	5	6
Using technological progress is good for education	1	2	3	4	5	6
I am one of the first people to use ICT in my classes	1	2	3	4	5	6
ICT make learning easier	1	2	3	4	5	6
The Junta de Andalusia should introduce ICT in every	1	2	3	4	5	6

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educational centre						
Knowing ICT is essential in today's education	1	2	3	4	5	6
ICT are important to socialise	1	2	3	4	5	6
Using ICT in teaching makes active learning easier	1	2	3	4	5	6
With ICT we can learn through investigation and collaboration	1	2	3	4	5	6
With their use it is possible to create new innovating learning models	1	2	3	4	5	6
I would use them if I was taught how to do it	1	2	3	4	5	6
They allow me to learn from any place at any time	1	2	3	4	5	6
It is a fantastic excuse to professionally retrain	1	2	3	4	5	6

9. GLOBAL MARK

9.1 Mark from 1 to 10 your technical training in ICT

1	2	3	4	5	6	7	8	9	10
□	□	□	□	□	□	□	□	□	□

9.2 Mark from 1 to 10 your didactic training

1	2	3	4	5	6	7	8	9	10
□	□	□	□	□	□	□	□	□	□

9.3 Mark from 1 to 10 your centre colleagues' technical training in ICT

1	2	3	4	5	6	7	8	9	10
□	□	□	□	□	□	□	□	□	□

9.4 Mark from 1 to 10 your centre colleagues' didactic training

1	2	3	4	5	6	7	8	9	10
□	□	□	□	□	□	□	□	□	□

Thank you very much for your collaboration

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