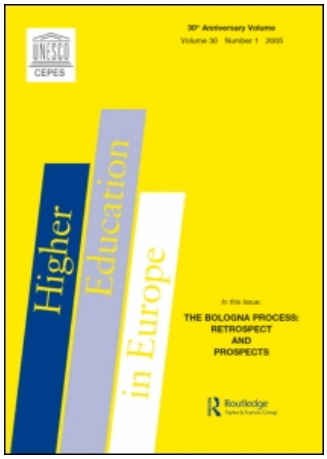

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Use of Technological Resources by Social Education Students in Spain[1]

CARMEN RICOY and MARGARITA PINO

The objective of this paper is to study the use and educational application of technical resources by students of Social Education (SE) in Spain. The reasons for this research were based on the importance of gaining a deep command of the various skills associated with information and communication technologies in the acquisition of generic competencies. The research we conducted was a descriptive and interpretative study designed from a quantitative-qualitative perspective. The questionnaire was selected as the main data collection tool. Among its most important findings, the research has revealed that SE students are not frequent users of most new technologies, and that they usually copy the behaviours of their teachers in their educational application of technologies.

Introduction

As a consequence of the emerging changes and needs within the European Higher Education Area (EHEA), new university degrees are being designed in terms of professional competencies, in an attempt to adapt them to the demands of the labour market. The building of competence means enabling individuals to mobilise, apply, and integrate acquired knowledge in complex, diverse, and unpredictable situations (Perrenoud, 1997).

At the European Council Symposium on key competencies, it was suggested that key competencies should be regarded as "the general capacity, based on knowledge, experience, values, and dispositions, which a person has developed through engagement with educational practices" (European Council, 1997, p. 26). The Lisbon European Council, in turn, called upon the Member States to define the new basic skills to be provided through lifelong learning, including information technologies and technological culture (European Council, 2000).

As far as information and communication technologies are concerned, a number of studies include basic command of their use among critical professional competencies. Thus, Farrar (1988) already stressed the importance of technological competencies in journalism and media studies. More recently, Coughlin (1999) emphasized the consequences of the spread of new technologies in the development of professional competencies.

Lundvall and Johnson (1994) distinguish four types of knowledge important to the knowledge-based economy: "know-what" (factual, codifiable knowledge that is readily transferable), "know-why" (referred to scientific understanding and to the impact of science on mankind), "know-how" (the capability of performing certain tasks at a practical level), and "know-who" (knowing which people possess the necessary

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know-what, know-why, and know-how). Competence, therefore, does not involve commanding theoretical contents or specific and particular knowledge; it is not a status, but a process (Le Boterf, 1994; Delors, 1996; Rayna and Rieunier, 1998).

Reading and writing are usually referred to as the main key competencies; although they are not enough in themselves to ensure a successful adult life, they are still considered to be critical competencies that can act as the starting point for future learning (Hartley, Howe, and McKeachie, 2001). General or transversal competencies are not linked to a single discipline; on the contrary, they can be associated with a variety of areas and subjects (Rey, 1996).

In the educational context the term "competencies" expresses the capacity or ability to act efficiently in a number of given situations. In the field of education, commanding technological competencies involves the ability to operate technical devices, knowing their main features and possibilities, and their applicability as training tools. Therefore, the authors of this article focused their research on the use of technological resources by Spanish students of SE, and on the educational applicability of such resources.

The specific goals selected for the research helped identify the focus of the study, enabling the research team to make the necessary readjustments throughout the investigation phase (Stake, 1995). The specific goals were the identification of existing technological resources and their use by students; the analysis of training tasks performed by students using technological resources as a consequence of their competence development; and analysis of the requirements they were to meet throughout their learning process.

Background

For the purpose of introducing the reader to the global setting of the degree in SE in Spain, this section will describe the creation and development of the degree curriculum.

The first steps towards a Basic Curricular Design for the degree in SE in Spain dates back to the 1970s, such design being subsequently defined and implemented in several Spanish universities. The degree and its official regulation were finalized in 1991; thus it is a recently created degree in the context of Spanish higher education. The state regulation established the degree as a three-year programme comprised of 180 theoretical and practical credits. Each credit is equivalent to ten hours of lessons.

In Europe, social education studies are being reformed at present, although only a small number of countries have already implemented the changes required by the European System of Higher Education (Luxemburg, Denmark, Czech Republic, Italy, Slovakia, and Norway).

The professional areas of the social educator in Europe include mainly adult education and vocational training, i.e., working with groups at the risk of social exclusion. Social educators work in the fields of health, education, and social services.

Methodology

Participants

The study was conducted during the 2004–2005 academic year, using the survey technique, and involved the participation of 130 students who acted as "key informants". All were students of SE at the Faculty of Education Sciences of the University of Vigo, Spain, and their distribution among the different years of the

degree was as follows: twenty-three first-year students (17.69 percent), sixty-four second-year students (49.23 percent), and forty-three final-year students (33.08 percent).

Most students involved in the research were women (92.3 percent). This is due to the almost total predominance of women in teaching-associated degrees at Spanish universities. The ages of the participants ranged between 20 and 25 (96 percent). The remaining four percent were between 26 and 32 years old.

As it is usually the case in our country, most informants had entered university for the first time directly after completing secondary education courses leading to higher education. Most of the students entered the programme after completing *Bachillerato* (post compulsory education, A levels) (73.1 percent), although we should not disregard the 23.1 percent of the students who entered university after completing second-level vocational studies. Only 3.8 percent came from other university courses: Children Teacher Training, Social Work, Translation and Interpreting, Psychology, and Business Sciences.

Procedure and Data Analysis

The intended research was introduced to higher education students by means of a speech delivered to students of the different years (see above), describing the purpose of the study. All students of SE at the University of Vigo were invited to take part in the research on a voluntary basis.

The study was conducted based on a descriptive approach; the analysis combining the comparison and interpretation of the reality described (Best, 1970). We have studied reality in its natural context, trying to assess the observed facts based on the meaning they have for the persons involved. A transversal research design was selected making it an extensive study.

The survey technique was used, questionnaires being the main tool for data collection. The questionnaire included both open and closed questions, in order to collect information concerning the degree to which higher education students made use of technological resources and the educational applicability of such resources as well.

The questionnaires were analysed with the computer software SPSS, version 12. Closed items in the questionnaire were statistically analysed; the findings of the contingency analyses of (both dichotomic and categorical) nominal variables are presented in this paper. This allowed a comparison of results from questions concerning the use of technological resources to the variables associated with the three different groups of students involved in the research (i.e., first, second, and third-year students), thus checking its level of statistical significance ($\leqslant 0.05$). The distribution of percentages presented in the results section is proportional to the sample of students from each year of the programme on which the research focused.

Open items in the questionnaire concerning the educational applicability of technological resources were processed by means of content analysis, which were carried out using qualitative computer software. The conceptual structure presented in this paper was based on a natural categorization resulting from the information itself (Goetz and LeCompte, 1988), with a preference towards thematic criteria in the systematization of categories.

Case-study research calls for selecting a few examples of the phenomenon to be studied and then intensively investigating the characteristics of those examples. By

closely examining a relatively small number of cases, and comparing and contrasting them, the researcher learns about significant features of the phenomenon and how it varies under different circumstances (Yin, 1994).

Results

Proportion of Students using Various Technological Resources

Newer technologies

SE students are not frequent users of forefront technologies. Almost all students made use of computers (87–100 percent), printers (100 percent), and the internet (76–87 percent) in their studies (Table 1). By contrast, hardly any made use of MP3 players (0–6 percent) or GPS devices (0–2 per cent), doubtless due to the present scant educational possibilities of these systems in terms of either practical implementation or theoretical proposals. The proportions of students who used computer-based presentation projectors, digital cameras, DVDs, and mobile phones were at least twice as large in the second or third years than in the first year, and the proportion using CD-ROMs was more than twice as large in the third year as in the first or second years, but overall use was not influenced by seniority (first, second or third year) to a statistically significant extent at the $p=0.05$ level.

Older technologies

Among older technologies, almost all students used photocopiers (100 percent) and overhead transparency projectors (OHP) (78–93 percent), while very few used conventional telephones, fax machines or tape recorders, and only 21–28 percent used analogic photography (Table 2). The use of television increased with seniority from 47 percent to 88 percent. The use of slide projectors, video tape recorders, and radio was more frequent among third-year students than among the others, while the reverse was true of video camera usage, but as in the case of newer technologies, there was no statistically significant overall difference among academic year groups at the $p=0.05$ level.

Tasks For Which Technological Resources Were Used

In general, the students who participated in this study employ the newer technological resources (Table 1) for the same purposes as the older technologies (Table 2): to prepare and deliver class presentations or written assignments. The internet is used as a valuable source of information, and video tape recorders, CD-ROMs, DVDs, and TV

TABLE 1. PERCENTAGES OF STUDENTS USING NEWER TECHNOLOGICAL RESOURCES

	Resource									
Seniority	Printer	Computer	Internet	CD-ROM	Scanner	Photo camera	DVD	Mobile Phone	MP3	GPS
1st year	100.00	95.65	86.95	30.43	39.13	13.04	8.70	4.35	0.00	0.00
2nd year	100.00	87.50	76.56	34.38	34.38	31.25	50.00	15.63	6.25	1.56
3rd year	100.00	100.00	84.72	76.74	41.86	34.88	32.56	18.60	2.33	0.00

Source: The authors

TABLE 2. PERCENTAGES OF STUDENTS USING OLDER TECHNOLOGICAL RESOURCES, BY ACADEMIC SENIORITY

	Resource										
Seniority	Photocopier	OHP	Television	Slide projector	Video tape recorder	Radio	Analogue camera	Video camera	Land-line	Fax	Tape recorder
1st year	100.00	82.61	47.83	30.43	56.52	26.09	21.74	43.48	4.35	0.00	17.39
2nd year	100.00	78.13	68.75	39.06	60.94	18.75	26.56	40.63	6.25	3.13	7.81
3rd year	100.00	93.02	88.37	81.40	76.74	67.44	27.91	18.60	9.30	4.65	2.33

Source: The authors

for presentation of audiovisual material in class. Written work is now generally prepared with the aid of a computer.

With regard to software, 94.6 percent of participants used the most common word-processing programs (Microsoft Word and WordPerfect), 71.6 percent used an internet browser, 61.5 percent a music-playing program, 45.5 percent chat interfaces, and 45.5 percent Microsoft PowerPoint. However, only about five per cent used sound-, video- or image-editing programs, and only one percent created programs themselves using programming languages.

From a functional point of view, technological resources are used by students to introduce, illustrate, and define topics; to motivate; to transmit, and to give structure to information and knowledge; and to prompt discussion.

Discussion

According to Ogalde and Bardavid (1991), the use of technological resources should help relate curricular material to the student's own experience and developing attitudes and values, thus favouring its internalization and subsequent recall for application wherever applicable. Concurrently, the integration of new and old technological resources should inspire educational innovation (Jamieson *et al.*, 2000; Salmon and Jones, 2004).

The results of the present study suggest that SE students in this study still have some way to go in the acquisition of competence in the use of technological resources, and that new technologies have certainly not completely replaced older resources. Of the technological devices considered in this study, only the photocopier, the computer, the printer, internet, and the overhead transparency projector were employed by more than 75 percent of students in all three years, and only the photocopier and the printer by 100 percent of respondents. Although the extremely low level of educational use of MP3s and fax machines is comprehensible, given the apparent difficulty of relating them to SE studies, the relatively limited use of devices such as presentation projectors, scanners or video cameras is more surprising. This situation is partly due to their habitual use not being encouraged by the nature of the tasks and assignments undertaken by Spanish SE students in the course of their studies.

Although, as noted above, new technologies have not completely replaced older technologies, it may nevertheless be worth noting that the use of new technologies is more common in Spanish universities than in Spanish secondary schools, where older platforms such as video tape, audio tape, photos, television, radio, and record players predominate over computer usage (Ballesta and Guardiola, 2001). This difference between university and secondary education has also been described in other European countries (Ralph and Yang, 1993; Spotts and Bowman, 1995; Fisher, 1996).

The use made of technological resources by the students taking part in this study were of the same kind as traditionally attributed to teaching resources in general in Spanish teaching courses (Zabalza 1989; Salinas 1999; Cabero 1999; Blázquez 2002). They seem to have largely been the result of imitating the practice of the students' teachers as regards classroom technique and complying with the requirements of those teachers as regards assignment type and format. Also, they fall within the terms of the White Paper produced by the Spanish National Teaching Evaluation Agency (ANECA) with regard to degrees in pedagogy and social education, which views information and communication technologies as instruments for communication,

access to information, document filing, presentation tasks, the promotion of learning, research, and group work (Agencia Nacional de Evaluación de la Calidad y Acreditación, 2005).

The emergence of innovative educational applications that fully exploit the immense potential of the new technologies, thereby improving the quality, accessibility, and equity of the educational system (Zambrano, 2000), will depend upon the technical competence of new cohorts of teachers in the use of these technologies, upon their know-how in this respect (Lundvall and Johnson, 1994). The immediate challenge to education authorities in this field is thus to provide students of education with thorough training in the use of these technologies, a task that requires both financial effort (investment in equipment) and the purposeful involvement of the students' teachers.

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