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EXPERIENCE WITH A SLAVE TERMINAL SYSTEM (SOCRATE) IN ONLINE SERVICES *

Tomàs BAIGET
CIDC, Barcelona, Spain

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Abstract. A system (SOCRATE) has been used in Spain since 1978 to re-transmit searches from the searching terminal to a second, remote terminal, where an end user or an inexperienced searcher (or both together) can observe the development of the search strategy and interact with the search. Certain operative requirements have slowed its adoption, but at CIDC it has proved very useful to send searches to other parts of Spain. In such cases, the end user establishes telephone contact with CIDC rather than directly with the host. The article describes SOCRATE and comments upon its strengths and weaknesses.

1. Introduction

SOCRATE (System of Operator-Consultant Remote for Accession to TEledocumentation) has been developed at CIDC (Consorci d'Informació i Documentació de Catalunya) in Barcelona and has two main functions. Firstly, it allows a documentation centre to offer online searches from its premises even though an experienced online searcher is unavailable. SOCRATE enables the end user to exploit the services of an experienced online searcher in another part of the country, but to follow the search online at a receptor terminal and to communicate orally by telephone with the searcher throughout the search. In other words, the end user benefits from the presence of an experienced intermediary, even though that intermediary is geographically remote. Secondly, SOCRATE has an important training function. An inexperienced searcher, with or without the presence of the end user, can also follow the remote search and discuss its developing strategy with the distant experienced searcher. In this way, practical online training can be provided from a centre to outlying points.

This paper provides a technical description of SOCRATE before evaluating the experience gained by CIDC in several hundred online searches.

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2. Historical background

SOCRATE originated in Spain as a part of a project to produce very cheap slave terminals together with a training programme. As the idea was not new, it was not patented in Spain until 1975 (patent no. 412413). It was first used in online searching in 1978 by the documentation centres associated with the online user group, Red INCA (Red de Información Científica Automatizada) and it was at this time that the system acquired its acronym [1].

In the following year technical and organizational problems led to the abandonment of the aim to produce cheap slave terminals. Experience showed that their production was neither realistic nor practical. Generally, documentation centres prefer to buy a normal terminal with a keyboard rather than a slave terminal (which will only transmit signals from the host via a remote terminal to a VDU but cannot itself be used to transmit messages to the host computer) despite the latter's much lower cost. This remains the case even if the terminal is only intended in the first place to be used as a slave in the SOCRATE system. Users then have the freedom to choose between carrying out the search themselves from the centre's terminal or asking for the assistance of a remote intermediary equipped with SOCRATE.

3. Technical description

The end user at the receptor terminal requires the configuration illustrated in Fig. 1. The digital signal from the emitter terminal (the terminal directly linked with the host) is received and converted by a modem into an analogue signal in the usual way. The receptor terminal then displays the search on a TV screen. If required, the search can be stored on an ordinary cassette recorder.

The key element in the SOCRATE system is the emitter terminal. Initially the confiuration was as shown in Fig. 2. The tap that diverts the signal to the receptor terminal was located between the host computer and the modem, i.e. it worked with analogue signals (Fig. 2). An amplifier was added to the tap to be used when the signal from the telephone line was weak.

In order to solve certain technical problems, however, it was decided to re-design the system, now placing the tap after the modem, i.e. working with digital signals. This solution has proved fully reliable but it does require the use of two modems

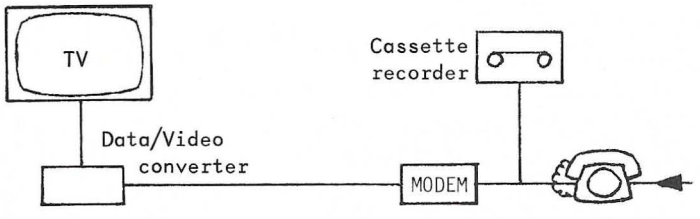

Fig. 1. Receptor terminal.

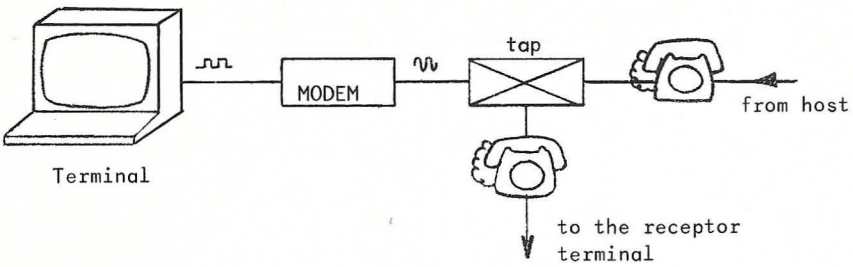

Fig. 2. Original emitter terminal with tap using analogue signals.

(Fig. 3). Each modem produces a sufficiently strong signal to reach distant points; modem 2 acts as a signal booster.

The circuit lay-out of the tap is shown in Fig. 4. The duplex switch is optional but is useful if the terminal does not have such a switch or if it can only be operated with difficulty. The connection for the local printer is also optional. Normally a printer connection is taken directly from the terminal. In order that two modems can be connected, it is generally necessary that at least one of them can work in receive mode. It is therefore advisable that modem 2 should have this facility to assure its link with any other modem. PTT modems can work in receive mode as can also some acoustic couplers.

In the room where the emitter terminal is installed, three telephone lines are needed (see Fig. 5):

line 1 to connect to the host,
line 2 to send data to the remote terminal,
line 3 to exchange comments between both terminals.

Line 3 is very important. It would be possible to operate the system without this

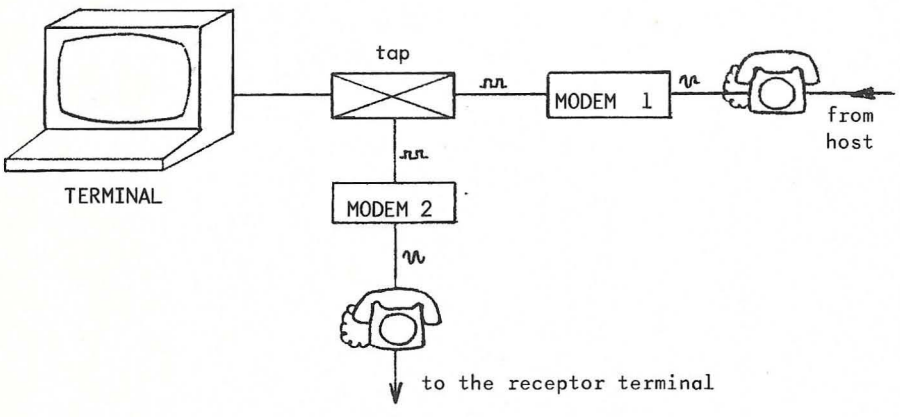

Fig. 3. Emitter terminal with tap using digital signals.

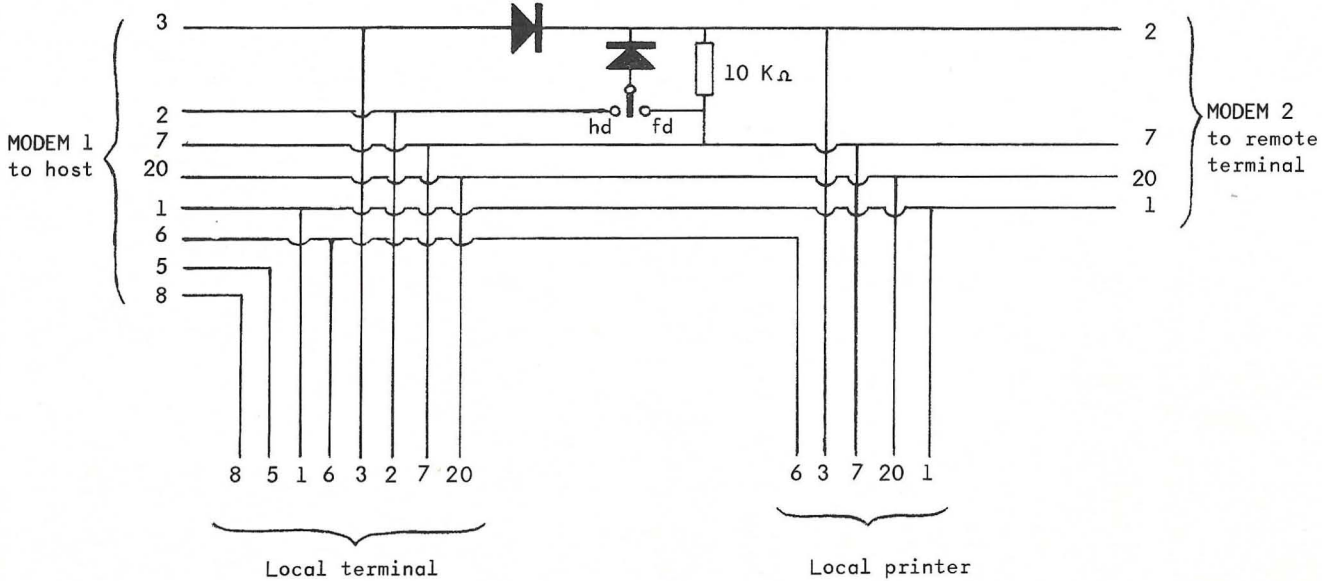

Fig. 4. Circuit schema of the tap.

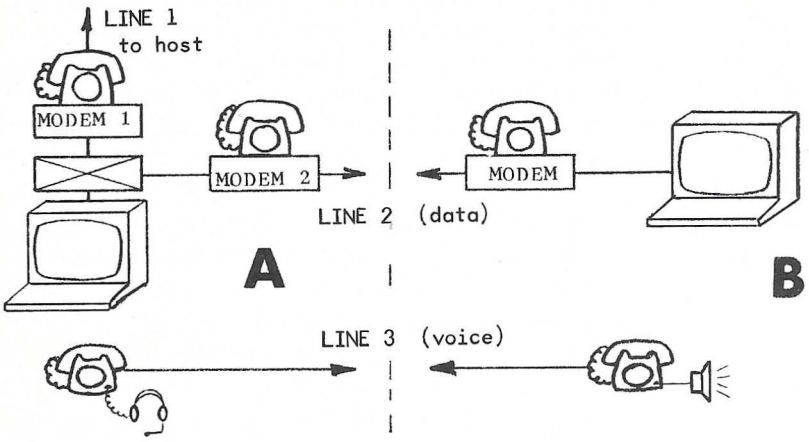

Fig. 5. General lay-out.

line, but the total cost would be higher because comments during the search would then have to be made while searching was held up – and the connect time rate would still be incurred. When the installation of line 3 is not possible, however, both terminal operators can contact each other in the following way. Operator A can type some sentence or sign on the screen, e.g. 'Please lift receiver'. When operator B wants to tell A something, he can lift the telephone receiver from the acoustic coupler (or can switch the voice/data key of his modem) which causes a change of state on the signal detecting lamp of modem 2 (in some models it lights when the signal carrier is detected; in others, the light acts as an alarm when there is a carrier failure). Operator A must, of course, watch the warning lamp on modem 2 in order to know if operator B wants to comment. When both operators are using line 2, the connection to the host is not interrupted and operator A can even go on with the search.

4. SOCRATE as a searching aid

SOCRATE can be used to assist the performance of an online search in two instances:

(a) An online centre asks another centre to carry out a search on a specialised subject with which it is unfamiliar, or more often, on a host for which it has no password.

(b) An institution which does not have a trained online searcher or a terminal which will receive searches from one or more online information centres, receives a query which can best be answered by an online search. This case occurs frequently in organisations without a documentation centre or one which is only staffed part-time. A person with minimal online skills (e.g. someone who has taken a short course of 2 or 3 days) may be in charge of the online service, receiving users, explaining the

mechanics of the system, receiving prints and maintaining administrative control. Such an individual can organise online searches but may be unable to carry out competently the actual search. Using SOCRATE, an experienced online information scientist (OIS) can perform the search from a remote location. Searches are done after an appointment has been made. The telephone interviews prior to the search are always between the end user and the OIS. When all the relevant information has been gathered, the OIS gives an estimate of the time required to prepare the search strategy (10 to 20 minutes), after which the end user calls again through the two telephone lines. During the search the end user, who watches its development, will receive comments and explanations via the telephone directly from the OIS and will be able to propose modifications of the strategy when necessary.

The charging policy depends on the individual online centre. If there is sufficient margin, it is advisable to allow a small discount for the documentation centre that acts as intermediary. It is important that the price for the end user is the same as in the case when he asks for the search directly from the online centre that carries out the search. If the intermediary documentation centre makes an extra charge (e.g. to compensate for telephone costs) there is the risk of being by-passed by the end user.

If the service from a SOCRATE system functions satisfactorily it is likely that the documentation centre will become an autonomous online centre. Progressively, the centre creates a service image and in time the information scientist should be able to carry out online searches independently, without resort to SOCRATE. In such a case, SOCRATE will have played a training role.

5. SOCRATE as training aid

The major advantage offered by the SOCRATE system is in training and education in online techniques, but it is also here that the main difficulty is encountered.

Let us assume that the online information scientist in training (OIST) has previously attended a course on information retrieval. He is then at a stage where he needs to carry out real searches to finish his online education. Such searches could be organised specifically for training purposes, but for economic reasons, it is advisable to maximise the use of expensive online time by using any online searches to answer real information requests from end users.

Difficulty arises because the training facet of SOCRATE which ideally requires the search to be carried out slowly and with pauses, is incompatible with the users' expectations for a rapid (and therefore cheap) search. Normally, priority is given to the latter aspect, to the detriment of training.

Ideally, every bibliographic search ought to provide lessons for the trainee searcher, but in practice this does not always happen because of lack of time and resources, and a lack of willingness to fulfil this training task.

The stages in a search procedure are shown in Fig. 6. The presence of two intermediaries, one of them not an expert, can pose serious problems that must be overcome by devoting more time to strategy preparation and spending longer online.

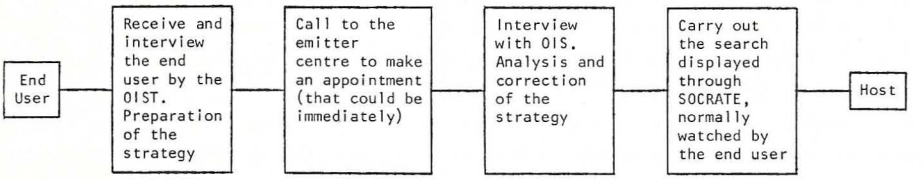

Fig. 6. Search procedures.

Since the OIST is not the direct protagonist of the search, he sometimes has little incentive or interest in the interview and strategy preparation, leaving responsibility in the hands of the OIS. In fact, however, the OIST must fully understand the search problem and be able to clear up all doubts with the client before contacting the OIS. It will be very difficult for the OIS to understand those matters which have not been thus clarified by the OIST.

Normally it is the OIST rather than the client who receives the comments and questions by telephone from the OIS. This underlines the importance of a prior interview between the client and the OIST to avoid having to pass all the OIS's questions to the client. A good solution is to install a loudspeaker at the reception terminal's telephone, or at least a supplementary telephone. This allows the OIST and the client to receive comments simultaneously.

Teaching constitutes additional work for the OIS and is not always carried out properly. Sometimes there is insufficient time, and the OIST's willingness to receive comments is probably decisive. Telephone contact after the search between the OIS and the OIST is frequently necessary to discuss the strategy and to comment on any unresolved aspects.

Initially, some online centres using the SOCRATE system required the OISTs to mail a completed search application form including the proposed search strategy. This effectively compelled the OISTs to prepare the searches correctly, but produced unacceptable delays to the end users. In our opinion such contact should always be immediate, i.e. by telephone.

Due to the complications likely to arise in fixing appointments between the end user, the OIST and the OIS, it is advisable to give SOCRATE searches priority over the other tasks of the online centre. Fixed timetables for each terminal connected to SOCRATE have not proved useful because of the random nature of the tasks carried out in online centres open to the public.

6. The SOCRATE experience at CIDC

The fact that CIDC depends on the local administration has influenced the type of users who have acquired SOCRATE connections, and priority has been given to public organisations which wish to act as intermediaries. Although in some cases the installation of the terminal has been proposed by CIDC, most users have independently requested the system. Agreements with the different organisations are very

flexible, allowing for complete freedom to use the various CIDC services or alternate them with those from other centres, although in practice the latter has not happened and all centres have asked for the complete range of CIDC services. Most of the organisations have sent their staff to training courses and seminars at CIDC. Some organisations have no intention of abandoning the SOCRATE link, but CIDC insists that this is done to allow time to promote the service to new users.

The problems which arise when installing a terminal linked through SOCRATE are similar to those encountered when installing a normal terminal in terms of equipment, place, costs, administration, etc. Training presents the least difficulty as it can be initially offered through a two-day course. In that time, an 'Introduction to Online Searching' is given to those who are to be in charge of the service – general procedures, completing the search application form with the end user, reception of prints, administration, etc.

The institutions regularly linked to CIDC through the SOCRATE system have been:

- University of Bilbao, Bilbao,
- Basque Institute for Studies and Research (IKEI), San Sebastian,
- University of La Laguna, Tenerife,
- Chamber of Commerce, Tarragona,
- Public Works Area, City Council, Barcelona,
- Hospital de San Pablo, Barcelona,
- School of Librarianship, Barcelona,

The first three have already become 'autonomous'. Two more centres are soon to be linked: a department of the Regional Government and a General Hospital of the City Council. Apart from these institutions, others do occasionally ask for searches to be carried out.

7. Conclusions

The main advantages of SOCRATE are:

(a) End users can follow searches without leaving their work places.

(b) Information scientists in training can learn online searching techniques through real searches carried out online, discussing their doubts as they arise. Gradually, they can alternate between easier searches which they will do directly with the host, and more complicated ones, carried out by experienced searchers using SOCRATE.

(c) Online information centres which want to carry out searches on specific topics using an unfamiliar host or a host for which they have no password, can request assistance from a centre specialised in that topic or with access to that host.

(d) Psychological help to foster the creation of new online information centres, assuring their efficiency from the outset.

Among the disadvantages are:

(a) Need for three telephone lines and an additional modem at the emitter terminal, and for two lines at the receptor terminal.

(b) Extra costs of telephone calls through two telephone lines between the terminals during the search.

(c) In some cases, comments between the two online information scientists can extend the connect time to the host.

(d) Need to establish a timetable showing the availability of both the terminal and the specialist or an appointment system. It is advisable to give priority to the SOCRATE searches (see above).

(e) Difficult compromise between the training aims of the system and the completion of searches, especially when end users are present.

(f) Greater difficulty in the OIS-end user pre-search interview, as this is carried out by telephone. The advantages of personal interviews which can more easily resolve problems and create a climate of confidence in which the search strategy can be carefully prepared, are lost.

On balance, the advantages of SOCRATE outweigh the disadvantages of increased work loads and costs. Working against the success of SOCRATE, however, is the general scarcity of resources in online information centres. The type of usage of SOCRATE depends on the policy of each centre. It does seem that in Spain, at any rate, it is more appropriate to dedicate the SOCRATE system to training than to the mere selling of online searches to end users.

References

1. J.M. Berenguer, T. Baiget and Esther Sanchez. Marketing strategies for the spreading of information retrieval in Spain, the Red INCA. In *2nd International Online Information Meeting*, London, December 5–7, 1978. Oxford: Learned Information, 1978. pp. 123–138.
2. *Sistema de Operador-Consultor Remoto para Acceso a Tele-documentacion y Teledatos. Manual del usuario*. Madrid; Red de Información Científica Automatizada (INCA), March 21st, 1979. Documento no. 14/US 1/1.6.
3. Paloma Gamo Gimenez. *Instrucciones de Uso del Terminal SOCRATES*. Madrid; Red de Información Científica Automatizada (INCA), November 23rd, 1979.