Perpetual Motion: Distributed autonomous counselling

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1   The combination of two recent developments, one quite distinct from the other, may bring about a radical change on the language learning scene as we know it today. In language learning, the idea of autonomous acquisition is accepted, in principle at least, by most. More recently, communication technology has leapt ahead and, with networks as the vector and computers as the basis for organization, language learners, perhaps even world-wide, will be able to transmit both learning material and advice on how it should he used, at the touch of button. Hyperlinking will give one learner direct access to the data base of another.

2   Devices commonly known as knowbots will, seek and retrieve information, perhaps even without the learner having specifically asked for it, so that the learner's objective can be reached. No means of communication is excluded – it can he written, oral or video.

3   Such a language learning environment, one that exists and evolves without the presence of a guide like a teacher or adviser, would have direct consequences on learners' learning habits. Learners would probably tend to orient their efforts towards areas where there are immediate needs, which needs would almost certainly be linked to their current level in whatever specialist subject they were studying.

4   Observation of learning groups taking part in experimental distributed autonomous counselling via networks not unsimilar to the one described above gives insight on the way learners behave within such a framework and on the problems they encounter.

5   Two experiments took place to investigate the potential of autonomous learning via networks. The first had what we choose to call a low-tech profile in that contact was made over the telephone and actual physical meetings were set up. The second experiment, of a more hightech profile, involved using an ETHERNET network and the telephone with learners transmitting written information and queries via electronic

mailing systems, while oral consultations and the transmission of listening material were done via the telephone. Learners had the possibility of recording oral texts transmitted to their phone, with the obvious loss of quality which would not be present if the same thing were numerically with computers.

6   Throughout the experiment learning activities were totally autonomously; i.e., without the guidance of any professional teacher, counsellor or adviser. The learners did, however, consult one another and in this context we assume that advice was experience or intuition-based.

7   The learner requiring assistance would consult the person they thought possessed the most competence for the job and not necessarily always the same one. This we call "distributed autonomous counselling" or a DAC network.

8   The purpose of this paper is to describe the people, procedures and environment involved, to give the impressions the learners had of the experiments, to comment on those impressions and for us to put forward our ideas on the future of DAC.

The Learners

9   Each experiment involved a different group of six learners. Those from the first experiment were professional adults enrolled in an intermediate oral English evening class at CUCES-Universités, the adult education branch of the University of Nancy. Their recruitment was based on a questionnaire, part of which focused on receptivity to the notion of autonomous learning. From the replies to the questionnaire a short-list of nine was drawn up and those individuals were invited by letter to participate in an experiment which would involve intensive use of English. Three declined for lack of availability on the dates proposed.

10   The second group of learners were 2nd year students reading for an Engineering diploma at ESSTIN. The experiment was offered as an option in their 2nd year repeat syllabus in English. The remainder of the syllabus was a project requiring the creation and application of a language-learning software package called CALVINS (Computer-Assisted Learning Via Intelligently Navigated Strategies).[1] This is an on-going project at ESSTIN. As a result, these students are continuously dealing with computers in language learning, either from the learning end or from the organizing end. This, we feel, is significant in that it creates an attitude towards the DAC environment and the way it is used. Their participation in DAC had no bearing on their final mark and they agreed to take part as an alternative to doing the same classroom-oriented syllabus for a second year. The experiments lasted for a total of twelve hours each.

The Equipment

11   The equipment used in the CUCES experiment was simple: just telephones. The ESSTIN version was much closer to DAC philosophy in that each student had at her disposal an IBM PS with a PROFS mailing system. Each computer was linked up to an IBM 9370 mainframe via an ETHERNET network. Having a powerful computer available throughout assured that computer communication was rapid and genuinely interactive. Any written document transmitted could be printed. Oral communication was done via the telephone. Because the phones were programmable with several inputs, multi-party conferences

were possible; the "call waiting" feature allowed callers to be put on hold while a learner called or spoke to a third party.

12   Furthermore, external inputs like cassette players could be plugged into the phones for the transmission or reception of pre-recorded tapes on other aural documents.

The Procedure

13   Both experiments concentrated on listening comprehension skills, wherein learners having chosen a document to work on would decide the best way to go about tackling it. Obviously, at first the distributed counselling feature could not come into play but later, once learners had sampled several documents and had discussed what they had been working on, a learner choosing a particular document could phone around, or in the case of the mailing system, page around, to see how her peers had dealt with that document.

14   It was interesting to observe how, in both cases, this consulting option became one of the main features of the experiment insofar as the learners tended to look for reasons to consult each other rather than only when it was necessary. So, consulting became a communicative function fuelled by the listening comprehension documents and was an end in itself.

15   The CUCES experiment took another direction after the first six hours because the learners decided spontaneously that they didn't want to do listening comprehension any more, preferring an interactive communicative activity. Hence they spent the last 6 hours doing a role-play.

16   The ESSTIN students, on the other hard, possibly because they felt themselves to be in a more academic environment, finally settled down to working on one document after having made several false starts on a trial-and-error basis. It's interesting that all but one ended up working on documents that had previously been attempted by at least one other of their peers. This may be significant but we're not really sure why, although it wouldn't be excessively difficult to hypothesize as to it's significance.

17   Throughout, the CUCES learners attempted to use English exclusively as their working language. So again, the metalanguage became a medium of communication. This reinforces the communicative value of what took place. One learner even went so far as to put his callers on hold while he searched a bi-lingual dictionary for words he wanted to say. However, he abandoned this at a later stage; as he explained in the de-briefing, it was too time-consuming and interrupted the communicative process. The solution he chose was to literally insert the French word into his English sentence.

18   ESSTIN students adopted a slightly different approach. They tended to use French when requesting information on the topic of the document. For example, "Does anybody know where I can find information about the aerodynamic characteristics of windmills?" On the other hand, when the problem was purely linguistic such as "the use of adjectives ending in -ed or -ing", the information would be asked for and the explanation would be given in English. Their attitude, however, towards the language used really depended on the complexity of the information being sought. For example, information on ellipses and substitution would probably have been dealt with in the native tongue.

The Debriefing

19   Before going any further we should like to point out that the total debriefing of just one of the experiments fills twenty-eight tightly-typed A4 pages. It has therefore been necessary to extract certain data from context. Such a procedure implies a certain amount of extrapolation and perhaps subjectivity, but this is probably inevitable.

20   The first point worthy of comment is the revelation of the fact that many of the CUCES learners had previous experience in autonomous learning situations while they were students. Generally speaking, the situation then was perceived as one where the students could get away with doing very little. They regret this attitude and made that clear by taking the experiment very seriously. We consider this significant because clearly autonomous learning can be efficient only if the learners are open to such a technique. Such openness comes only after a certain maturity has been reached or after some autonomy-oriented training has been undergone. In our opinion, their previous experience served this purpose. In either case the learner's mentality had evolved.

21   Another aspect touched on during the feedback was the fact that in this context the responsibility, not only for learning, but also for the elaboration of the learning process was entirely the responsibility of the student[2]. Here, we feel DAC differs from more traditional autonomous learning in that there is always a guide, a sort of pedagogical guru, to orient the learner and more or less tell her how to go about doing what she's doing. Within DAC, learning is based on experience, frequently second-hand experience, but it's nevertheless the result of having made an effort to find out for one's self.

22   One problem that did crop up was the fact that one learner was loath to disturb others when she needed help. Within DAC, as we conceive it, this problem would not arise because the request for information, if transmitted via a network to a computer where it would be put on hold until the requester was ready to deal with it. In addition, it's quite possible that electronic devices called knowledge robots, knowbots for short, which will be available on the market within the next decade could very simply find out the information for the learner from the computer of a second party, without actually disturbing that party. If the second party's computer didn't have the information but knew where to find it, it would automatically interrogate a third computer, retrieve the information and pass it back to the requestee. This is known as hyperlinking.

23   Our example describes only three computers; in fact the number can run to infinity but there are, of course, limits as far as time is concerned, the handling capacities of the network and the quantity of information that would be reasonable to return to the requestee.

24   One learner expressed reservations about the usefulness of such cooperatives because, as she pointed out, the only use she could see in the organization was if learners were working on the same document with the same objectives[3]. What she failed to perceive was that documents can be different while objectives remain the same and not only vice versa. Furthermore, DAC plainly implies not only assistance thanks to one learner's actual experience with a document, but a whole gamut of options based on the entire learning community's perception of a particular problem. It is an interesting spin-off of DAC that the learners seem to think more about the learning process since they, rather than a teacher, are the masters of their learning destiny.

25   There may be some disadvantages within DAC. One learner pointed out that in his opinion, only certain people are capable of, or pre-disposed to, really being autonomous enough – executives, managers or trainers. Students, according to her, would have difficulty with it. We don't necessarily agree with this comment; in fact having tried it with students we know that there can be a certain degree of success. In all honesty, however, the learner may have a point in that not every human being is capable of managing her own learning situation. This is not, however, a problem specific to DAC and could be an argument against autonomous learning of any sort.

The DAC Environment

26   Going into all the details involved in the organization of a DAC community would be too time consuming. However, the organization of the DAC environment has been the object of another paper (David 1992). It might be worth listing nevertheless some of the points that are essential to the smooth functioning of such a community.

27   First of all, each learner must have at her disposal a model, a sort of personality template, of other members of the community. This will enable her to decide who to consult on specific problems and who to send information to. Also, the learners must engage in some sort of self-monitoring process wherein they reason about what they're doing. This implies scheduling tasks and reflecting on inter-learner interaction. Furthermore, a knowledge of peer language-skills is an extremely important feature for it may be around this that learner attitudes towards other members of the community will nucleate.

28   The workload and the time-scale could be of particular importance. A learner whose workload is heavy may not be able to respond to a request for information within a short time period. Consequently, the electronic environment should provide an estimation of the time required for that learner to respond to any peer requesting advice. Knowledge of that sort will invariably influence whether or not that request is sent to a particular learner and may also provide, along with information of previous return-time lapses, an indication of when a response can be expected.

29   Other options too, could facilitate the retrieval of information. For example, if learner "B" requires the same information that learner "A" requested at some previous point in time, the system should be able to provide a reply form a databank without actually having to reinterrogate learner "C" who initially provided the information. Co-operation and the passing on of information can be smoothly handled if information that might benefit other members of the community is automatically transmitted without a request for it actually having been made. Learners would know to which member of the community to send the information because their computers contain these so-called templates.

30   These are just some of the main characteristics of the DAC environment. In addition, this paper has described a first attempt to examine the possibilities of DAC potential. Consequently, we have contented ourselves with merely describing the generally positive attitude of those who took part in the experiments.

31   Further tests in a full-scale DAC environment are clearly necessary, involving more learners with more sophisticated apparatus over a longer time-period to discover if indeed language acquisition of any significance can be brought about in this way.

Figure 1

THE DAC PERPETUAL-MOTION MACHINE
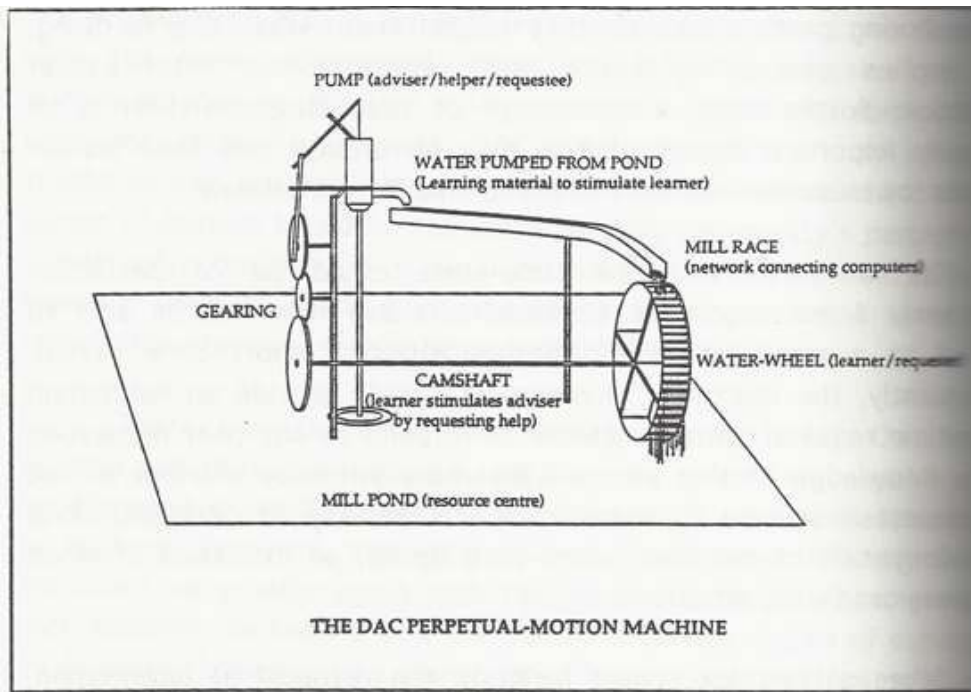
32   In our opinion, with the increase in the availability of inexpensive and yet more powerful personal systems, the possibility of being linked to networks which, within the next ten years or so, will be as commonplace as telephone networks are today, and with the presence of devices, electronic clerical assistants known as knowbots, the mentality towards learning is likely to change, if not in this decade, then certainly in the next. Moving-image and voice transmission will be as cheap and easy as transmitting written text or stills is today with the aid of these devices and hyperlinking, briefly described earlier, knowledge in many of its forms will be easily obtainable by the learner at the flick of a switch. Let's not forget that by then, if current trends continue, the home computer will not only have become ubiquitous, but also it will be as easy to use as a television set.

33   Teaching as we know it now will be obsolete. This is not to say, however, that the language-teaching specialist will not have a role.

34   The role will simply be another one. This is not to say, either, that we are dealing with a new phenomenon. It is merely a more hi-tech version of the bush-radio tutoring commonly used in the outback. The radio waves are being replaced by a network, the radio is being replaced by a computer, and the teacher's knowledge is conveyed via a host of expert systems and the collectively intuitive, common sense approach of a learning community. If the system can work then we feel we've hit on the only self-sustaining perpetual motion machine that science has ever come up with (see illustration). Imagine a millpond full of water - the water is the resource centre. The community members supplying information about resources act as the pump that lifts the water up to the mill race, which conveys a liquid just as the network conveys information; hence, the water is transported to the water wheel. The water wheel is the learner who is galvanized by the learning material and by the community member, the pump, who encourages him by supplying suggestions about how materials can be used and information on the material itself. The learner, when she has finished with the material, returns it in a state of

enrichment to the resource centre. The water-wheel is responsible for making the pump function. In other words, the learner stimulates the other community members by requesting information and the community members stimulate the learner by supplying it. Hence the engine turns much in the fashion of a perpetual motion machine, albeit an abstract one.

BIBLIOGRAPHY

Brown, David N. 1992. "LEARNET, Distributed Autonomous Counselling for learners of Foreign Languages". (as yet unpublished)

NOTES

1. CALVINS: On-going research project at ESSTIN.

2. "Par rapport à la méthodologie. Ca a effectivement un avantage, ça oblige les personnes qui utilisent cette méthode à s'impliquer; c'est sûr qu'on est plus responsabilisé que quand on est dans un cours ou on s'endort quand les autres parlent …Ca nécessite un effort de concentration important…". (page 3 of transcript).

3. "Moi, je ne vois vraiment pas comment on peut améliorer sa pratique de l'anglais, si tu es intéressé par la gestion, si toi c'est l'informatique et si toi c'est…". (p. 12 transcript).

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