Teaching yourself
in primary school
Report of a seminar
on self-instructional programs
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Teacher Training for SAGE, a System of Individualized Instruction

We at the Institut national de la recherche scientifique (INRS) firmly believe that no major educational innovation can adequately be developed without researchers entering in close partnership with teachers and other school personnel and that, once it has been developed, it cannot be implemented or disseminated unless the professionals who will be working with it undertake some form of reasonably effective training.

We also believe and act on the principle that teachers and other school personnel who have had some field experience do not have to unlearn what they have picked up during college or university training to move from group to individualized instruction. In fact, we believe that from 3 to 6 credits, that is from 135 to 270 hours, would prove enough to train certified teachers and other school personnel in the use of SAGE.

NATURE OF OUR WORK

In the area of teacher training for SAGE, our work has been essentially curricular and developmental. We have not conducted any formal piece of research on, or quantitative formal evaluation of, our training sessions. This is not to say that our work has been unscientific or unscholarly. We rather had recourse to qualitative evaluation, using feedback given and needs expressed by teachers, both during and after training, to reexamine the nature and sequence of the learning objectives as well as the teaching-learning materials of our training program.

The most basic objective of our teacher training is to provide teachers and educational personnel with as complete an experience as possible of individualized instruction. Individualized instruction requires a change of mind among teachers—a change that will enable them to enact new roles and to master new techniques.

A change of mind. Basically, the teacher has to come to believe that school success or high achievement in academic subjects is possible for most learners; that even a young learner is capable of assuming responsibility for the effective management and use of his or her school learning time; that group instruction—e.g., teaching 25 or 30 students the same unit at the same time and pace—is fundamentally a mission impossible for one who aims to bring all learners to a high level of achievement.

Gilles Dussault, INRS-Education, Quebec, Canada
To enact new roles. The typical teacher, during group instruction, provides information, asks questions, receives answers, and provides feedback. He or she hardly has time for personal academic counseling or for tutoring. In an individualized instruction setting, the transmitting of information is done by teaching–learning materials; most of the questions and formative feedback also come from these materials. The teacher becomes, ideally, a diagnostician, a tutor, an academic counselor. He or she meets with individuals much more than with large groups and, because of the variety of learning materials available and of the individual programs of studies, has managerial duties much different from those imparted to a teacher in the regular classroom.

To master new techniques. These include new ways of grading tests, new ways of evaluating learning performance, new ways of dealing interpersonally with individual learners, new ways of managing the heavy “traffic” within an individualized setting, new means for answering as soon as possible the various needs of individual learners.

We aimed to ensure that teachers and other school personnel, preparing themselves to implement SAGE, experienced, as thoroughly as possible, individualized instruction. So, during the training sessions, we try as much as possible to avoid large-group instruction or lectures; to provide the trainees with diversified learning materials; to make available human resources; to give them maximal control over the use of their training time and, if not always the content, at least the sequence or ordering of their learning experiences. In so doing, we hope to have the trainees experience and discover by themselves both the limits and the benefits of individualized instruction.

FIVE DEVELOPMENTAL STAGES IN OUR PROGRAM

From 1973 to 1981, our training program has evolved through four stages and should reach a fifth and final stage in 1982. During 1973–74 and 1974–75, five elementary schoolteachers, the director of their school, and his assistant director, along with one professional of their school district were fully integrated into the research and development team of INRS-Education responsible for the reformulating of the French-language curriculum, the developing of the first hundred or so teaching–learning units and accompanying tests, the preexperimentation with the system (spring 1974), the overseeing of the first full year of experimentation (1974–75), and the collection of data on the teaching–learning units being used for the first time as well as on the first run of the system as a whole.

During the first 2 years, there was no formal training, but we believe that the training sessions will never give as much to the trainees as did the all-directional partnership with the original participants.

During 1975–76, negotiations with two other school districts for the implementation of SAGE in either 1976–77 or 1977–78 focused clearly on the need for formal, systematic teacher, and other school personnel, training. We could no longer maintain the pioneer way of training to which we had resorted in 1973–74 and 1974–75: the school boards could not afford to allow the long paid leaves of absence that had been given
the early participants in the program. One school district, 200 km from Quebec, was planning to open some 20 SAGE classes; the developmental work at INRS-Education, under way for 2 years, had become too complex for a large group of outsiders to join suddenly and profit from, and we did not have the capability to accommodate that many people in our R&D team.

We scanned the literature on teacher education in the hope of finding some accurate published materials to use, totally or partially, for a first formal training session scheduled for summer and fall 1976. We finally decided upon buying the whole package published by Westinghouse Learning Corporation (1975) entitled Designs for Individualization. This package comprises an administrator's handbook, a teacher's handbook, and a series of audiocassettes and filmstrips.

After having closely examined this package, we felt that 13 of the 15 teaching-learning units of the teacher's handbook could serve as core material for a teacher training session if two shortcomings of the package were overcome. The first shortcoming was that it was written in English. Most of Quebec's elementary schoolteachers are not bilingual and for most of them to use a textbook written in English is a real burden. If we were to use the package, we would have to translate the 13 units that we felt were relevant and obtain the permission to do so from the Westinghouse Learning Corporation. Another shortcoming of the package was that it was not fitted perfectly to SAGE, or rather to the Quebec milieu. There was no specific objective or teaching-learning unit on our French curriculum, our math curriculum, our English as a second-language curriculum, or our computer programs.

We asked the director of Les Presses de l'Université du Québec (Quebec State University Press) to negotiate with Westinghouse Learning Corporation the right to translate and adapt the teacher's handbook; then we began making a "home" translation of the 13 relevant teaching-learning units; and finally we set out to develop the four needed teaching-learning units specific to SAGE. Letters were exchanged between Les Presses de l'Université du Québec and Westinghouse Learning Corporation, but final agreement was never reached.

The decisions on how to proceed had been made in early spring 1976, and all except the first one came to fruition in time for the summer-fall session of this year. The teaching-learning materials adapted from Designs for Individualization are no longer in use at INRS-Education but proved useful during 1976-77 and 1977-78.

In fact, this translated, adapted, extended package served as the main pedagogic resource for six training sessions from June 1976 to August 1978. These sessions were attended by some 100 teachers, school directors, and other education personnel; three took place in Ste-Foy at INRS-Education, two in St-Bruno-de-Montarville near Montreal, and

1Based on our experience of 1973-74 and 1974-75, the two units that we felt were to be left aside were the ones that aimed at preparing teachers to develop by themselves self-instructional teaching-learning units for the pupils. We had tried assigning teachers to part-time developing of instructional materials and quickly realized that this was incompatible with a full-time teaching load. The teaching-learning units in SAGE have been developed by experienced teachers who had resigned or had to resign their duties as classroom teachers.
The student's experience in SAGE — individualized instruction — was translated into the training program for teachers.

one in Normandin (Lac St-Jean). The Conseil des études de l'Université du Québec (Quebec State University Academic Senate) granted us the right to offer trainees three credits at the master's level for satisfactory completion of the training program.

As SAGE matured in the milieu, both theoretically and practically, and as teachers, school administrators, and researchers discovered through experimentation new facets of the system as well as new implementation modes, the teacher training program based on Designs for Individualization became rapidly less satisfying. As early as 1977,
the unit dealing with a theoretical overview of individualization had to be completely rewritten to meet the needs of the trainees; the units on the classroom managerial systems and physical arrangements had to be adapted and partly rewritten to reflect the realities emerging from the first experimental tryouts of SAGE.

In September 1978, six INRS-Education researchers undertook to redraw the whole design of our teacher training program, redefining its specific objectives and making plans for writing a complete set of instructional materials geared to these objectives.

During the time required to come up with our own package, about half of the Designs for Individualization teaching-learning units used since 1976 continued to be resorted to, and the other half was replaced by tentative draft papers and by lecturing. We felt that relevant lecturing was, for a while, better than the available, less relevant, self-instructional materials.

Therefore, the third stage of our teacher training program was characterized by a mix of our inputs — written and oral — and of materials adapted from Designs for Individualization.

There have been five sessions during this transitory stage, attended by some 50 persons. All these sessions were held between March and August 1979, and, for the first time, not all were chaired by staff members of INRS-Education. Two were run by school principals who had previously attended a training session at INRS-Education.

In the fourth and current stage of the training program — when we will use our own package — dissemination problems prevented us from holding training sessions for 2 years, that is between August 1979 and March 1981.

During the first 13 months of this latency period, the writing of our own instructional package for the training of teachers in the use of SAGE was slow but steady. In October 1980, a team of five researchers of INRS-Education agreed to give priority to the task of completing as much as possible of the package for a training session in March-April 1981.

Building on the work already done in late 1978, we proceeded to a last revision of the definition and of the structure of the program’s specific objectives. This led to a program ordered around eight themes, or dimensions, comprising 24 objectives.

In our view, the eight themes or dimensions of the programs are those that a prospective user of SAGE must face if he or she is to be considered minimally trained in the use of this system of individualized instruction. These dimensions comprise the theoretical grounding of SAGE; the instructional tools for individualizing the teaching-learning process (curricula, teaching-learning units, tests, and other evaluation devices); the learner’s individual program of studies; the teacher’s role; the learner’s role; the managing of the classroom; the physical setting of the classroom; and the observing of one, or more than one, real SAGE classroom.

As of 1 May 1981 the teaching-learning units, evaluation devices, and other instructional resources required for pursuing 14 of 24 specific objectives of this new training program have been produced and are accessible to those interested.
We plan to add one more theme or dimension to the eight already identified in our own new teacher training program. This theme will deal with the first weeks of implementation of SAGE in a classroom and should be operationally defined through two or three objectives.

We hope to construct, and have ready for publication by the end of 1982, the instructional materials — both paper-and-pencil and audiovisual — needed to pursue the 10 objectives that have been identified within the eight present themes as well as those required by the ninth envisaged theme.

**SUMMARY AND CONCLUSIONS**

Developing the learner's autonomy and sense of responsibility is a fundamental objective of SAGE. *Mutatis mutandis,* it is an objective that we also pursue with regard to our teacher training program. We aim at making this program self-sufficient — autonomous, self-instructional. And we would like it to be flexible enough to allow professionals in the field to adapt it to their own needs without compromising its basic requirements, or, in other words, we wish our program to encourage its users' sense of responsibility.

Our training program evolved from a close partnership, which was a sophisticated form of dependency, as it required the continuous presence and action of INRS-Education staff members through two developmental stages when adapted published materials were complemented by inputs from INRS-Education. These materials allowed not only university professors but also school principals to assume responsibility for training prospective users of SAGE with minimal or even without any direct help from INRS-Education. Now, we are not far from attaining our objective of "autonomy and responsibility." With the fourth stage providing more than half of the training package suited to the peculiarities of SAGE and the next stage planned to be entered into as early as 1 June 1981, we may realistically hope the teacher training program with regard to SAGE to be, in a year and a half from now, fully self-instructional.