P.I.S.E.
LABORATOIRE - INFORMATIQUE - EDUCATION

INFORMATICS AND SENEGALESE TEACHERS' RELUCTANCE TO PEDAGOGICAL INNOVATION

by **Mr Hamidou Nacuzon SALL**
Docteur en Sc. de l'Education
Maître-Assistant
Directeur L.I.E.

Summary

The introduction of Informatics in Senegal, which started in 1982, is facing a strong reluctance from the teachers. While the Department for Informatics is studying the best conditions of success of that main innovation, it seems worth understanding the causes of teachers' attitude in order to avert them. To that respect, we have decided to make an effort of theoretical interpretation of our observations from 1982 to 1988.

Because of the origin of the teachers, of their studies and their pedagogical training, we have various attitudes.

To give better chances of success to the introduction of Informatics in Education, a new orientation of the research is currently emphasizing on teacher and socio-educational leader training.

INTRODUCTION

In 1960, many newly independent African countries like Senegal, thought of a teaching system adapted to modern world requirements. With the Independence euphoria, immoderate challenges were taken. But very soon, the feeling died away. Students and Schoolchildren are the most frustrated. As from 1968, we have been witnessing yearly strikes which show their frustrations from the system they are educated in. The year 1987-88 was declared void by the Government because of a four-month-strike. As a result, only students from

private schools could take the end-of-year exams. The lycee (Grammar School) and University students repeated their class.

Those various movements show the serious crisis people are experiencing today.

Which diagnosis has been made and which remedies are applied ?

I- THE CRISIS OF EDUCATION & THE COMPUTER ASSISTED LEARNING (C.A.L.)

The Government officially recognized the maladjustment of School in Senegal, and then convened the General States of Education and Training in January 1981.

According to the acting Minister of Education of that time, "we were in a dead end situation which originated from a paralysis of the School in its structures and its development because of the colonial heritage, less and less adjusted to our Economic, Social and Cultural realities, despite several reforms and indisputable successes" ([1]). We mainly noticed that crisis through the unemployment of newly graduates of any department of University, the rate of school failures and the number of pupils in classes, etc.([2]).

To curb the effects of the crisis in Senegal, the National Commission handed over their work after three years of meeting (Aug. 81 - July 84). They concluded to an unavoidable radical reform of the current System. They proposed a new system stemming from kindergarten to University, and emphasized on the "close relationship between general knowledge and practical activities" ([3]).

To that respect, the Ecole Normale Superieure initiatied, as from March 1982, research works on the introduction of Informatics in Senegalese Schools. The Laboratoire Informatique-Education (L.I.E) has been carrying out those actions. The objective is to contribute to the reorganization of the school flow chart, the teaching content, the improvement of the current pedagogical methods, the efficiency of the teachers and to a better adequacy between the teaching and the training so as to have a "New School opened to life".

The works of the LIE enabled ENS to get a certain expertise as for the introduction of informatics in School.

Today, the main postulate of the actions underway makes the preparation and teachers and leaders of socio-educational activities training a sine qua non condition of success of the Computer-Assisted Learning (C.A.L.).

As the matter of fact, between 1982 and '88, the LIE tried to initiate, in four pilot-schools, about 50 teachers and their directors on C.A.L.

It was on a voluntary service basis. The training would start at 17 H after the classes. It was mainly centered on informatics states, Logo Language, software package (e.g. AppleWorks). The initiation was ensured by supervisors of the LIE trained for that purpose at the Logo Computer Center of New-York and at the Centre Mondial de Paris. On the other hand, to create and consolidate team spirit, all of the volunteers were regularly convened to short in-service trainings at the ENS.

The objectives were to make each teacher measure the opportunities offered to education and their limits, be able to monitor Logo sessions in his class and initiate his students into Appleworks.

Quite evidently, the enterprise seemed to have failed. It showed from the annual results an unequal distribution of the innovation support. From the questionnaires and interviews of the teachers, we noticed big differences. They were mainly caused by the director 's personality, the level of studies, the pedagogical training and the Socio-economical origin of teachers.

It is the results of those assessments that we would like to analyze and thereafter define new targets and new research hypotheses.

II- THE TEACHERS'IMPLICATION

The first explanation given is a parallel drawn between the training and the pedagogical innovations ([4]).

It may seem that for the last thirty years, that the recruitment and the psychopedagogical training of the teachers has always been the main obstacle to real pedagogical innovations. First of all, the educational policy of the past combined with the vagaries of modern times seem to cause the main obstacles vis-a-vis the pedagogical innovations. On the other side, as paradoxical it may seem, the presence of foreign   teachers could be favorable vectors to the introduction of informatics in Education in our country.

What are the reasons for such a situation?

1- During Independence period

Until recently, the democratization of the teaching profession has favored the recruitment of unskilled personals. At the primary level, the majority of the school-teachers were recruited among junior-high graduates or even simply among those from elementary school. As the matter of fact those personals did not always master the contents to be taught or never received the required pedagogical training. The same deficiencies prevailed in junior high, senior high, technical or vocational schools, with the recruitment of higher education graduates. The latter have been promoted teachers without any pedagogical training. As a result, the working habits steadily acquired by the teachers, today constitute their traditions. It seems difficult to emancipate them from that situation.

2- The recent years

The actual vagaries are also related to the level of recruitment of most of the new teachers and the length of their pedagogical training. Not long ago, (10 or 15 years) people thought that three or four successive years of studies at the University and one year (actually 9 months) of pedagogical training could shape a good teacher.

But the quick evolution and the disruption of knowledge strongly affected higher education and research institutions that could not or did not want to rehabilitate. Therefore the gap between knowledge and the programs to betaught quickly widened because of the demands of the learners and the questionable competence of their teachers.

Without any doubt those realities are the main obstacles for a pedagogical innovation in Senegal. As the matter of fact any planned innovation in teaching and training is jeopardized by the reluctant African teacher. Thus, despite various strategies and efforts of the LIE, the introduction (initiation) of Senegalese school masters to pedagogical applications of the Computers has always been confronted with a strong reluctance. Their attitudes are not in favour of sacrifices necessary to the renewal, deepening and the diversification of knowledge which are vital for the development of the scientific level of school.

In our pilot Schools there are two categories of schoolmasters : Senegalese and foreigners (mostly French) respectively more than 80% and less than 20%. Among those, most senegalese are intellectually less curious (inquisitive). They prove less inclined to debates and prefer routine. To justify their attitudes they

argue that they are socially so involved and preoccupied as many Senegalese people. It seems natural and easier for them to discard our persistent invitation to take part to the action-researches on the introduction of informatics in Education. They find it difficult to ignore the social requirements. Would administrative constraints, and stimulating allowances enable attitude changes ?

From our observations, unlike Senegalese teachers, foreign teachers rush to our laboratory. All of them would like to have their learners get involved in pilot-classes of the LIE. From the interviews, they invariably argue that in the future Informatics are unavoidable.

From the analyses of the various attitudes, we notice two main factors : the level of studies and the quality of vocational training. The foreign teachers are at least Baccalaureat holders and received a pedagogical training, whereas the Senegalese teachers only hold a junior high diploma (BFEM or DFEM) and have not received any pedagogical training. We can therefore say that African and foreign teachers function as if their adhesion to pedagogical innovations, depended on variables

- on their capacity to follow intellectual debates which require specific competence;
- on their capacity to anticipate the future with a
  high probability of implementation of the actual
  signs.

The introduction of Informatics in Education supposes that the teacher understands what it represents along with Computers as for scientific and technological development. He must also be able to evaluate exactly what computers and Informatics can provide for teaching and training.

The gap may widen between nations, between children from different socio-cultural backgrounds, between public and private school students with the latter open to new technologies under the parents' pressure as they assess the stakes.

Our half failure of sensitization and initiation of the teachers to the C.A.L. makes us look for new approaches. All of our efforts are today orientated towards the teacher trainers (psychopedagogues, "didacticians"), extra-muros educators [5].

III- DIVERSIFICATION OF THE TRAININGS :

The new approach considers our experiences and those of other countries, in order to introduce Informatics in School ([6]).
It appears that the success of the introduction depends on two factors :
1) Initiation of teachers to Informatics and their training in C.A.L.;
2) Elaboration of proven approaches which do not suffer trial and error.

In front of those requirements, the teachers are confronted with a real dilema :

1) How could they correctly take on their mission of training if they do not know anything about it ?
2) What level of competence should they get so as not to abandon for more rewarding sectors?

But also, the past experiences show that the introduction of Informatics in Education should not be satisfied with:

1) Training sessions organized during the holidays
2) Lack of general orientations and absence of Syllabi redefinition.

In front of those obstacles, and avoiding a delayed introduction and the generalization of Informatics in Education, the LIE favors two main poles today:

1) Teacher trainers' training from pedagogical training centers
2) Personals' training from socio-educational centers.

For the personals coming from the pedagogical centers the stress is put on their direct implication to the current research. The test-team is composed of two trainers per department. In the short run, the aptitudes to be developed notably aim at :

1) The mastering of Computers and Informatics
2) The active practice of the C.A.L.
3) A more active pratice of the pedagogical concertation and the pluridisciplinarity
4) The transfer to someone else (teacher/trainer) of the knowledge and acquired competence in Informatics and C.A.L.

The same aptitudes should be developed in the leader of Socio-educational

activities. Accordingly to the vocations of those centers, emphasis is mainly put on the integration of Informatics:

   1) In holiday activities or in cultural centers.
   2) In social promotion and vocational trainings

In so doing , teacher trainers and leaders of socio-educational activities will be the vectors for the popularization and the introduction of Informatics in the formal educational system and in the informal educational networks.

CONCLUSION

We are aiming at giving more opportunities and chances to the youth and students to be in touch and familiarize with computers, improve their practice, better and more positively apprehend their possibilities, and limits. The objective is also in order to "deschool" the introduction of informatics in Education; to try to better foresee inhibition and failure situations which are so frequent in our institutions; and finally to give back to Computers their role as a polyvalent of production tool and knowledge acquisition.

In trying to find out a junction and a more functional collaboration between formal educational structures and informal educational centers the objective is to optimize the investments.

As a matter of fact, because of the situation of country the acquisition of the equipment and the training costs of the resource persons in informatics, require a more flexible definition for their use.

We should actually, take into account the school facing its constraints and requirements. Therefore the access to informatics rooms must be better planned and the access and interaction with other users, more flexible. Otherwise that would mean accepting the misuse of competent people and machines.

_____

NOTES

1.- Republic of Senegal, Ministry of National Education, A.K. FALL Minister of Education, Presentation to The Cabinet Council on the result of the proceedings of the National Convention on Education in Dakar, january 28-31, 1981. CF ENS Library n° 45 365 (663 SEN).
2..- "Jeune Afrique Economique" (a monthly paper, Paris, France) n° 117, march 1989, in article "Did you say M. AS ?" The paper quotes the followings data in the distribution of the higher Education Diploma Holders registred by DIRE at the date of December 5, 1988 :

TRAINING	NUMBER	%
M.A holders	743	51,96
Engineers	205	14,34
DUT/BIT	146	10,21
DEA/DESS	117	8,18
Others	87	6,08
Doctorates	77	5,38
B.A	39	2,73
DESCAE/DECAF	13	1,12
TOTAL	1430	100,00

1°- DIRE : Delegation for the Insertion & Reinsertion & Work, Senegal.

2°- DUT & BIT are diplomas of vocational training given by   the National institute for Technology.

3°- DEA & DESS are postgraduate diplomas before Ph.Ds.

See also : Republic of Senegal : Ministry of National Education (M.E.N.) : DERP : Teaching and Training Actions of the M.E.N. : a Statistical Dataruning study 1983-84.- Dakar : MEN, February 1988, pp 15-16, CF Stream transition and ends of studies of the Elementary School, Middle School & Secondary School :

1°- Elementary : 18,3 % of success to go up to middle school

2°- Middle school : 51,7 % BFEM (End of middle school studies)

3°- Secondary school : 56,5 % certificate of Education

Also see again : Republic of Senegal : MEN : DERF : Univer   sity & School Statistics 1987-88.- Dakar : MEN/DREF :

1°- Elementary school : average class size : 58, p 5

2°- Middle school : average class size : 47, p 47

3°- Secondary school : average class size : 45, p 79.

3..- Ministry of National Education of Senegal (MEN), Summary of the Conclusions of The General Convention on Education & Training - The New School, pp 21 - 49. MEN, Dakar (July 1986)

4..- 'Le Monde Informatique' (Paris, France) n) 408, issue of April 16, deals in many articles with the training of teachers on New Educational technologies. CF pp 59-63.

5..- Ibid in 'Le Monde Informatique', p 60 : Education & Eomputering : a priority, remotivating Teachers, according to the report by Monique Grandbastien, even in France, teachers are less and less motivated, because of lacke of clear art policy at the higher level (minister for example) : negative side : the weakness of the system of initial and continued training of teachers, the non-specification of teaching objectives (...)

See also, in the same paper : The monde Informatique, p 63 :

"Teachers Training : the weak paradigm" : "it is a race that has taken place. On the one side a population of rather conservative teachers... Their in-service training can only meet with the size of the needs imperfectly. Happily there are the new generations of teachers : to give them new teaching and efficient tool, to revalorise their image, notably by modernizing the techniques, they use, seem to be the compulsory gangways to succeed in stopping the drastic loss of speed of education, with regards to public opinion and the ensuing difficulties.

6..- Also see The Monde informatique n° 408, April 1990, under "Teacher Training : the weak paradigm": " The present period is a partition time. If teachers' initial training took into account the New Educational Technologies (N.E.T.) better, all hopes would be allowed in a five-year horizon, when these new teachers begin teaching". Such training projet should be hold at university level thanks to the future creation of university Institutes for teacher Training that will "integrate those N.E.Ts".