TECHNOLOGICAL CONSTRAINTS - UNEMPLOYMENT OF YOUNG TEACHERS: CHALLENGES FOR INITIAL AND IN-SERVICE TEACHER TRAINING IN THE FRG

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The Federal Republic of Germany (FRG) - as other industrialised countries also - is facing a rapidly growing process of social and technological changes. "Progress" - whenever this has been a value in itself - today is closely connected with an introduction and dissemination of new media (cable TV, satellite TV, cable-communication, private radio and TV etc.) and overall computerization. The infrastructure for easy exchange of a great mass of information (via cable or satellite, networks etc.) is under construction. All these changes seem to lead to an 'information society', which is proclaimed to be the best way into future.

In terms of knowledge a new educational crisis is forecast by some experts if there is no rapid introduction of "computer-literacy". Even the position of the Federal Republic of Germany in international economic competition seems to be endangered if "computer-illiteracy" remains. At the same time a vast spreading of privately owned microcomputers through schools is regarded to be a reasonable strategy. Unfortunately there is still a great misunderstanding concerning the amount of knowledge, skills and experiences in connection with computer-literacy. Mostly some kind of greater acceptance towards computers in connection with some basic user skills are the major aims.

But these aims are not sufficient for a democratic society. In the same way as a mass of people had been locked out from knowledge before literacy (reading, writing, etc.) was delivered by schools to everyone and not only to a small elite we are now facing a situation that new kinds of illiteracy may grow again. This development will be the more likely as restricted aims in computer-literacy for example are closely linked to a new debate on elite-education, special support for the gifted children and a strict refusal of higher priorities (in terms of public financial support) for education and the school-system in general.
1. Computer, new media and illiteracy of teachers

1.1. Comprehensive illiteracy today - illiteracy of teachers

Industrial states like the Federal Republic of Germany are in transition to a so-called "information society" or "communication society". The common core of this development is an introduction of computer and data-processing in nearly all branches of the economy and social life. Experts say and write a new "education crisis" is knocking at the door for several reasons:
1. Children tend to stay more hours per week in front of a TV-screen (with TV, video etc.) than in the class-room.
2. Computers ask for new basic knowledge that can't be provided by the school as it is now.
3. Teachers in school, rather old in terms of computer-industries, are not trained to work with these tools, they often are not willing to accept them.

What is new with the basic norm "literacy" in school? Normally literacy is commonly understood as "being able to read, to write and to calculate" at various levels. These levels start from the basic skills in primary education to become rather sophisticated abilities in secondary education. Today there is clear evidence that this kind of literacy has to be enlarged to a high degree. Specially two areas must be added:
1. Computer-literacy, to be able to make use of this kind of technology in a passive - or understanding - and in an active way - to work with, to handle and to transform it.
2. Audio-visual-literacy (or in French: alphabétisation en langage total?) which means not to be a passive consumer (or often: victim) of audio-visual stimuli only, but to be able to understand the special language of movies etc. by oneself. A theoretical background for this demand lies in the basic values for a public school system: to provide a chance to participate actively in all fields of social, economic and cultural life. People who do not understand important and mighty instruments of communication, who even lose a gained primary literacy (e.g. "functional illiteracy") without understanding what is going on in the mass-media, is handicapped to exercise their basic civil rights.

In this context, assuming that computer-literacy and audio-visual literacy are accepted as basic skills to be taught and exercised at school, the question arises: 'who shall do this work?'. Most of our teachers today are older than 35 years. Computer-industries usually regard people younger than 30 years as clientele for
home-, personal- or micro-computers etc. The age-group of teachers is outside this clientele. At the same time everything connected with computers is highly attractive for children and students, even for those in primary schools. At the same time most teachers do not accept computers in school; they don't know to work with them, to make them an active part of education.

What is said in terms of computers is even more likely to be true in terms of audio-visual literacy. Generally the computer is accepted as a normal tool for coming generations, but looking behind the fascination curtain of TV and video, movie and radio, information- and communication-machinery etc. as common knowledge does not seem to be of public interest. But both kinds of new literacy, in addition to the old and commonly accepted ones, must necessarily be delivered by school. Unfortunately most of our teachers today are almost illiterate in these new areas. New teachers have no (or: a very limited) chance to introduce these innovations: they are locked out (see above!).

1.2. Computer-literacy and in-service training of teachers

To create better chances for new generations on the labour-mar- ket, computers are introduced in different ways into schools now:
- special actions, like the joint one of the Federal Ministry of Education and Science and the Federal Ministry of Research and Technology in March 1984, called "Computer and Educa-
tion". In this action a lot of home-, personal- and micro-
computers including software, in-service training, etc. were
given to selected schools.
- pilot experiments of the Bund-Länder-Commission for Educa-
tional Planning and Research Promotion concerning the intro-
duction of new technologies and special in-service-training
programmes for teachers.
- a shift towards computers, informatics, etc. in programmes of
the Länder-institutions for in-service training of teachers.

Most of these in-service training activities tend to be short-time activities (one-week-courses etc.). Spreading real computer-li-
teracy among teachers requires long-term courses or activities
that start from the given interest of teachers and providing
sufficient time (that means: reduction of workload) to accept the
new tools, to learn on them and to make their own experiments
with them. At least they have to learn one or two computer-lan-
guages to make their own programmes or to change given ones.
To pay for new teachers who can replace those in long-term
in-service training, there is only limited space (or money...).
Taking into account a certain lack of acceptance or some kind of ignorance of computerisation and some bad experiences in connection with the introduction of new media in schools (besides chalk, talk, white/blackboard etc.) it is obvious that a spreading of computer- and audio-visual-literacy among teachers of all types of school, and all subjects can't be successful on the basis of short-time events. The gap between most German teachers minds, their daily work-load and this aim of new literacy is rather great. To bridge this gap means:
- to recognize the link of these new kinds of literacy;
- to introduce new teachers who have followed special training in this area;
- to develop and train the staff or all teachers of special subjects (not only those of physics or mathematics) of a given school in this area;
- to make additional funds available for sound in-service training in long-term events (such as sabbatical year, replacement of teachers who attend in-service events etc.) instead of just spreading some hard-ware plus short-term courses and a lot of (cheap) advertisement on the "information society".

2. General outline of teacher training and employment

Teacher training is - in a functional way - understood as a life-long perspective, starting with the initial phase of training followed by in-service training for the appointed teachers.

Prerequisite for the initial phase is the final school leaving examination (Abitur) after 13 years of schooling, specially the nine or seven years in upper secondary schools. The initial phase of teacher training itself is subdivided into two separate phases:

a) teacher education at university level (3.5 - 4.5 years at least) ending with the first state-examination which normally is provided by the university;

b) a second or induction phase at a special seminar and in school; the seminar - as a training agent - is part of the school administration. Normally the second phase takes one and a half year. This phase ends with the "second state-examination".

Teacher training as a whole takes 5-6 years at least, plus a minimum of 13 years in school. After the second state-examination applicants for a post in school have had at least 19 years of learning and are 25-27 years of age.

Big problems arise when people of 25-27 end up with their teacher certificate and have no chance to work in this profession.
They are older than other applicants for other vocational training. They start their professional careers as unemployed.

Besides the age-factor poses serious problems during the second phase specially when there are applicants whose professional failure or problems are obvious to the trainers. There is no or little selection in the first phase, the vast majority of students succeed in this phase, no selection or practice-oriented counselling takes place at the beginning of studies.

Both "state-examinations" are a prerequisite for the employment of a teacher. In fact the monopoly of employment of qualified teachers is held by the state itself. Only very few teachers are contracted by private schools or other training agencies. Teachers are employed by the state as civil servants normally, this also means they can't be dismissed from their jobs, except in case of involvement in criminal affairs etc.

The monopoly of the state as employer of teachers is also visible in the distribution of pupils/students among state and private schools:

Attendance of pupils/students (1980)

<table>
<thead>
<tr>
<th></th>
<th>State</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary- and Commonschools</td>
<td>99,0%</td>
<td>1,0%</td>
</tr>
<tr>
<td>Middle Schools</td>
<td>93,9%</td>
<td>6,1%</td>
</tr>
<tr>
<td>Gymnasium</td>
<td>90,5%</td>
<td>9,5%</td>
</tr>
<tr>
<td>Vocational schools</td>
<td>95,1%</td>
<td>4,9%</td>
</tr>
</tbody>
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3. New needs, plans and experiences in teacher training

3.1. Teacher training and the employment of teachers

The close link of teacher training and unemployment of teachers by the state has practically come to an end. Only 3 or 4 out of 100 fully qualified teachers have a chance to be appointed after their second state-examination. Today this career is mostly going from school through teacher training to...? This situation seems to end in a complete lack of perspective in the two phases of teacher training. But any discussion on changes in teacher
training is without sense, when there is no perspective left to find a job in a school.

3.1.1. Present situation and perspectives

Compared with unemployment on the labour market in general the unemployment of teachers will increase more rapidly until 1990 and later. Currently about 570,000 teachers (in full-time equivalents) are employed. In 1984/85 about 60,000 teachers are unemployed. Moreover 40,000 teachers are working on contracts of limited duration and/or imposed reduced working time.

In case 570,000 posts for teachers in full-time-equivalents will be kept over a long period the following figures seem to be reasonable:

<table>
<thead>
<tr>
<th>Year</th>
<th>Absolute</th>
<th>Relative</th>
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<tbody>
<tr>
<td>1982/83</td>
<td>30,000</td>
<td>5%</td>
</tr>
<tr>
<td>1985</td>
<td>70,000</td>
<td>12%</td>
</tr>
<tr>
<td>1990</td>
<td>172,000</td>
<td>30%</td>
</tr>
</tbody>
</table>

The relative degree of unemployment in general is about 10% in 1984/85.

To keep up 570,000 full-time equivalent posts has several prerequisites:
1. All teachers leaving school will be replaced.
2. All posts will be filled again, when teachers go on part-time occupation voluntarily.
3. Special needs are to be fully recognised, like a reserve of teaching staff for maternity leave, for leave in case of in-service participation, small schools, promotion of migrant children, promotion of handicapped/gifted children in general education, reduction of work-load per week.
4. The demographic development with decreasing numbers of pupils/students is to be used for improvement of schools.

The economic situation and more than 2.3 million unemployed people as official figures indicate, seem to be the worst conditions to fulfil these four prerequisites. This means the perspective of unemployed teachers and students in teacher training is even worse than indicated in the absolute and relative figures above. It is more likely that only the smallest portion of teachers will
have a "chance" to get a job. Some generations of fully qualified new teachers will be locked out from school for 10, 15 or more years. Demographic development shows a total decline to 8.4 million pupils/students in 1990; to keep the given student/teacher-ratio of 19:1 (as in 1983) there is a necessity of - globally seen - only 450,000 jobs in full-time equivalents. About 120,000 jobs (= more than 20%) could be taken from the payroll.

But a realistic point of view gives evidence that at least 570,000 full-time equivalents will be needed to bridge a gap that is always producing public annoyance: to see unemployed teachers out of school and lots of lessons not being taught in schools for various reasons. Parents have no possibilities to institute legal proceedings against loss of lessons. Rough figures show one year of schooling in ten gets lost for the reason that lessons must be dropped from the time-table: lack of teachers, in fact. Only public pressure in this area and a higher political priority for education are able to change this situation.

Official reactions to the "senseless" production of new teachers through teacher training hit teacher training itself. A vast majority of educational officials claim and will practise a nearly complete reduction of teacher training as soon as possible. Reactions of teacher training institutions to this policy absorb a lot of energy. There is no time and energy left for discussions on the reform of teacher training (in structure and content), to make use of the outcome of former pilot-experiments etc.

What was a great success in the history of teacher education in the FRG in the 1970ies - the integration of all types of teacher training into universities in almost all states of the FRG - is now proving to be the smoothest way to reduce initial teacher training capacity drastically. Nearly all posts of permanent and part-time staff becoming vacant are taken away from teacher training to other faculties within the university. Staff-members who leave teacher training in universities are not replaced, thousands of posts are lost for teacher training and it will take a lot of time to establish them again, when there is public recognition of a new lack of teachers.

The perspective of teacher training is similar to the one we had 00 (111) years ago:

- a lack of teachers
- (1960ies and early 1970ies)

was followed by
an overproduction of teachers  
(mid 1970ies-1980ies)
was followed by

a reduction of teacher training  
(beginning 1980ies)
was followed by

a lack of teachers  
(mid 1990ies-20...)

3.1.2. Integrated policies to overcome unemployment of teachers

The Standing Conference of Ministers of Education as well as the Federal Ministry of Education and Science and the Bundesländer Commission for Educational Planning and Research Promotion have taken a lot of steps to prevent the unemployment of teachers or to diminish it as far as possible. Since the midst of the 1970ies information was produced concerning the decline of the demand for teachers, possible overproduction and unemployment. All this information did not prevent overproduction and even had only limited influence on figures concerning new-comers to teacher training. When no primary-school teachers were employed in the late 1970ies, students in primary-school teacher training shifted to secondary-school courses. This was easily possible as various types of teacher training had been integrated in universities before. The shift to another type of training is connected with the inclusion of great parts of the preceding course in the following one. Many seminars, lectures etc. in teacher training are designed for various categories of teacher-students.

Meanwhile low salaries in the second phase have been reduced twice; structural changes diminish salaries for everyone new in the public service for four years. Possibilities to leave the teaching job for some years (without pay) on a voluntary basis have been enlarged as well as part-time work in school.

Pilot experiments have started to find out new ways to give teachers a chance to find jobs in other industrial, administrative (except the public service) or management functions. But these experiments, specially supported with financial aid from the Federal Ministry of Education and Science through the Bundesländer-Commission, cover only very limited numbers of teachers.

Through additional courses a lot of teachers are newly trained in
data-processing, computer-operation etc., mostly by the labour-market agency. Teachers are also taken in by the banking system in single cases.

As a whole all these initiatives try to bring individual chances to unemployed teachers outside the school system. The question, "how many teachers are really needed?" is no longer asked by official agencies, for the answer is obviously: "Maybe there is still a need today, but there will be no need tomorrow... and there is no money today to pay them...".

Besides these official initiatives a lot of unemployed teachers try to organize alternative educational working possibilities. There is a growing net of cooperatives and mostly local self-help groups. These groups are working in educational areas that are normally tasks for the official educational system, but covered by the work can't be done because there is - officially - a lack of money.... These initiatives of the unemployed are often supported by the Trade Unions, which also organize regional and federal meetings on these initiatives.

4. Concluding remarks

A huge spreading of new media and computerisation in nearly all parts of social and economic life is bringing up a great demand for new kinds of literacy. To restrict this demand to some basic skills means to diminish the possibilities of learning, insight and knowledge. Audio-visual literacy is necessary as well as computer-literacy, for the very reason more and more there will be a greater amount of leisure time; more and more TV has become a third dominant factor in education besides parents and school. To be active and trained in the audio-visual area is as necessary as reading and writing for the very reason that communication and learning will be increasingly coming through this channel. There is clear evidence that computer-literacy can't be neglected.

What is wrong with computer-literacy today is not computer-literacy itself but the circumstances that prevail at public discussions especially of the mass-media. Computer and computer-literacy have become idealistic miracle-words that hide a lot of existing social and educational problems and seem to solve them. But they can't solve the problem of unemployment of teachers on one hand and lessons not being held every day/week/month etc. for the reason of a lack of teachers inside school on the other. Perhaps it is a bad joke to see unemployed young teachers sitting in computer-courses to be retrained as operators when their
colleagues in school have serious difficulties to cope with the spreading demand of parents and politicians and school-administrators to teach computer-literacy or at least something that is regarded as such, but that will be outdated when students leave school.

The Federal Republic of Germany is in a way comparable to the one the USA are in. Joseph Weizenbaum, Professor of the Massachusetts Institute of Technology (MIT) characterized the role of computers in American education in the following way:

"Now let's answer the question, whether computers can heal everything. The best example in this context is the use of computers in American schools. The American school-system is a catastrophe. A government report says, our schools are producing a wave of mediocrity.

About half of our students leaving after twelve years of schooling can hardly read and write nearly nothing. And now we have a huge wave of computerization in schools. It is said, they are making everything good again. But this is not true. The computer is taken as an excuse or not asking more questions. We say: Johnny can't read. Instead of asking, why Johnny can't read we provide him with a computer; perhaps it may help him to read. But when we ask, why Johnny - in a country as rich as the USA - can't read, the answer is, Johnny is probably hungry when coming to school. If you do not put forward this question you can't find a way to answer, why Johnny is hungry.

The President of the USA - Reagan - some days ago said the greatest problem in American schools today is security: violence of students against students and students against teachers. In this system of schools we place computers to heal everything. This is a 'technological fix' as we call it."

If computer-literacy shall be more than a 'technological fix' it requires a sound educational system and must be integrated with traditional literacy and audio-visual literacy. But this needs teachers to do it, teachers who are now either locked out as unemployed or overloaded as professionals in schools.

* Translation by the author from a speech in German by Joseph Weizenbaum, quoted from: "Symposium der Hessischen Landesregierung - Informationsgesellschaft - oder Uberwachungsstaat Protokoll", Wiesbaden 1984, Seite 55/56