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Systems Research, Piaget, and the Development of the Swiss Curriculum^{*)}

In international pedagogy, there are four great names – men who starting in the midst of 18th century had a decisive influence on the theory of education. Three of them were Swiss, at least according to our modern view:

- JEAN-JACQUES ROUSSEAU,
- JOHANN HEINRICH PESTALOZZI,
- and
- JEAN PIAGET.

The fourth, JOHN DEWEY, was unfortunately not Swiss, but he did at least visit Switzerland briefly. ROUSSEAU would not like to have been called "Swiss"; he was, as we know, proud to be a *Citizen of Geneva*, even though - or because - his books were burned not only in Paris but also in Geneva. Geneva, his native city, held a grudge so long that it built a memorial to ROUSSEAU only in 1912. On the other hand, it is no coincidence that JEAN PIAGET developed in *Geneva* a theory of education that was meant to be a direct extension of ROUSSEAU. PESTALOZZI came from Zurich, and it is also no coincidence that he is held to be the first to put ROUSSEAU'S teachings into practice.

These are the legends, but they are not always correct historically. PESTALOZZI was a writer more than a practitioner; PIAGET referred to ROUSSEAU only in a very general way; ROUSSEAU himself has been more often misinterpreted than understood. But to have three of the "greats" come from Switzerland is certainly remarkable. There is no doubt that Switzerland has had a strong interest in education since the Enlightenment and later in the field of educational science, without always following ROUSSEAU, PESTALOZZI und PIAGET. If there is such a thing as "Swiss mentality", from Zurich to Geneva, it does not necessarily seek its heroes in *theory*.

In any case, I have been asked to speak on

- educational research in Switzerland,
- the influence of PIAGET,
- and the Swiss curriculum.

This presents me with three impossibilities. There is no one, national "Swiss" curriculum; PIAGET'S influence fills volumes of scholarly work; and educational research has become a very complex area that cannot be presented in a short speech. The 26 cantons of Switzerland do not form *one* uniform educational system. They each have their own and

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different - in part very different - curricula. PIAGET had a much greater influence on schools in Geneva than in Zurich. There are even regional differences in educational research: The science of education in Geneva is influenced by French pedagogy and differs from research in Zurich or Berne that follow German and Anglosaxon approaches. For these reasons, I cannot do justice to my topic and nevertheless have to continue my speech.

I can solve this dilemma, however, by turning to practice – the practice that I can best assess, which is namely my own. I am not Swiss, and I have worked in Switzerland since 1987, first in Berne and then in Zurich. Since then, we have tried to develop an approach that I call *systems research*. In contrast to ROUSSEAU, PESTALOZZI, and PIAGET, systems research is not - or not primarily - about educating individuals. It deals with the development of the educational systems that individuals must attend – the systems that have become indispensable to modern societies. In some respects, we can even say that the fate of society lies in the hands of the educational systems, or to put it more precisely, in the continuous further development of those systems.

My interest in this area of research is directed to three central topics:

1. How did educational systems become what they are today?
2. What tasks must educational systems fulfill in the future?
3. What is the most sensible way to reform our educational systems?

The first question is examined by conducting *historical research* on education. The second question is studied through *comparative discourse analysis*. The third question is investigated using *case studies and evaluations*. We thus study the history of the systems, public discussion on education, and innovations in practice. When I say "we", I am referring to a number of research groups that work mainly here in Zurich.

Educational systems are comparatively strongly determined by history. For the Canton of Zurich, for instance, we find that decisions made in the 1830s, which shaped the design of the public schools, continue to have an effect today. The system grew lastingly in the second half of the 20th century, without being changed in its basic structure. Today it is not at all clear that the educational tasks of the 21st century could be mastered with the historical design of the school of the 19th century. Our studies of educational discourse reveal that although history weighs heavily on the school, there are clear movements towards structural reform. The public expects to be provided with solid, high level education, and at the same time it expects the educational system to adopt the forms of teaching and learning of the future. There is also a demand for quality improvement, which means that reforms should entail only those risks that we can master.

Of course, demands for development and improvement of the educational systems are not new. There have been many attempts throughout the 20th century to modernize the schools and the education system as a whole. Think of JOHN DEWEY'S visit to China in the years 1919 to 1921, for instance. International experts like DEWEY were asked to develop plans for implementing modern forms of teaching and learning in national systems of education. However, it is apparent that educational systems can be modernized neither very quickly nor very easily. On the contrary, reforms have often failed, because they did not penetrate to the center of the system, because they misjudged the extent and therefore the weight of the system, or simply because there were political interest and personal enthusiasm but no available means to carry out reforms.

We study long-range trends in education reform, because we want to discover what it is that determines success or failure. We thus describe the way in which the education system itself learns. Here, there are four main problem areas:

- the history and influence of *progressive education* in the 20th century,
- the system's tendencies towards inertia, or the *grammar of schooling*,
- the *economics* of education, or the long-term cost / benefit ratio,
- and the *training* of teachers, or staff development.

JEAN PIAGET, of course, was an important, if not *the* most eminent, figure in the French *éducation nouvelle* from his move to Geneva in 1921 up to the beginning of World War Two. This *new education* or *radical education*, as it was called in England, was thought to hold great promise and hope for the future, but even so, it had little effect on the system. How can we explain this? Perhaps we should examine reform concepts with regard to their suitability for systems. PIAGET'S *éducation nouvelle* based upon his developmental psychology. PIAGET did not study how education *systems* can be reformed, particularly when they did *not* take over certain premises of developmental psychology. ROUSSEAU, PESTALOZZI and DEWEY also do *not* have answers to the question of why it is that educational systems can refuse to accept any "new education" or simply fail to follow it.

In contrast to them, we are interested in the *long-range effects of systems development*. It appears that no modernization effort encounters good will in a system at the start. This is so even when there is much sympathy for the demands of school reform and *progressive education*. The American historian DAVID TYACK at Stanford, who will speak here in Zurich this Thursday, has developed a thesis to explain this discrepancy. TYACK uses an analogy that he calls the *grammar of schooling*. Just as no language is possible without grammar, no school can function without a historical structure. What is meant by "historical structure" are the school's forms of organization and methods, such as

- the structuring of school "subjects",
- the schedule of classes,
- the grouping of pupils according to age,
- the class hour,
- the grading system,
- the curriculum materials,

and more. We tested the hypothesis on the *grammar of schooling* by conducting longitudinal studies of the development of curriculum materials in the Canton of Zurich (TRÖHLER/OELKERS 2001), and our results and conclusions were similar to TYACK'S. In addition, we investigated the historical mechanisms of staff development, including educational policy (HODEL 2002; CRIBLEZ 2002). Again, the studies revealed a very firm structure that does not automatically respond to calls for change. Simply appeals do not change the system, which we also found when we reconstructed the history of some of the cantonal educational systems (ANNEN 2003 on the Canton of Schwyz).

On the other hand, what we find everywhere is a strong predominance of *pedagogical rhetoric*. Let me give only one example: PAULO FREIRE, the Brazilian educator, had developed a concept of reform that is widely viewed as an appropriate theory for developing educational systems in the Third World. In fact, as is shown in our research, FREIRE'S pedagogy is largely *not* suitable for this purpose, but this has never damaged in any way his

image as a hero of alternative education (STAUFFER 2002). Because of all this, we have developed a second pillar of research, which is namely systems evaluation. Rather than describe good intentions, we examine actual results. Today, this *results*, or *outcome*, orientation is quite widely accepted, even in education policy. However, it first had to conquer considerable resistance on the part of the teachers.

We see this resistance as stemming from the continuing predominance of educational rhetoric. Studies of teacher education and training have shown that for more than 150 years, teachers have trusted in the language of great goals, without at the same time becoming accustomed to acknowledging data that shows the sober reality (OSER/OELKERS 2001). Going beyond teacher training, policy analyses show that pedagogical rhetoric can influence decision-making in education, if policy makers do not have sufficient data at their disposal. For this reason, the University of Zurich founded the *Competence Centre for Educational Evaluation and Assessment*. Along with the Institute of Pedagogy, it is responsible for evaluation research.

But do we know when reforms make sense and when they do not? In the past, the dualism between "old" and "new" has always been a problem. What is called "modern education" always seems to be directed *against* the old system (OELKERS 2002), launching a total or frontal attack on a system that was and still is very resistant to reforms. The "old" is not simply something that is out-of-date. On the contrary, it is usually very alive and well. In our research, we work on the basis of the assumption that educational systems cannot change in all sorts of arbitrary ways. Instead, while upholding their continued existence and thus their boundaries, systems *learn*. To put it more bluntly: You cannot re-invent the school. Schools have to evolve and develop, which is possible only if they are not constantly called into question.

From this we can conclude that reforms of the "whole" are never possible and that education reforms must be seen as what KARL POPPER once called *piece-meal engineering*. Systems analyses, as we conduct them, aim to determine innovations according to

- when and where they are *promising*
- and when and where they are *not*.

We must learn to identify parts of the system that can be reformed *only* if there are good prospects for success, while continuing to remember that greater parts of the system *cannot* be changed or cannot be changed *at the same time*. Reforms in education are not short-term processes. The evolution of educational systems requires a great deal of staying power and must always be based on the recognition that today's and tomorrow's education will take place in a very complex system that does not change simply when we call for change. And this calls for the function of educational research in the development of educational systems.

Research can aid us to

- document processes of innovation through data gathering,
- distinguish between real effects and rhetorical formulas,
- establish whether goals are achieved or not achieved,
- determine the quality and ranking of our own system in comparison to other systems.

However, research does not, of course, replace either policy or practice. Each and every reform entails risks that cannot always be minimized through research. But through the support of system analyses, we can indeed discover foreseeable or at least probable trends of the future. To mention a few: What we will have in the future is

- increasing competition among national educational systems,
- linked to this, increasing dependence of the economy upon the quality of the educational systems,
- increasing recruiting of personnel, at least by large corporations, from an international education market,
- comparative description of the quality of education systems and educational institutions,
- and priority placed on *best practice*.

An educational system seems to be "modern" if it can adapt to these demands successfully in the long term. International studies such as the *Programme for International Student Assessment* (PISA), coordinated by the OECD, reveal that educational policy decisions are being based increasingly on performance comparisons and, thus, competition (OELKERS 2002a).

Today the demands are for skills and competences, not simply for scholastic diplomas or good grades. Economic benefits emerge from personal competence, the knowledge and skills that are essential for full participation in society. This means that *standards* for learning domains, which are linked to instructional goals, will shape the discussion on reform in the future (OELKERS 2001). The quality of educational systems will become dependent upon achievement of the goals and thus the establishing of standards. What will be important is that students acquire the highest possible reading literacy, mathematical literacy, and scientific literacy - to name just three of the domains that PISA has assessed.

Naturally, I do not exclude quality demands for *other* school subjects. It would be unacceptable for us to improve reading literacy but at the same time to dramatically cut back education in the arts. And this is by no means an unfounded fear. Quality demands on the schools will intensify as a whole, also because more and more the cost/benefit calculations will proceed from the real outcome of schooling. It is thus understandable that educational systems that have *not* attained the highest quality in particular areas will have to learn from *best practice*. This is not really new. The cantons of Switzerland have in a way always competed for *best practice* since the 19th century. What is new, however, is that we now have different assessment instruments and that quality requirements have increased greatly. Research, as a neutral party, can make a significant contribution here, as can be shown by the growing demand for research.

To return to the great figures in education that I mentioned at the beginning of my talk: What would ROUSSEAU, PESTALOZZI, DEWEY and PIAGET have to say about all this?

- ROUSSEAU would retreat to his concept of the nature of the child and refute the idea that there can be true education within society as such.
- PESTALOZZI would recommend retreat to the "living room of the home" (*Wohnstube*) and find there the seat of moral upbringing.
- DEWEY would abandon the dualism of "nature" versus "society" and define learning as problem solving.

- And PIAGET would have emphasized the development of intelligence and moral judgement.

It speaks well for progress in educational theory that today, system developments start out from intelligent and morally sound problem solutions without overlooking the reality of competition. In today's globalized world, retreat into nature or the true home is no longer possible. There is no pedagogical island for the one and only true education. Instead, systems of education everywhere are challenged to develop intelligently, whereby intelligence will be revealed as the best form of problem solving. In this respect, not ROUSSEAU and PESTALOZZI, but DEWEY und PIAGET turned out to be right - one American and one Swiss - not a bad result for us.

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