

EDUCATIONAL DIAGNOSTICS IN POLAND

Diagnostic Studies as a Kind of Educational Applied Research

Let me begin with an attempt to give you my hopefully exact explanation of what I mean by the term applied research. Borrowing partly from the worldwide known Scientific Method: Optimizing Applied Research Decisions by Russell Ackoff (1962) I arrived at the following comprehensive statement of the important characteristics of the two main types of research:

Table 1. A Comparison Between Basic and Applied Research on Education

Trait	Basic Research	Applied Research
Main purpose	educational theory building	educational problem solving
Main subject	educational theory	people, curricula, facilities, methods
Expected result	hypotheses confirmed	educational progress made
Strategy	finding reasons	inspecting outcomes
Method	best method	various methods
Initiator	research institute, the researcher himself	educational administration, advisory & methodological centers
Research themes	acc. to the researcher's interest	acc. to articulated social needs
Type of researcher	narrow specialist	many-sided expert
Researcher's aim	increasing in scientific theory	relieving actual needs in education
Setting	strictly controlled	natural, authentic
Time	acc. to the research progress	strictly determined
Budget	estimated by stages	carefully determined

Thus, on the strength of the distinction made in Table 1, when we call educational diagnostics a kind of applied research, we shall assume it to be problem-oriented, multimethod, maximally authentic and making achievement progress. Such research may be interpreted in terms of systems approach to educational programs, i.e. according to the following simplified model (based on Astin & Panos, 1971):

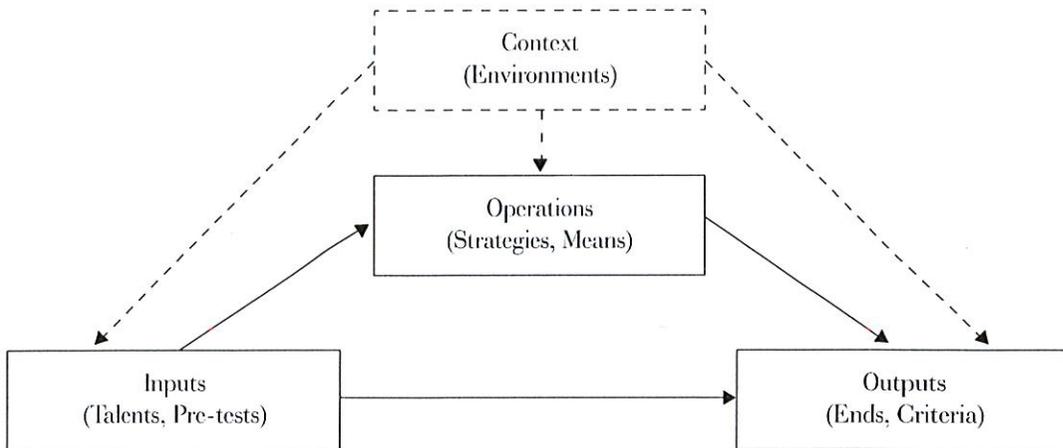


Figure 1. Components of an Educational Program

The context variables, marked in the Figure 1 with the broken lines as external components of educational system, draw more and more attention of educational theorists and practitioners every decade. In my opinion, educational diagnostics, as in-depth recognition of educational processes, involves all the four groups of variables shown in the figure with special consideration given to the context variables. Consequently, the principal purpose of diagnostic studies is to provide information concerning various environmental factors which could affect the students' learning motivation and their cognitive achievement. Furthermore, educational diagnosis supplements curriculum studies and underlies evaluation and implementation of educational phenomena. The sequence is presented in Figure 2:

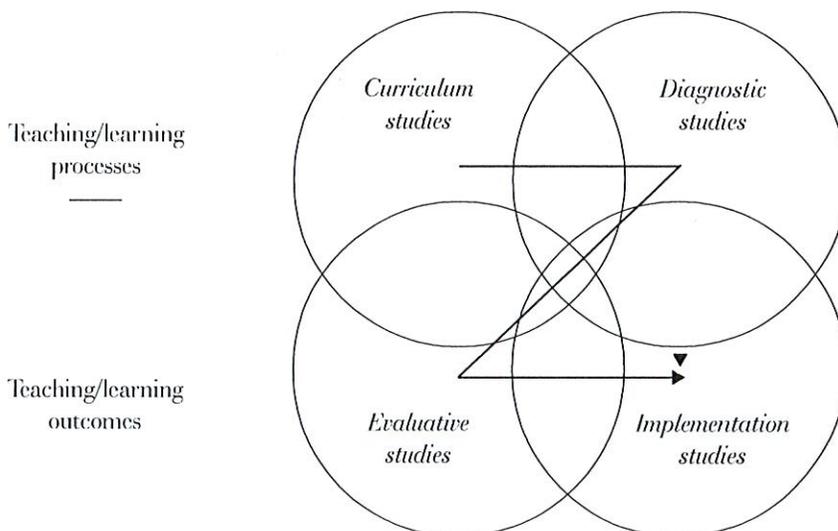


Figure 2. A Simplified Typology of Educational Applied Research

The positive position on educational diagnostics is by no means common to the Polish educational theorists. Prof. Krzysztof Konarzewski (1999), a leading educational psychologist, says that „to diagnose means to draw conclusions on the non-observable variables from the profiles of observable variables”, i.e. to examine the variables inside but not outside a student, e.g. the hidden sources of disturbance in his/her learning processes. Since „in the human world the cost of false diagnoses could be enormous” the whole task should be entrusted to specialist, that is to psychologists. Prof. Konarzewski warns us of the danger of creating a quasi-scientific discipline called „educational diagnostics”. „The harm would be serious” — he writes — „because allegations grow up from interpersonal conflicts, they are notoriously uncertain, and set going mechanism of self-fulfilling prophecy”.

Aleksander Nalaskowski (1999), one of the youngest and most brilliant Polish professors of education, reminds that such terms as „standard” and „diagnosis” are unavoidably ideology-laden. Their meaning is specific in the „romantic”, „cultural transmission”, and „progressive” educational ideologies. There is a „countless variety of interpretations of the right a school has to decide on people who had neither choice nor awareness of entering an educational system which had been established by others”. And standards give reason to diagnoses, since „they are grown together as Flip and Flap or Marx and Engels”.

A Short History of Post-War Developments in Educational Diagnostics in Poland

As early as in 1950, a national survey of students’ achievement in primary and secondary schools was conducted by Prof. Wincenty Okon (1951), my university teacher and career-long patron. A few independent variables, such as school size and location, teacher qualifications, and student gender were also recorded in the survey. The finding, repeated in a number of similar studies accomplished later by local advisory and methodological centers, was that students’ achievement depends mostly or even solely upon their teachers’ skill and effort. This statement remained in perfect agreement with the socialist ideology of maximizing everybody’s involvement in authoritatively designed social change.

When I started my interest in educational diagnostics, I obviously read some books on this subject, including Ingenkamp’s *Paedagogische Diagnostik* (1975) and, for the ideological balance, Helmut Weck’s *Leistungermittlung und Leistungsbewertung im Unterricht* (1976). However, momentum to the subdiscipline was rather gained not from readings but from the Polish participation in the IEA (International Association for the Evaluation of Educational Achievement) Six Subject Study, 1968–1972. Probability sampling, test construction, item analysis, and regression analysis led the group of my coworkers into a different world which was less reminiscent of a high-flown philosophy and more like social engineering. Soon did it appear that the IEA research projects constituted a methodological revelation to many „technical officers” coming from the „second” and the „third” world to the IEA headquarters in Hamburg and Stockholm (Phillipps, 2000). As far as independent variables are concerned, IEA was fairly successful in gathering questionnaire data on national educational system structure, centralization and flexibility; school size, personnel, environment and administration; teacher education, experience, interest, style, and attitude; student background, work, verbal ability, aspiration, and motivation; and many other useful pieces of information.

The Ministry of Education was not quite pleased with the IEA studies and Poland’s participation in them is not being continued. „Nationwide research on educational achievement in Poland has been carried out a couple of times, usually within international surveys, with active, yet inconsistent, resistance on the part of authorities. This accounts for the tiny amount of research, the lack of resources needed, and limited interest on the part of pedagogical theorists, which in turn accounts for its little resonance” - wrote Professor Krzysztof Kruszewski (1998), my good friend, who in the eighties as Minister of Education withdrew the ban on sending IEA data for between-country analyses abroad.

Another distinguished theorist, as well as a friend of mine, Professor Heliodor Muszynski (1998) acknowledged that „an educational policy-maker has got many reasons for regarding the outcomes of diagnosis as dangerous, that is undesirable, or for being interested in the outcomes solely for himself, for treating them

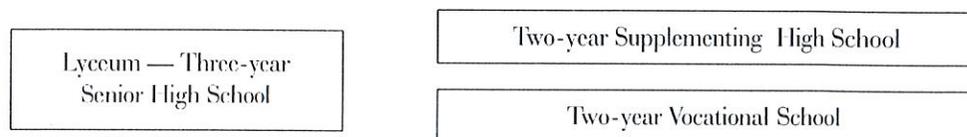
with distrust and distance, and, finally, for handling them in a simplified manner that only claims to take them into account in the decisions taken.²⁷

In the nineties, when working with a large group of post-IEA measurers, I initiated a series of conferences on educational diagnostic, kindly assisted by Professor Peter Krope with his papers on Dogmatic and Authoritarian Education Styles in Germany (1994), Commented Educational Reports: The Source of Misunderstanding (1994), and How to Determine the Levels of Measurement? (1998). Besides, Prof. Krope delivered several presentations on examination theory and practice in Post-graduated Studies on Educational Evaluation in Gdansk last years. Four conferences — in Gdansk, Elblag, Legnica, and Szczecin — were successfully carried out in 1993–2000 and two others are now scheduled for 2000 - 2001 in Walbrzych and Krakow. The number of participants raised from about 50 people in Gdansk to about 300 in Walbrzych, constituting educational diagnostics a prolific research area.

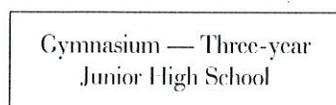
A New Examination System in Poland

In the last few years the main challenge to be taken by Polish educational measurers is designing and implementing diagnostic examination system embedded in the forthcoming school reform in Poland. In the middle of 1999 Poland introduced a new structure of elementary and secondary education (Ministry... 1998). It contains three school levels and three adjacent external examinations.

Examination 3. *Matura* — The High School Finals



Examination 2. *Pre-orientation Test*



Examination 1. *Competency Test*

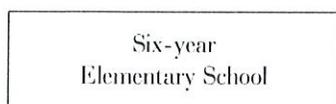


Figure 3. The Polish School System after 1999 Education Reform

The examinations are supposed to assure quality control of extensively decentralized school systems and all of them therefore will be state-organized. A network of the Central Examination Committee with eight Regional Examination Committees has been already established. Now the committee leaders and their „educometric” advisers have to select theoretical models and working procedures for the examinations.

Although the examinations conclude respective education levels and will be held in schools the students graduate from, they may also be considered as the entrance examinations to higher level schools or merely a non-committal pieces of information on a student’s strengths and weaknesses. Each of the alternatives has its advocates and some evidence in support of its educational merits.

Educational measurers argue that any national examinations should be „seamlessly” linked to the national core curricula, otherwise a serious damage to the teaching-learning processes will be unavoidable (Nitko, 1998). It means, however, that insufficient achievement should also be recognized and stated. Higher level schools want to select the best candidates either by national examinations or, better, by self-organized procedures. Students, their parents, some Ministry of National Education officials, and some Examination Committee members — they all prefer students’ smooth learning progress assisted by non-directive ability diagnosis or, at most, placement suggestions. That is why two years ago the tests were officially called competency and pre-orientation, and why letter-grading of the test scores was not intended.

Poland, as well as the other Central European countries, has limited experience in standardized norm-referenced testing. All the more sensational was the appearance of a well organized objective testing of every elementary school graduate in Walbrzych region (Sokolowska & Sroka, 1997) and then, in about one third of the country. The competencies measured in „Walbrzych experiment” by two sets of multiple choice items (plus a short essay) are listed in Table 2.

Table 2. Competencies Measured on the Experimental High School Entrance Examination

Subject	Competency/Skill
Polish	<ol style="list-style-type: none"> 1. Reading comprehension 2. Understanding literature and terminology 3. Use of language knowledge 4. Study skills 5. Written composition (essay item)
Mathematics	<ol style="list-style-type: none"> 1. Number use 2. Use of mathematics language 3. Recognition of shapes and relations 4. Information processing 5. Application of mathematics

School principals and superintendents are mostly in favor of objective testing and optical scanning but subject-matter teachers are rather reserved about it. Some weaker students find the possibility of guessing and cheating on the tests attractive (Niemierko, 1998a).

The New Matura Experimental Program (1995-1998) brought in quite opposite experience. Based on well-defined achievement standards, as well as essay items, and grade-leveled scoring schemes, it was easier accepted by teachers, although the coding, scoring, and score proving procedures were very laborious (Niemierko 1998b).

Perspectives of Educational Diagnostics

One of the consequences of authoritarian educational system in Poland is the students’ reluctance to be formally assessed, especially with the letter-grade scale. Some Polish educators believe that using raw score scales in educational examinations is more humane because „any non-zero score is positive”. Now we are trying to encourage a broader use of stanine scale and profile charts in competency testing in Poland.

Some educators, including the author of the paper, hold the opinion that the (six-point) letter-grade scale provided with achievement standards and properly instrumented (Niemierko, 1990; Niemierko, 1999) will appear to be the most valid medium of communication for students, teachers, examiners, and measurement theorists in Poland. This conviction is supported by the experience of some West European countries, especially Great Britain (Good & Cresswell 1988).

But what about the measurement of context variables regarded as crucial for education-al diagnostics in the previous sections of my paper? Now I believe that it should be anchored to the large-scale surveys and external examinations and it should contain all the components of instructional situations in which students' behaviors tested have been learned. A short specification of independent variables to be included into diagnostic studies is presented in Table 3.

Table 3. An Outline of Learning Context Diagnosis in Large-Scale Surveys

Situation Component	Selected Independent Variable	Exemplary Indicator
Student	Family socioeconomic status <i>Student's learning effort</i>	Parents formal education Student's homework quality (portfolio)
Teacher	Teacher qualifications <i>Teacher involvement</i>	Graduate and postgraduate diplomas Hours spent in school (weekly)
Learning Content	Curricula Teaching strategies	Exceeding core curriculum (percentage) Classroom activities
Facilities	<i>Possession</i> Effective use	Students/computer ratio Facilities used during a week
Management	School administration <i>Management style</i>	Classroom size Decisions left to teaching staff

Italics in Table 3 mark the selected variables harder to objective assessment but all the exemplary indicators seem likely to adapt both to a small-scale and to a large-scale school achievement survey.

There is not much doubt that independent research centers like the Institute for Competence Assessment in Walbrzych are in a better position to perform diagnostic studies than the governmental examination commissions. Examination system in Poland, even if maximally progressive and promising, appears too centralized, too rigid, and too formal to take the risk of assisting schools, teachers, and students in recognizing their educational environment.

Conclusions

In my paper, educational diagnostics was defined as a kind of applied educational research aimed at accurate recognition of teaching/learning context. Such studies should be attached to students' cognitive achievement surveys and examinations, i.e. to evaluative studies which are supposed to gain a valid measure of dependent variable. An open competition between the new-established regional examination commissions and some private educational assessment centers would create optimal conditions for successful development of educational diagnostics in Poland.

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