
COLLOQUIA

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Psychologists as educational diagnosticians. On the track of typology

Streszczenie

PSYCHOLOGOWIE W ROLI DIAGNOSTÓW EDUKACYJNYCH. NA TROPIE TYPOLOGII

Celem tego artykułu jest przedstawienie założeń teoretycznych i prób empirycznych dotyczących postaw, jakie przyjmują psychologowie pełniący funkcje diagnostów edukacyjnych. Zawiera on także próbę wyjaśnienia związku tych postaw ze stanami Ja ukształtowanymi we własnym dzieciństwie i w późniejszych doświadczeniach społecznych diagnosty.

Diagnostyka edukacyjna jest teorią i praktyką rozpoznawania warunków, przebiegu i wyników uczenia się. Obejmuje nieformalne i standaryzowane procedury usuwania zaburzeń w uczeniu się oraz zaspokajania innych potrzeb rozwojowych dzieci, młodzieży i dorosłych. Od psychologów oczekuje się, że pokierują pedagogami w zdobywaniu wiedzy o zdolnościach, motywacji i osiągnięciach uczniów.

Na podstawie typologii umysłów zaproponowanej przez Czesława Nosala zbudowano typologię diagnostów edukacyjnych obejmującą cztery typy: proceduralistę, teoretyka, ryzykanta oraz intuicjonistę. W fenomenologicznych i kwestionariuszowych badaniach studentów psychologii potwierdzono występowanie tych czterech typów diagnosty, a także wykryto ich związki z niektórymi stanami Ja określonymi przez Eryka Berne'a w teorii analizy transakcyjnej.

Słowa kluczowe: diagnostyka edukacyjna, diagnosta edukacyjny, student psychologii, analiza transakcyjna.

¹ I am deeply indebted to two anonymous reviewers of my paper. Their remarks allowed me to remove some errors and omissions they found in its previous version.

Educational Diagnostics

Educational diagnostics will be conceived here as the theory and practice of sound recognizing of (1) environments, (2) processes, and (3) outcomes of learning, in particular scholastic learning. The three targets of diagnostics are equally important. Research and applications may be focused on all or on any of them: environment, process or product of learning, not only at schools but also outside, under any circumstances and to whoever's benefit.

Broadly comprehended educational diagnostics embraces many elements of (1) *medical diagnostics*, dealing with students' organic development, their health preservation and illness risks, (2) *psychological diagnosis*, covering abilities, emotional characteristics, attitudes and aspirations, (3) *sociological diagnosis*, inquiring into expected and performed students' social roles, and (4) *historic diagnosis*, pertaining to the students' biographies, their individual and generation-bound experiences (Niemierko 2009).

According to Stefan Ziemiński (1972), every *full diagnosis* contains five segments:

1. *Typological diagnosis*, categorizing individuals into subgroups of ability, achievement, home environment, culture, study skills, etc.
2. *Genetic diagnosis*, registering events connected to the present situations with alleged causal relationship. For example, a teacher may learn students' personalities going through their biographic documents.
3. *Meaning diagnosis*, which consists in identifying previous events and present attitudes that could influence current learning processes. Unconscious anxiety, resentments and constraints may be harmful to learning new behaviours.
4. *Stage diagnosis*, applying a developmental model to student characteristics and behaviour. The model may be very general, like the Piaget's (1924) model of mental development and the Kohlberg's (1976) model of moral development, or may be quite specific, based on subject-matter didactics and teacher observations of learning.
5. *Prognostic diagnosis*, being in education a prediction of learning results under certain conditions. It often begins: "Assuming your further consisted attempts, you will probably achieve..." It is important not to deform prognoses into effort-exempting prophecies.

The first question to be asked about recognizing school learning is whether we are going (1) to perform it in a participant way, not disturbing and/or changing

the usual course of teaching/learning process, or (2) to arrange quasi-experimental situations in which main context variables are controlled and ready-made measurement tools are applied. Accordingly, we may distinguish (1) the *informal*, teacher-performed educational diagnostics, and (2) the *standardized*, professional educational diagnostics. Both are indispensable to competent managing of contemporary educational systems.

The second question to educational diagnostics is whether it is designed (1) to deal with learning disabilities and disorders or (2) to advance regular learning in a normal situation. To treat illnesses or to establish healthcare? We will refer to the former in (1) *disorder diagnostics*, and to the latter in (2) *developmental diagnostics*. Generally, breakdowns need more specialized consultants than everyday monitoring of student growth but both diagnostic domains require theory and research.

Plotting the two divisions of diagnostic procedures we arrive to the classification presented in Table 1.

Table 1. Four paradigms of educational diagnostics

Aim \ Method	Informal diagnostics	Standardized diagnostics
Recognizing disorders	Informal intervening diagnostics	Standardized intervening diagnostics
Monitoring development	Informal developmental diagnostics	Standardized developmental diagnostics

Informal intervening diagnostics is aimed at undisturbed class management. Its application is almost exclusively based on pre-service training and professional experience of teachers. According to Good and Brophy (1987), every day, a teacher interacts with individual students as many as 1,000 times, and she evaluates students' behaviour at least 90 times. She has to make many managerial decisions not having enough time to gather sufficient information about the cases of disturbance and the troublemakers. Psychologists can assist teachers in some more challenging activities.

Standardized intervening diagnostics is focused on learning prerequisites. It is conducted either by school psychologists or by institutions of educational counselling where psychologists constitute the majority of staff. They use tests, questionnaires and observation techniques to detect a child's innate and acquired cognitive skills and to recommend teaching content and methods suitable for improving the child's school achievement.

Informal developmental diagnostics emphasizes systematic monitoring achievement progress of both the slower learners and the faster learners. The rate of learning and the students' attitudes toward the school subjects in which they attain some achievement criteria are the focus of attention in this paradigm. Entries, processes, and outcomes of learning are equally important in this approach. Looking at, and in consequence seeing variations in student motivation and effort appears to be the key factor of educational success (Good & Brophy 1987).

Standardized developmental diagnostics is intended for learning support by providing students and teachers with precise information on learning outcomes. It needs professional measurement tools but may also be performed at the classroom level, which leads some theorists to the idea of "classometry" as a separate domain of psychometric methods (Benson 2003). Standardized diagnostic methods are based on measurement, mainly of its *norm-referenced* type, where student score is interpreted by means of population score distribution. The *criterion-referenced* tests, in which a student score is interpreted according to educational standards, prove less useful in standardized diagnostics as they are too subjective in standard setting procedure and may tell us more about the standard developers than on the students themselves (Hambleton 1994). However, both types of educational measurement are firmly based on psychometric theory and governed by interdisciplinary standards (Standards... 2014).

Educational Diagnosticians

As educational diagnostics comprises both informal and standardized procedures to help out learning disorders as well as general developmental needs of children, youth, and adults, cooperative work of teachers, pedagogues, and psychologists is necessary. Psychologists are supposed to guide collective judgments on the learners' aptitudes, intensions, and gains, particularly when cases of maladjustment are at stakes. It results in demand for psychologists inclined to perform educational service.

A variety of attitudes toward diagnostic methodology and educational advisory styles should be expected among psychologists. Following some concepts of the well-known Myers-Briggs Type Indicator (Myers 1962), Czesław Nosal presented his own general classification of *mental constitutions*. It contains four categories (Nosal 1990, 1999):

1. *Objective-concrete type* – directed to facts, observations, measurement, precise reasoning.
2. *Objective-global type* – directed to theories, models, generalities, scientific laws.
3. *Subjective-concrete type* – directed to needs, experience, experiments, personal opinions.
4. *Subjective-global type* – directed to feelings, half-hidden desires, syntheses, philosophies.

It may be assumed that mental characteristics are parallel to learning styles of diagnosticians. Wincenty Okoń's (1967) general classification of learning ways shaped by Bolesław Niemierko (2009) turned into the following:

Form *alpha*. *Learning by acquiring*, which leads to *know-what* knowledge, reproduction of existing information on the world outside.

Form *gamma*. *Learning by discovering*, which leads to *know-why* knowledge, theory building and verification, looking for general truths.

Form *beta*. *Learning by doing*, which leads to *know-how* knowledge, solving real-world problems and performing serviceable activities.

Form *delta*. *Learning by experiencing*, which leads to *know-who* knowledge, emotional gains, value clarification, personal commitment.

Lower secondary school student preferences in a nation-wide representative study were distributed 30% – 40% – 15% – 15% (Niemierko 2009) but, unfortunately, the proportion of alpha learners grows in the upper secondary school (lyceum) and the proportion of gamma-learners diminishes. Moreover, the tendency to learning by acquiring prevails in the majority of European universities (Okoń 1971).

In his handbook of psychological diagnostics, Władysław Paluchowski (2001) applied Nosal's typology to distinguish four types of psychological diagnosticians:

Type 1: the unemotional logician persistently looking for particular facts, precise observations, and measurements, generalizing them into consistent and completely justified categories.

Type 2: the diagnostician who uses the smallest possible number of assumptions, productive models, and general rules to explain recorded phenomena and to include them into certain determinative categories.

Type 3: the diagnostician sensitive to emotional interactions, disposed to taking immediate hazardous but positive and useful actions in order to gather necessary information.

Type 4: the impressionist who strives for deep understanding of personally appreciated problems and valuing his/her own feelings higher than particular facts.

The above-raised four types of educational diagnosticians will be given here the following working labels:

1. *Proceduralist*
2. *Theoretician*
3. *Gambler*
4. *Intuitionist*

These names will be used in my reports on the empirical try-outs of the typology.

Qualitative study

In the course of educational diagnostics, 194 second and third-grade psychology students were tested with several short stories on real-world educational problems. One of them sounded (in translation into English) as follows:

Creative work # 4

A student of education has brought to a college seminar the poem written by a twenty-year old prisoner during the theatrical-literary classes in a house of correction for juvenile delinquents:

*Empty walls tightened
Sorrow that I wasn't right
And there's your view beloved
Though we are out of sight
I wish I felt your lips
And saw your lovely eyes
But I've got loneliness
And sufferings of nights
I will survive it all
And overcome despair
Just stand by me, stand by me
Then I'll manage the way*

Describe this prisoner's social adjustment in the house of correction and his emotional maturity. As the psychological protector of the prisoner propose three questions in order to help him in the process of socialization.

The students' positions on the problem appeared to pretty clearly classifiable according to the previously discussed typology:

1. *Proceduralists* (about 15%) complain of being deprived of the prisoner's judicial and psychological documentation. Any supposition on his social adjustment and emotional maturity they count as precluded from consideration before seeing him and making a conversation.
2. *Theoreticians* (about 30%) reflect on the concepts of social adjustment and emotional maturity and find some indexes of the concepts in lines of the poem. However, they warn against general conclusions before the propositions are verified.
3. *Gamblers* (about 15%) pay their attention to the fact of the prisoner's attendance to the theatrical-literary classes. It means for them that his socialization is in progress and his future after leaving the house of correction becomes promising.
4. *Intuitionists* (about 40%) notice that the poem expresses deep and candid feelings. The prisoner lacks support in the correction house and he depends upon a person who stays outside and her connection with him remains uncertain.

In this exercise, the global reasoning manner represented by theoreticians and intuitionists prevail over the concrete ones, procedural and gambling interpretations. It could be owed to academic circumstances of the inquiry. The students tried perhaps to exhibit their general psychological competence rather than just find the course of action to help the prisoner solve his existential problems.

This kind of preliminary, qualitative and highly subjective studies based on exemplary real-world educational problems confirmed our capacity for identifying the four above-distinguished diagnostic attitudes. To analyse their dependence on inborn and environmental variables more structuralized research methods were needed.

Quantitative study

"The Educational Diagnostician" inventory consisting of four ten-item subscales has been constructed according to Paluchowski's outlines. Thirty items were scored with Likert's 1 – 5 scale and ten reversed items were scored 5 – 1.

When reliability coefficients of subscales appeared intolerably low ($\alpha \approx 0.4$) item analysis was performed but it resulted only in slight improvement ($\alpha \approx 0.5$) of reconstructed subscales. Obviously, the content range of indexes for particular scales should get narrowed and if it is not sufficient for a decent reliability, they should be enlarged to at least 15 items.

In spite of the reliability inadequate for individual diagnosis some general regularities of the domain may be taken into consideration. They will aid construct validity of the typology and direct future research on the topic.

The main descriptive statistics of “The Educational Diagnostician” questionnaire study in a sample of 50 psychology five-graders are presented in Table 2.

Table 2. Descriptive statistics of psychology students' scores in “The Educational Diagnostician” questionnaire

	Proceduralist	Theoretician	Gambler	Intuitionist
Mean	34.6	34.2	32.1	32.2
Variance	17.9	14.7	25.5	21.3
Modal choice*	20	16	12	13

* Number of students who selected this type as their favourite or one of two equally preferred.

As we can see in Table 2, average acceptance to objective types of educational diagnosis, procedural and theoretical, is slightly ($p = 0.98$) higher with psychology students than their acceptance to subjective methods, by trial-and-error and intuitive, and first choices of objective types are also more frequent. It may be interpreted as a signal that psychologists are inclined to adopt an objective manner of educational diagnosing.

The four subscales were low positively intercorrelated (0.13–0.22) with exception of gambler – intuitionist (0.32, $p > 0.95$) and proceduralist – intuitionist (–0.18).

Transactional Analysis

Transactional analysis is a personality theory and psychotherapy serving personal development of humans (Berne 1961). Its basic model of *ego states* is the following:

1. *The Parent* who frequently and automatically fills the position of initiator and decision-maker responsible for activities of others being treated as children. This attitude is learned from one's own parents or from persons taking action of parents.
2. *The Adult* who is rational, autonomic, self-governing, who understands the reality of situations and maintains partnership relations. This attitude is neither influenced by parents nor a repetition of childish behaviours and feelings.
3. *The Child* is governed by uncontrolled emotions and yields to those who fill the position of parents. This attitude reproduces the spontaneous behaviours, thoughts, and feelings of childhood, when nature and people were originally got to know.

The basic typology was presently multiplied into plurality of subcategories in which a kind of fractal phenomenon (self-similar pattern that replicates at diminishing scale) plays the crucial part. Accordingly, the Parent in the Parent, the Adult in the Parent, the Child in the Parent, etc. is recognized and characterized (Jagiela 2012). From among the nine subcategories the following four were selected as positively correlated with particular types of educational diagnosticians in preliminary studies (Niemierko 2014):

1. The Adult in the Parent, called also the *Practical Parent*, who is pragmatic, operative, and efficient in actions imitating the ones performed once by parents and then by knowledgeable and significant persons.
2. The Child in the Parent, called also the *Protective Parent*, who is attentive, careful, tutelary, and helpful, inclined to become involved in nurturing processes.
3. The Parent in the Adult, called also the *Ethical Adult* or *Ethos*, who learned and transformed values and capacities from all the sources recognized as trustworthy.
4. The Adult in the Child, called also the *Creative Child* or the *Little Professor*, who represents original strategies of exploration the reality and of problem solving.

Coefficients of correlation (Pearson r) between four types of diagnosticians and four ego states in a joined group of second, third and fifth-grade psychology students ($n = 244$) are presented in Table 3.

Table 3. Correlations between types of educational diagnosticians and selected ego states

	<i>Practical Parent</i>	<i>Protective Parent</i>	<i>Ethical Adult</i>	<i>Creative Child</i>
Proceduralist	0.34**	0.06	0.40**	-0.14*
Theoretician	0.24**	-0.05	0.17**	0.22**
Gambler	0.01	0.15*	-0.12	0.15*
Intuitionist	0.07	0.35**	0.12	0.18**

* $p > 0.95$; ** $p > 0.99$.

Ego states of students were measured with the *Egogram* inventory created in the Research Group on Educational Transactional Analysis in Jan Długosz Academy in Częstochowa (Pierzchała & Sarnat-Ciastko 2012). Its application to psychology students brought moderate subscale reliability coefficient of about 0.6, which additionally lowered the indexes of relationship. However, the following remarks seem worth undertaking:

1. The *objective* sets, procedural and theoretical, correlate with the Practical Parent and the Ethical Adult ego states. Respective psychologists have deep inclination to adopt psychometrical techniques learned in professional training.
2. In their research strategies and hardy problem solving, Theoreticians display some characteristics of the Creative Child. It may prolong diagnostic processes but make them more flexible and sometimes more valid.
3. Proceduralists explicitly avoid behaviours of the Creative Child. Their resemblance to the Practical Parent and the Ethical Adult seems to be stronger, more rigid, and more consistent than with Theoreticians.
4. The *subjective* sets, hazardous and intuitive, correlate with the Protective Parent and the Creative Child ego states. Respective psychologists are tender, receptive, and gentle. They probably base their findings on free observations rather than on exact procedures.
5. Intuitionists have probably ($p = 0.95$ for the difference between correlation coefficients) more attributes of the Ethical Adult than Gamblers. They are also more protective ($p = 0.95$) than gamblers who look for the shortest way to educational success.

All the generalizations based on Table 3 are only hypothetical. They should be proved in broader and better structuralized studies.

Conclusion

Advantageous changes in educational systems make psychologists more and more significant participants of educational activities. Their most weighty contributions to the students' development processes are diagnosis and psychotherapy.

In a quality of educational diagnostician a psychologist may take up the position of (1) a technique-oriented, conscientious specialist or (2) a human-oriented, empathic tutor. Both attitudes were spotted among psychology students.

A psychologist may be mainly concerned with (1) the particular case to assist and (2) the global human needs to be satisfied by educational processes. These attitudes were also identified in psychology student questioning.

Crossing the two dichotomies we obtain the typology used in the study reported in this paper. The four types of educational diagnosticians were called: the Proceduralist, the Theoretician, the Gambler, and the Intuitionist.

Low reliabilities of scales measuring the particular types forbid us from making more categorical statements than some suggestions about:

- (1) usefulness of the approach for the studies on psychologists who perform educational diagnoses,
- (2) perspectives on improving pre-service and in-service training of psychologists and pedagogues to function in educational diagnostics.

Some of the differences are for a certainty anchored in home and environment education in the early childhood of diagnosticians. Further studies should explain their significance for the communicative transactions with children and youth.

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