

ONE UNIVERSAL MODEL OF RESEARCH IN TRANSFORMATION PROCESSES AS AN INTEGRAL PART OF AN ACTION PLAN

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Review paper

Abstract

Research of transformation processes in pedagogy, medicine, kinesiology, economy, management and other disciplines is too often viewed independently of global methodological rules and wrongfully allocated within each of those individual disciplines. That happens in spite of multiply grown amount of knowledge and conceptual approaches, which helps to integrate equivalent models into wholesome and integral. One such integral model is presented in this paper, with purpose to logically and methodologically unite all those segmented approaches to transformation, and with that the overall scattered, various, often archaic and overcome, even populist methods sometimes vainly used to try to save long overcome logical concepts. An action plan, if it truly wants to be credible and tenable, has to contain scientifically absolutely legitimate description of the aimed transformation process, its alternative, evaluation, and finally proposals for changes that are technically and organizationally possible to conduct. Of course, all that under the assumption of clear initial planning, which is unnecessary to additionally explain. The proposed model contains all universal components and is applicable in various specific conditions without losing its credibility and objectivity. Of course, the most important of all is the starting point used to define an action plan, so alternatively the research plan too.

Key words: logic, methodology, action plan, research, evaluation, universality

Introduction

Research in pedagogy is multiply complex. The reasons for this lies primarily in the complexity of the relationships of all involved in the educational process as well as in a number of variations which naturally occur for various reasons.

Pedagogical thought and practice, therefore, is very oriented toward current social phenomena that in terms of improvements can generally be divided into two interconnected logical parts .: a) research section, and b) the organizational part.

Although the research part by no means should be ignored, we need to be aware that society, and organized social systems of their primary impact on education, carried out through organizational models and it certainly belongs to the domain of educational management. For these reasons, an action plan was carried out, which is a fundamental feature of the organization activity.

This activity, organized within the model, of course, is scientifically supported precisely by relevant research. That way in cycles action plans are exchanged, and within them in mini-cycles ideas about improvement, then research projects, then recap of the research, then the eventual application of cognition, which closes an action cycle. When a segment or mini-cycle-related research is viewed, it is obvious that in it certain conditions must be achieved, without which the whole model is losing credibility.

In this article, we wanted to describe the necessary conditions without which research and thus the whole cycle of the action plan cannot be proper. In this sense the theme of this article is defined and studied in order to clearly indicate all of the desired goals. So in a row; the term proposal stands because it is nowhere explicitly pointed out to do so, although it is not excluded that it might be, the term research stands because it is about research, the term model stands because it is about a form that will be possible to refill, the term indispensable stands because without research an action plan cannot be carried out, the term segment stands because research represents only a part of an action plan, the term action stands because the idea is to create a targeted reaction with purpose to improve something and the term plan stands because systematic working can be only done if planned. Otherwise it gravitates towards the element.

Method

The following methods were used in this article:

- a) Collection of basic data on the problem by examining the literature.
- b) Comparison of the information provided.
- c) Graphical representation (images)
- d) Analytical description
- e) Logic synthesis

Thematisation

According to the view of the above introduction, one of the most important objectives of the work is a relatively simple demonstration of logical assumptions of the survey (Figure 1).

Figure 1 shows the model of such general research. With G1 and G2 groups are marked in the treatment, transformation process, and it is assumed that the default group is G1 or the group with implementing conventional teaching process, hence it is a control group.

Group G2 (as well as possible groups G3, G4 ...) represents the experimental group, and the one with which it carried out an innovative program, not necessarily close to the one carried out with the control group.

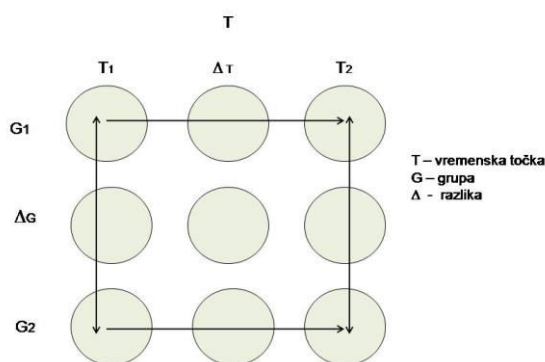


Figure 1. Istraživanja u prostoru utvrđivanja efekata (kvantitativnih ili kvaliatativnih /strukturalnih a isto tako u prostoru varijabli ili entiteta.

Source: D.Bonacin (2012) with modification Da.Bonacin (2016)

In this view and logic synthesis is not included the part without which the research was not possible and that is the plan of a draft research with objectives. Therefore, it is assumed that the research objectives are clear and defined and it is continued to implement research. Analogically, this representation does not contain any subsequent evaluation of the implemented procedures because they are both separate segments of the action plan and although unavoidable, this article does not include their consideration because then it would be excessively increased. The author had decided to display research, although fully aware of the enormous importance that prior planning, and evaluation within the entire Action Plan. Tags T1 and T2 (a possible T3, T4, etc.) are usually consecutive (with the same time slots) time points in which are the subjects of evaluation of target features in defined groups.

The idea is that if possible the same parameters check the values of different groups at different time points. In this way, we get the values of the parameters DT which is the difference within the same group at different time points. This, logically, cannot describe the changes that have been affected by the process induced in each group.

Parameter ΔG , however, describes the differences between the two groups which, according to this model can be registered at any time point. This parameter (or these parameters) then describe our status differences between groups. For the purpose of credibility research using random keys in the definition of a group, we must ensure that there are no differences between the groups at the initial point because then there is a high probability that the possible differences in the different time points produced a transformation process. However, if there are differences in the first time point then for other points in time we are not sure whether there are any differences and no matter what the results are due to different initial conditions and processes, it is almost impossible to separate, so the entire model becomes unreliable. If, for example, we want to determine the effectiveness of two different ways of teaching mathematics in the initial conditions it is necessary to choose such a virtual two in at least two different classes comprising the approximately equally spaced students of different knowledge and opinions. If the classes formed in such a way that in some favored valedictorians are sufficient, then after the process we could not be sure whether such progress is possible so formed groups responsible better start position with most of class being valedictorian or (and possibly just the opposite since in these positive shift visible) worse starting position with most sufficient. Position of the center point describes (delta / delta) differences, for example including all groups and all treatments and the final set of evaluation parameters for any serious evaluation. For this task multivariate analysis of variance is responsible for example. To determine the difference between the groups G1 to G2, we used multivariate discriminate analysis, which in itself includes analysis of variance. To determine the difference between the treatment of G1u T1 to T2 G1u or UT1 from G2 to G2 at T2 is also used analysis of variance and multivariate discriminate analysis or variant for dependent samples (because it is one and the same pattern just changed, so it is dependent.). Complete program contains content that would solve this problem and what is implemented on the computer does not exist in a commercial package. However, the University Computing Center in Zagreb, in the version Univac-and there is an implementation of the so-called. SSDIF (for quantitative changes) and the so-called COMPAT-Z for structural changes. There are also private implementations for PC - personal computer, as well as in private informatics library of D. Bonacin.

Discussion and proposals

How can we adequately enter the debate on the above model and find his virtues and possible flaws? It is at least a framework to clarify some terms and detailed review some previous studies. This article was made for a college called "Measurement and evaluation of the teaching work." What is meant by teaching work? And can it measure and evaluate better than the evaluation of learning outcomes (knowledge), which is the

original goal of the teaching work ?! However, teaching, inter alia, consist of monitoring, measuring and evaluating the work of students in the classroom. The term monitoring involves the elaborate system of procedures, techniques and instruments for determining the course of development and the extent to which certain pedagogical activities are implemented in educational institutions (Edusoft). The term measurements (Bonacin, Bilić, Bonacin, 2008) implies association to the law of numeric value to an object (entity) by a pre-arranged trait (variable) on an agreed scale (metric). Specifically in pedagogy, measuring down quantitative relations date of a pedagogical phenomenon is achieved by tracking the answer to the question "how". How do they learn and work (education, leisure activities, learning at home)? How teachers work (organization hours, etc.)?

But measurement implies establishing quantitative relationships in some pedagogical phenomenon.

By measuring it is answered on the question "how" how many, for example, tasks on a test did students solve, how many pages of a text did they read, how many facts and generalizations did they learn and alike (Edusoft) measurement requires specific instruments.

Unlike measurements, testing is a different kind of joining results. The value is in fact obtained on the basis of some benchmarks with which we compare the measured result.

When this criterion must be credible, there must be objectivity and technique comparisons must be effective (Bonacin, Bilic, Bonacin 2008) followed by evaluation as a set of procedures for the determining the lens position data in the overall process.

According to Kundačina 2007., evaluations can be procedural, which appears during the process of scientific research. We analyzed all the stages and procedures of implementation of the project, individual and collective achievements starting from assessment set goals and objectives designed in animal experiments.

Following the course of the entire investigation, we perceived the results of research and their application.

Final evaluation is conducted and logged at different moments of making scientific work and to inform the public can be a) evaluation before placing in the official procedure and b) evaluation after publication. Evaluation of the learning process would be also be a kind of measurement.

A certain amount of a student's knowledge joins a number. In order to do something measured, tested, evaluated and then evaluated, you need all of this plan.

In the long term, it is a strategy, a short-term action plan for a particular task. In contrast to the strategy that goes in width but does not provide a detailed look at individual segments, through the creation of 'action plans', the objectives set out that strategy can turn into a feasible, detailed project plans that we can call every day.

Action plans should be developed when development strategy was designed and completed but can start with the preliminary designs together with the final draft of the strategy.

Action plans should include key actions required to achieve the objectives of the strategy development. They should be clear, concise and contain all the relevant information that will enable the progress of each project work, as well as its efficient measuring and monitoring (www1).

According to Markowitz (2011) action research is a fundamental strategy for professional growth that can be generally defined as an individual or joint examination of their own professional practice in order for self-improvement, increasing the likelihood of successful student learning. Moreover, it enhances the professionalism of teachers because they recognize that they are inherently able to solve problems in teaching and it empowers them to do so.

This type of research can be seen as a clear methodology that allows us to practice in-depth observation of the internal issues of teaching and learning. Then, based on the conclusions, we can decide how to improve the situation and / or evaluate the effect of educational practices. Action research has several key features that distinguish it from the usual forms of traditional research. However, these differences do not change the value of this type of research. The key features are listed in Figure 1 below.

Tradicionalno i akcijsko istraživanje ...U čemu se razlikuju?		
	Tradicionalno	Aksijsko
TKO?	Znanstvenici izvana	Praktičari
CILJ?	Objasniti/predvidjeti kontroliranu obrazovnu aktivnost.	Unaprijediti vlastitu praksu.
GDJE?	Kontrolirani uvjeti.	Vlastito područje.

So, if the represented theoretical models would be included in action planning, they would grow in cognition quality and thus provide a basis for further research.

Conclusion

Based on all the above, it is obvious that the action plans should be approached very seriously. This assumes, inter alia, good global planning which is primarily in the field of educational management. Planning of individual segments of the action plan,

however, also has to be extremely precisely planned and conducted. Assuming that the plans are good (with serious preparation easily provided) and goals are clear (which is a condition sine qua non) and also to the well-developed possible

application (if the research results are acceptable) problem inevitably and directly reduces the research model. One such model is a comprehensive research model presented and proposed in this paper.

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UNIVERZALNI MODEL ISTRAŽIVANJA U TRANSFORMACIJSKIM PROCESIMA KAO INTEGRALNI DIO AKCIJSKOG PLANA

Sažetak

Istraživanja transformacijskih procesa u pedagogiji, medicini, kineziologiji, ekonomiji, menadžmentu i drugim područjima prečesto se promatraju neovisno o globalnim metodološkim načelima i pogrešno alociraju unutar svake od tih pojedinačnih disciplina. To se dešava usprkos višestruko narasloj količini znanja i konceptualnih pristupa uz pomoć kojih je moguće integrirati ekvivalentne modele u cjelovite i integralne. U ovom radu predstavljen je jedan takav integralni model, čija je zadaća logičko-metodološki objediniti sve te segmentirane pristupe transformacijama, a time i svekoliko razbacane, raznorazne, često zastarjele i prevladane, pa i populističke metode kojima se ponekad i uzaludno pokušavaju spašavati davno prevladani logički koncepti. Akcijski plan, ako zaista želi biti vjerodostojan i održiv, mora u sebi sadržavati znanstveno apsolutno opravdani opis ciljanog transformacijskog procesa, njegovu alternativu, evaluaciju, kao i u konačnici prijedloge za promjene koje je tehničko-organizacijski moguće provesti. Naravno, sve to pod pretpostavkom jasnog početnog planiranja, a što nije potrebno dodatno obrazlagati. Predloženi model sadrži sve univerzalne komponente i moguće ga je jednako primijeniti u specifičnim uvjetima bez da izgubi vjerodostojnost i objektivnost. Naravno, najvažnija u svemu je početna točka kojom se uopće definira akcijski plan, pa podredno time i plan istraživanja.

Ključne riječi: logika, metodologija, akcijski plan, istraživanje, evaluacija, univerzalnost

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