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EDUCATION AND THE CONTEMPORARY SOCIETY

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ABSTRACT. The present study analyses the issue of education within the contemporary social context. The education phenomenon is seen in its relationship with postmodernism, culture and liberty.

The characterization of the contemporary educational phenomenon requires, in our opinion, its reference to three main coordinates: postmodernism as a current philosophical orientation, culture as a product and a content of education and liberty as a supreme human value.

Making its actual debut during the second half of 20th century, the postmodernism wants to be a de-constructive critique of the illuminist programme and of modernism. Commonly understood as a general disillusion related to their humanist ideals, the postmodernity places itself under the sign of skepticism, relativity or even nihilism, gathering under its umbrella a series of more or less pertinent critiques: the critique of religion- Nietzsche, the critique of technology- Heidegger, the critique of modern rationalism-Habermas and the critique of language-Wittgenstein.

Considering its most general characteristics, the postmodernism is rather the end of modernism which it claims it surpasses (Lyotard, J-F., 1993), or, as Giddens put it, the postmodernism is nothing else then the phase of self-reflexive radicalization of modernity (Giddens, A., 1990).

The main features of postmodernism (cf. Vlăsceanu, L., 1998, p.436) are: the affirmation of lack of certainty in knowledge (relativism of cognition), the discredit of the evolutionist principles and the accreditation of the idea that the human evolution is non-teleological (the permanent nature of change), the absence of strong value axes and principles (relativism of value), the multiplication of authorities and the space and time expanded mobility of the individual.

The postmodernism regarded as a challenge brought to positivism and empirism is characterized by the fragmentation of the perspectives that science offer to reality through the re-construction and re-writing of the so far dominant theoretical orientations. This situation leads to a certain ambiguity of meanings or,

better said, a certain “stylistic ambiguity” (cf. Griffiths, M., 1995) that eventually encourage the theoretical speeches of an eclectic structure.

Thus the features of the scientific postmodern speech would imply the renunciation to the well-defined theoretical structures and their replacement with conceptual and epistemological signification that would be more relative and contextually variable. The rapid deterioration of the scientific standards broadly accepted so far and the prevalence of scientifically named “coherent eclecticism ”are elements that lead to the idea that the time of “great stories” (narrations which ignore the exceptions for the sake of continuity and unity of the proposed theory) is gone (Clinescu, M., 1995).

According to this perspective, the pedagogy should reconsider its efforts to come close to the epistemological standards of the applied sciences, accepting the fact that the suggested norms and principles are only for general orientation and no at all prescriptive. The phenomenon by which the theories and rules and regulations become more flexible and relative is not a singular one, being present at the level of all contemporary sciences, fact which do not lessen their scientific characteristic.

To persist in the demonstration of the absolute immutable and generally valid value of one or another of the pedagogical principles is nowadays the equivalent of a useless waste of energy. The efficiency criteria of any contemporary science and pedagogy is one of them, implies that, accepting the relativity of norms, to identify the concrete possibilities for adapting certain general and guiding laws to the concrete and always individual case.

The specific of the postmodern period implies as far as pedagogy is concerned not just epistemological adaptations, but also changes within the schools as institutions invested with state authority. The role the state assumed regarding the education was in time a monopolist one: the educational system used to be entirely created and lead by the state, the state used to be the one which adjusted the educational system to the needs of the labor market and formulated clear task regarding the civic education of its future citizens and the educational induction of a certain loyalty to its institutions. On the other perspective, the postmodernism offers a relatively reduced role to the state with regard to the organization and functioning of the educational systems. Its role is to facilitate the decentralization, the diversification and the flexibility of the educational webs in order to assure its better adjustment to the options and interests of the educated one.

Notable changes are expected to occur in the offered educational contents. The social actors of the postmodern society are increasingly aware about the fact that student’s acquisition of present-day, high quality knowledge and skills is conditioning his professional status and success, given the acceleration of technical and scientific progress. Considering this perspective, we can argue that the efficiency of the educational systems is a great deal given by the measure it brings up to date and diversify its curriculum and information offer.

The rapid diversification and actualization of the curricular structures is also determined by the mercantile character of nowadays information offer. The reduced state implication within the organization of the educational systems implies, apart from decentralization, the diminishing of the allocated budgetary resources. This situation creates the need for the educational institutions to resort to self-finance administration and self-financing and to be interested in the idea of competition as a condition of surviving in an educational reality of a competitive nature.

Within this context, the educated ones will be not as much interested in the accuracy of certain knowledge or theories as in their practical utility and their new skills acquired with them. Thus, school as an institution and moreover the university become competitors in an educational offer market, and the beneficiaries of the educational systems eventually become consumers of education. The principle of equal chances to education alters its formulation as follows: all the individuals are equal within their quality of consumers on the market of education, having the liberty o choose the educational offer that appeals to them. (cf. Cowen, R., 1996).

Being under the increasing pressure of the educational market and aiming to implement and maintain the competition in this sector, the contemporary educational institutions find themselves in the position not only to restructure the educational contents and to create a more efficient selection policy of the educational personnel but also to create stronger relationship with the research departments existing in different activity fields. In time, to these current priorities another one will be added and this will be the raising the selection standards for the candidates to different types of educational offers. Within the context of self-f educational systems, it becomes obvious the need for pertinent selection criteria for the candidates in order that their education to demand reduced costs and for their future performances to contribute to a better image of the institution that educated them.

Thus, major changes are needed also in the school management sector that has to become more flexible and open to react rapidly and adequately to the social and economical current challenges. In their turn, the teachers will be encouraged to assume in a direct and explicit manner the responsibility for the school progression of their students, being avoided the situation that the student – teacher relationship to be empty of any significance.

The postmodernism brings with it the increased professionalization of education, its efficiency criteria being the competitiveness and the degree to which the school leavers are given the operational competencies asked within the context of an educational market that often overpasses the national borders, becoming international. The education will preponderantly aim the training of experts and highly qualified persons for top sectors, elements that will be able to assure the

viability of the diverse educational systems and to validate their place in the concurrent space of the educational offer market.

In our opinion, education must be preoccupied not necessarily to eliminate the pedagogical ideal of modernity but rather to adapt them to the specific and characteristics of a postmodern society, in order to be capable to face successfully the diverse challenges of the contemporary society.

Another important aspect that the contemporary educational phenomenon exhibits is the redefining of their relationship with the cultural dimension of social existence. In its larger sense, culture means the assembly of the typical life forms specific to members of a certain community, their conceptions about self, nature, society, including the sum of their spiritual attitudes. Thus, culture expresses the specific way of living and existing of a certain group or community, including in a unitary way, the stereotypes of thinking, language, believes, behaviours, traditions, art, music, literature.

The relationship between education and culture may be analyzed within three action plans, distinctive with regard to their contents, but consistent from the perspective of their aims: the plan of human being's educational transformation into a predominantly cultural one, the plan of education as an action of transmitting and creation culture, and the plan of the role of education within the context of the relation between culture and civilization.

In the beginning of his book, "Emile", Rousseau argued that the plants form themselves through culture and the human being through education, stressing the role of the educational actions for the spiritual growing of the human being. Human beings live within the space of their natural existence but exists within the horizon of their cultural existence.

The increasing closeness of human being to the space of the cultural existence is only possible through education. Education is the one that transforms the human being and prepares him in the sense of his adaptation to the condition and specificity of cultural existence. As Gilles Deleuze (cited by Liviu Antonesei) put it, "the traces" let by the culture on a human being are permanent, human being is condemned to culture and his permanent "mark" is education. (Antonesei, L., 1996, p. 19).

In his turn, E. Cassirer, cited by the before named author, argues that is not as much an *animal rationale* as it is an *animal symbolicum* because "the entire spiritual behaviour that objectivates in different cultural fields is symbolic and culture as a obiectivation of the spiritual activity is a compact treasure of symbols" (Cassirer, E., 1976, p.54). Thus, education becomes an activity of an irreversible translation of human being from the empire of biological and immediate needs to the cultural plan of values and universality.

We consider important to say that human being's transformation from a biological entity to a cultural human-being implies certain aims that are not only related to individuals but to the entire society to which they belong. Any

educational ideal expresses a certain cultural model in its essence and the educational action aims not only the development of the individual culture as a sum of differentiating spiritual features, but also the development of the collective culture that is specific to the respective community or society. From this perspective, the collective culture promoted through education represents a link that bounds the individual with the community and provides the later with the internal consistence that is necessary in order to avoid the dissolution.

The correct understanding of the existing relation between culture and education requires taking into consideration the fact that education not only uses the diverse contents of culture and prepares the individuals for their adequate understanding and assimilation, but also ensures, through specific actions, the formation and development of the potential for cultural creation of the society members. The permanent enlargement of the cultural horizon of the human species requires the re-thinking of the relation between general culture and specialty culture, in order to avoid the overloading of the school activity.

The issue of the improving the relationship between the general and specialty culture, between the knowledge that anyone needs in order to exist in an optimal manner within a cultural context and the knowledge reserved to specialists in varied fields represents one of the contemporary educational debates. In our view, the origin of this debate is the wrong formulation of the issue of this relationship, in the terms of an exclusive option between quantity and quality, between an extended but superficial culture and a profound but limited one. The specific of the contemporary society, which is by definition a pragmatic one, inevitably leads to the focus of the educational action on the training of experts in increasingly narrowing field of reality. But this fact must not generate the restriction of the harmonious development of human personality. We appreciate that the solution for the before mentioned dilemma consists in considering the general and specialty culture as complementary fields and not reciprocally excluding ones. More precisely, we consider that the exit from this deadlock is offered by the strategy of an organic and progressive “grafting” of the general culture on the background of the specialty culture that is promoted by the educational action.

As we already said, education means not only the transmission of culture and the training of individuals for its assimilation, but also their training and development for the complex process of generating the culture. This fact implies certain aspects: the development of imagination and creativity in pupils, the careful improvement of their natural aptitudes, the deliberate involvement of he educated ones into cultural creation acts etc. As a consequence of the combination of these action strategies in schools, education becomes not only a storer and transmitter of culture but also a generator of cultural creation.

The contemporary society is characterized not only by the enlargement of the cultural horizons of the existence, but also by the accelerated technological

progress, a fact that determines the necessity of an active involvement of education into the adequate mediation of the existing reports between culture and civilization.

Despite the view of certain authors that consider unproductive the delimitation between culture as the sum of the spiritual creation and civilization as the material culture, we consider that, at least as far as the educational reality is concerned, the promotion of this delimitation is of a certain benefit and brings up important epistemological and action profits. Our arguments are related not only with what Spengler said about culture that ends dying into civilization, or with the phenomenon of human being's alienation from its cultural essence, but also with the reality that he technology as an expression of civilization, increasingly puts its stamp on the way education is made.

If problems such as that of the "suffocation" of culture through civilization or that of human being's alienation because of the predominance of technological existence in front of the cultural existence are discussed so far only at the philosophical level, the fact that because of technology the contemporary society becomes a communicational one represents, as also Gianni Vattimo put it, a real issue. The contemporary society is, due to technology, a communicational one, one of generalized communication, and this fact implies adequate restructuring of the educational reality. In the view of J.-F. Lyotard, these changes are required by the passing from the "incomplete information games" to the "complete information games", due to the technological progress.

Within the context of the modern society, the incomplete information games were predominant and the level of performance of the educated were limited and strictly conditioned by their capacity of acquisition, memorization and re-actualization of diverse information and knowledge.

The technological progress and the characteristics of the communicational society determine the development of so-named complete information games. As the before mentioned author put it, the present and future belong to the information webs and huge data banks that offer the premises of the games with complete information and that are going to constitute the educational context of the contemporary society.

"As long as the game has as a bases an incomplete information, the advantage is of the one that is capable to obtain a supplement of information. Within the complete information game, the pest performance is not related with a supplement of information but with a new arrangement of it. This new arrangement is usually obtained through putting in connection certain series of data that functioned before as independent. This capacity to articulate together things that were not so before can be named imagination. Speed is one of the properties of this capacity. It is permitted to imagine the world of postmodern knowledge as being governed by a game with complete information in the sense that information is available for each of the individuals. The plus of performance in the production and not in the acquisition of knowledge, given similar capacities, depends on the

capacity of making new connections or changing the rules of the game" (Lyotard, J.-F., 1993, p. 83 – 92).

Within these conditions, the educational action must have as the main focus not the accumulation of information which is now accessible to all, but the development of the capacity to create new links between the accumulated knowledge, to see new relations between different knowledge fields, considered separately by the traditional organization of science.

The involvement of education into the relationship between culture and civilization can not be reduced to its structural adaptation to the specific of the game with complete information. It implies also the consideration of the fact that, through the informational technology and mass-media, we assist currently to a process of progressive multiplication of images about reality, a process that can lead to the losing of the sense of reality (cf. Vattimo, G., 1995). Within the majority of the contemporary educational systems it is easy to see an increasing discrepancy between books and the reality they refer to, a certain metaphorical reductionism existing with regard to the process of conversion of the reality into ideas, concepts and theory, a fact which induces major difficulties for the educated ones in the understanding of reality.

The often reduced degree of significance of the information, the lack of consistence between the written texts and the reality together with the theorization doubled by the excessive conceptualizations are the elements that require the reconsideration within the educational phenomenon of the relationship between the theory and practice, symbols and reality in order to increase the closeness of school with the real life.

Besides the formation and development of the cultural essence of the human being, and in close ink with it the educational process aims to develop another attribute that is essential for the plenary existence of man, the attribute of freedom.

Freedom can be generally defined as the quality of human subject to freely dispose of his person and evolution. In his deepest essence, freedom represents a social, political, religious, cultural existence status which is assumed by the individual in concordance with his own wishes, believes and potential. The identification of the interaction relationship between education and liberty implies the conception of the later as the possibility that a person or a group holds to reach and accomplish self assumed objectives and aims.

From this perspective (cf. Mihilescu, I., 1998, p. 327), it becomes very useful to make the differentiation between two levels of freedom: the negative and the pozitive level.

The negative level of freedom reffers to the elimination of the perturbating factors and external compulsions that can interpose between the human subject and the aims he established for himself. The obtaining of the negative level of freedom

means to eliberate the human action from those external determinations that disturb or limit the possibility to reach the aims of it.

The poyitive level of freedom espresses the necessity to provide the individuals with the instrumental possibilities that will permit the reaching of established goals. The elimination of external compulsions, though important, is not sufficient in order to lead to the acomplishment of the individual aspirations, the existence of the real possibilities (knowlegde, intruments) for the effective practical realization of the established goals being necessary.

The correct understanding of the concept of freedom implies its reference not only to the term of compulsion, but also to the notion of responsibility. The responsibility refers in the described context to the sum of internal determinations of human actions, determinations that come from the interiorization and free acceptance of the social, moral, religious values and principles that give the frameworks of any society.

The main reference points of the relationship between education and freedom are given by the existence of the two levels of it and by the accumulation made by the educated ones of the attribute of responsibility.

With regard to the negative level of freedom, education assumes the role of shaping the society through the adequate formation of its members. We refer to both, the formal dimension of increasing the accent put on the education for democracy and interculturality and to the informal dimension of developing in students the individual tolerance and feelings of mutual respect, the capacity of understanding of the fact that accepting the diversity eventually represents the fundamental condition of personal freedom.

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THE RELATIONSHIP BETWEEN OPERATIONAL OBJECTIVES AND EVALUATION PROBES IN MODERN PEDAGOGY

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RESUMÉ. L'article traite un des aspects circonscrits à l'évaluation didactique – sujet extrêmement vaste et complexe. Il s'agit de l'analyse pédagogique du concept d'épreuve d'évaluation, et aussi de mettre en évidence et d'expliquer la relation qui s'installe (et qui doit s'installer) au niveau micro entre les épreuves d'évaluation et les objectifs opérationelles visés.

Both in the theory and in the practice of the education, the evaluation and its multiple dimensions represents a former topic, which has always presented a great concern for the theoretical and practical fields of pedagogy. The evaluation has currently new connotations, new meanings and also new ways of approaching. This issue now concerns both theoreticians and practitioners; they are approaching it as a general problem connected with the general didactic area and as a topic in the frame of special didactics, with certain characteristics which are specific for a particular discipline.

At the macro-level, the evaluation represents a component part, a sub-system of the educational process, with one can measure and assess its efficiency, then the level of reaching the pre-established educational objectives, respectively. Today we talk about the use of didactic meta-evaluation, which refers to combining and synthesizing, at a global level, in a coherent and unified manner, of different sources and levels of evaluation during the entire didactic activities. (P. Broodfoot, 1992).

It became soon obvious that we cannot conceive anymore a reform without a contribution to the development of the "culture of evaluation to different actors. It is necessary for this culture to find its appropriate place amid pedagogic activities in order to achieve its different goals... We need to reconsider the worth of student's work, to support the learning process and to humanize the pedagogy." (S. Paivandi, 1999, pag. 45).

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The issue of didactic evaluation is very wide and complex, so we must specify from the beginning the goal of this article - that of pointing out and making clear the relation established at the micro-level between the evaluation probes and the followed operational objectives. To achieve this, we have to make some terminological delimitation for a series of syntagms components of the family of words that are related to "evaluation".

We start with a operational definition of evaluation, which we assimilate with the action of collecting an ensemble of information. This information should be pertinent enough, valid and reliable for the formation and examination activity, for the research of suitability degree between this information ensemble and an ensemble of established pertinent criteria related to the pre-established instruction objectives. To assess means therefore to confront an ensemble of information with an ensemble of pertinent criteria for taking a decision.

The context of the educational reform which develops in our country and, implicitly, the context of the reform in the evaluation field, required practically the concept of *"evaluation strategy"* of educational performance/efficiency, just to emphasize the existence of a complex system of evaluation methods and techniques, of diverse types of tests, and, hence, the necessity to plan all of them as carefully as possible. On the other hand, we can say that the evaluation strategies support the instruction and formation process too.

From the point of view of the modern pedagogy, the evaluation moments are naturally integrated in the activity of teaching and learning. Practically, the teaching process, and, implicitly, the learning process, derive from the objectives and competencies expected to be reached and then assessed (and not in the reverse order), and evaluation is conceived as a genuine manner of teaching, conveying, and assimilating the knowledge and competencies. Evaluation does not imply only some descriptive and estimating activities, but also activities designed to develop intellectual and behavioral competencies to the students.

The evaluation strategies could be defined as ways of choosing and combining methods, techniques and evaluation probes of the educational efficiency, and establishing the moment(s) in which they can be applied, according to the operational objectives and selected contents. Aiming to establish a ratio between the results obtained in instruction and the expected results (pre-established by the operational objectives), the evaluation strategies represent that particular component part of the educational action which validates and confirms (or not) the achievement of the performances and competencies necessary in the instructional-educational activity. Based of the information that have been already achieved as a result of applying the evaluation strategies, the teacher will be able to plan and regulate an optimization of the future instruction process.

The objectives of evaluation represent operationalized endings of the instructional-educational process, whose degree of specificity "allows an educational measurement, characterized by a sufficient degree of objectivity to be valid and accurate." (A. Stoica, (coord.), 2001, pag. 41).

The objectives of evaluation are obtained from pedagogic derivation, respectively by operationalization of the curricular objectives (frame and reference objectives) and they answer to the three well-known questions: "What is evaluated ?", "How we evaluate ?", and "How much is assessed ?". In their formulation it is specified: what, how, and how much students must be able to achieve, which are their referred behaviors and competencies, what are the circumstances in which they can be observed and measured, and finally which are the acceptable performance levels (by specifying an operationalized criterion of success).

Therefore, it results that the objectives of evaluation are operationalized and formulated in an operational manner. For this reason, we will prefer rather to use the syntagm "operational objective" (which is considered to be more suggestive), especially because in the practice of evaluation we also work with the syntagm "operational objectives" rather than that of "evaluation objectives".

The evaluation methods are ways, instruments, and manner of actions thanks to them teachers can obtain information about: educational performances of the students, their reached level of knowledge, the skills formation process, and the level of their intellectual and physical performances; the information is gathered by simply reporting themselves to the operational objectives of the didactic activity, and, of course, to the actual scientific contents.

The self-evaluation methods are also ways, tools, and manner of actions thanks to them the students themselves may obtain information about their performances in school, about their level of knowledge, about the process of skills' development, by reporting themselves to the operational objectives of the didactic activity (which are indicated by the teacher).

The evaluation techniques represent didactic procedures which can be integrated inside any method, and, implicitly, in the frame of didactic strategies of teaching-learning-evaluation. (S. Cristea, 1998, pag. 161).

The evaluation instruments are component parts of the evaluation methods, which "materialize at a product level the methodological option of the teacher for testing the performances of the student in the frame of a well-defined educational situation." (A. Stoica (coord.), 2001, pag. 47). Therefore, the evaluation instruments are dependent to the used evaluation methods, because their operational valences are utilized for the application of the methodology and are designed starting from the pre-established operational objectives.

The evaluation probes represent evaluation instruments that are thought, designed, administrated, given and reviewed by the teacher. They are set up depending on the learning contents and on the operational objectives of some activities or groups of didactic activities, to test and to assess the knowledge level, the development of intellectual and practical skills, and the cognitive-psychomotor and affective-behavioral competencies of the student.

The evaluation probes contain a well-structured ensemble of tasks with a theoretical, practical, or theoretical-practical character, conceived to see whether

and to what extent were met certain operational objectives. In sum up, there is a very strong correlation between the evaluation probes and operational objectives, which we'll explain in the following paragraph.

We start from the finding that any instruction process follows to form and develop students' individual competencies and behaviors (pre-established in the operational objectives), it is natural that the same objectives be the base of their evaluation. Therefore, the evaluation of the progress of learning is performed by adopting as a reference point the expected and planned competencies and behaviors in the operational objectives which allow the student to report him/herself to what is required, and to teacher to set up the level of the operational objectives accomplishment and appraise the quality of instruction and teaching process, and of the didactic strategies which are involved here.

➲ *The evaluation probes are centered on the pursued operational objectives and on the assessed content.*

In the practice of evaluation, the achievement of an operational objective is verified by the use of one or more evaluation probes. In the evaluation probes' conception, one may begin from the evaluation operational objectives, whose formulation is in fact the starting point of the development of didactic activity, and at the same time is the end by the evaluation process. "…The demands of the evaluation probes should be the same with the demands asked to the students during the teaching process, by the announced objectives", assert I. Jinga and E. Istrate (coord.), 1998, pag. 324). The adequacy of the evaluation probes to the evaluation objectives is a natural consequence of the necessity of instruction control and instruction evaluation by objectives, and also a premise of the instruction feedback achievement in the instructional-educational activity. In fact, the coherent and no-doubt formulation, operational one, of the evaluation objectives and generally speaking of the didactic objectives, makes just easier the current, periodical, and final evaluation process.

At the same time, the evaluation probes should be adequate to the scientific content that is covered, to its specific features: the nature – theoretical or applied, the volume, its complexity, intra- and inter-disciplinary correlations made possible by it, etc.

➲ *The evaluation probes take into consideration the field of the referred operational objective and the taxonomy level to which it is designed.*

During the conceiving of the evaluation probes, we should not forget the domain that contains the evaluation objective (cognitive, affective, or psychomotor) and the groups of objectives, especially the taxonomy levels on which we can set up a hierarchy of the objectives from the three areas. We illustrate the correlation between the operational objectives and the corresponding evaluation probes with concrete examples from the lesson "The Galvanic Element":

The Fundamental Objective: The gain / discovery of new knowledge.

1. The Level of Bloom's Taxonomy: "The Knowledge"

Configuration of the instructional situation: Starting from the electrolysis, the teacher talks with the students and asks them whether they have ever met in their daily life devices which produce electrical power.

The system of didactical methods and procedures: the heuristic conversation (didactical method of teaching and learning), the explanation (didactical procedure).

The operational objective: to define the galvanic cell using both the empiric knowledge from every-day life and the teacher's explanation.

The evaluation probe: Which is the role of the galvanic cell it an electric circuit?

2. The Level of Bloom's Taxonomy: "The Comprehension"

Configuration of the instructional situation: The teacher together with a student will build the galvanic cell Zn / Zn^{2+} II Cu^{2+} / Cu (at the beginning of the experiment the electrodes are weighed) and demonstrate the presence of the electric power. The teacher asks a student to replace the salt bridge in the cell with a metallic electric conductor.

The system of didactical methods and procedures: the discovery, the demonstrative experiment and the research-characterized experiment (didactical teaching and learning methods), the heuristic conversation, the explanation (didactical procedures).

The operational objective: to establish the role of every component-part element of the galvanic cell, knowing that when the circuit is closed a potential difference will appear.

The evaluation probe: How do you explain the fact that the galvanic cell doesn't work even if the electric contact between the solutions is made by using a metallic conductor?

3. The Level of Bloom's Taxonomy: "The Application"

Configuration of the instructional situation: the teacher makes appeal to the previously earned knowledge of the students during the study of the metals' activity series and of the electrolysis.

The system of didactical methods and procedures: the discovery, the research-characterized experiment (didactical methods of teaching and learning), the heuristic conversation, the explanation (didactical procedures).

The operational objective: to apply the earned knowledge during the study of the metal activity and of the electrolysis to determine the chemical element which oxidizes itself and the one which reduces itself.

The evaluation probe: Theoretically establish which one of the two poles is the anode and which one is the cathode. Re-weigh the electrodes after 30 minutes

of the galvanic cell's working and establish if the experimental observations confirm or not the validity of the metal activity series.

4. The Level of Bloom's Taxonomy: "The Analysis"

Configuration of the instructional situation: The experimental observations of the students (performed during the previous experiments) and the teacher's conclusions (which were drawn together with the students) are capitalized.

The system of didactical methods and procedures: The heuristic conversation (didactical method of teaching and learning), the explanation (didactical procedure).

The operational objective: to identify the cause that forms the basis of the galvanic cell working, by using experimental observations.

The evaluation probe: Which is the important characteristic of the metals used in the construction of the galvanic cells? How long can work a galvanic cell?

5. The Level of Bloom's Taxonomy: "The Synthesis"

Configuration of the instructional situation: The student is asked to synthesize and to resume the knowledge earned during the study of electrolysis and of galvanic cell and to accomplish a comparative approach to them.

The system of didactical methods and procedures: the personal reflection (didactical method of teaching and learning), the explanation, the conversation (didactical procedures).

The operational objective: to combine the previous knowledge and infer the essential elements referred to the processes which take place in the electrolytic cell and in the galvanic cell.

The evaluation probe: Which are the common elements and the differentiating ones which characterize the processes that take place in a galvanic cell?

6. The Level of Bloom's Taxonomy: "The Evaluation"

Configuration of the instructional situation: The student is asked to decide the way to use in practice the knowledge earned during the study of the electrolysis and of the galvanic cell.

The system of didactical methods and procedures: the heuristic conversation (didactical method of teaching and learning), the explanation (didactical procedure).

The operational objective: to motivate the possibilities of using in practice those knowledge related to the electrolytic cell and to the galvanic element.

The evaluation probe: What are the theoretical and practical possibilities for re-silvering a silver spoon?

➲ *The distribution in time of the evaluation probes should respect the didactical logic and scientific logic.*

In the case of the current evaluations accomplished during the instructional-educational activities, the distribution in time of the evaluation probes should be designed closely related to the didactic logic and to the scientific one. Thus, if the reaching of a certain evaluation objective is verified with two or more evaluation probes, these can be applied in different moments of the didactic activity, related to the specific features of scientific content and of the instruction and teaching activity.

➲ *In the formulation of the evaluation probes one should pay attention to the following demands which these should accomplish.*

- The evaluation probes shall be effective, valid (to measure exactly what they are supposed to measure) and to have a high fidelity (to reflect in a true manner the knowledge degree, the competencies, and the abilities degree).
- The evaluation probes shall be adequate to the psychological resources of the class and to its specific particularities.

In the same way as in the setting of the instructional strategies, in the case of the evaluation strategies the psychological resources of the class represent an important reference point, even decisive. The specialists in docimology consider that an evaluation probe is well chosen if at least 75-80% of students succeed to solve it.

- The evaluation probes shall encourage the effective activity of the students, the practicing of their critical, divergent, imaginative and creative thinking.

The way of approaching and solving the tasks by the students, the correctness of the solving, the performed correlations, etc., offer information related to the measure in which the evaluation objectives have been met. For this information to be true and objective, it is necessary the student to be asked to use their new knowledge, to operate with them, to apply them, to integrate them in their own cognitive system and to use the earned abilities in various situations. Therefore, in formulating the evaluation probes shall be avoided the reproductive-cognitive work-probes, which don't prove that the students have met the pre-established performances, but request only their efforts for the reproduction of the structured information in the same way in which they were assimilated. It is recommended the encouragement of the effective activity of the students by conceiving productive-cognitive work-probes, which in turn determine them to exercise their critical, divergent, imaginative, and creative thinking.

In formulating the probes one should not reproduce the formulation of the evaluation objectives, but one will appeal to demands whose solving offer real,

correct information, related to the entire or partial achievement of the evaluation objectives.

The analysis of an example: We will analyze, for illustration, a simple example: In the VIIth grade, to establish the measure of meeting the evaluation objectives: "students must define the oxides on the base of previous knowledge and conversation with the teacher", and "students must categorize the oxides as a result of the conversation with the teacher", will be avoided the evaluation probes like questions: "How are the oxides defined?" and "How are the oxides categorized". In the analyzed case, we can make appeal to an exercise in which students are asked to identify the oxides from many substances and then to classify them into acid oxides and alkaline oxides, arguing their answers.

- The evaluation probes shall contain sufficient and diverse work probes.

To accomplish a most objective evaluation, there will be conceived various evaluation probes (questions; problems-question; exercises; problems; tests; worksheets containing theoretical, practical, theoretical-practical probes; laboratory experiments, etc.), containing a sufficient number of work probes. Therefore, the basic achievements of the students can be verified and must be adequate to the material learned volume.

- The evaluation probes shall be easy to apply both for the teachers and for the students, so they can be included themselves perfectly in a global ensemble of the didactic activity.

The modern pedagogy recommends the conceiving and planning of the evaluation strategies in such a manner that the students are required intellectual and practical-actionable efforts thanks to whose they achieve new knowledge, intellectual and practical activities, new cognitive competencies, psychomotor and affective-attitudinal competencies. We could say that practically the modem pedagogy refers to the transformation of the teaching and learning sequences into heuristic approaches with an evaluation nature. Therefore, the achievements earned by the students by solving the evaluation probes could be used into the future, in the following didactic moments, both by the student in his/her instruction and learning activity, and by the teacher in the activity of inducing and support of the learning and the instruction of the student.

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THE DIDACTIC MODEL AND THE FORMATION OF PROTOTYPICAL REPRESENTATIONS

CĂTĂLIN GLAVA

ABSTRACT. In the following study belongs to what the specialists in the educational sciences call *"directions for the restructuring and the modernization of the didactic methodology"*. The classical 'educational process' is becoming a more and more complex reality, called to respond to the recent challenges of psychology and sociology. The necessity of the development of certain competitive didactic resources leads, in the field of didactics, to reevaluations and substantial reconsiderations, meant to increase 'the rentability' of the traditional 'teaching-learning' dyad. Modelling, as a *method of mediated knowledge of reality* is analysed and is argued that aid of models leads to the acquisition of some cognitive schemes adequate to reality, and, implicitly, to the acquisition of some efficient abilities for the investigation of reality.

In the exceptional work called *Education at the Boundary of Millennia*, published in 1988, but still up-to-date on account of its prospective character, Professor George Vaideanu from Iasi claimed that *"education is changing and looking for quality and pertinence"* and that *"this requires another methodology, implies a systemic approach, anticipation and interdisciplinary measures."* (Vaideanu, G., 1988, page 46). The professor's statement came in a period in which, at least in our country, the orientations, the new tendencies in the field of contemporary education were hardly noticeable, a period in which, beyond the events, the profound meaning of what was to happen had to be searched for.

What we want to elaborate in the following belongs to what the specialists in the educational sciences call *"directions for the restructuring and the modernization of the didactic methodology"*. The classical 'educational process' is becoming a more and more complex reality, called to respond to the recent challenges of psychology and sociology. The necessity of the development of certain competitive didactic resources leads, in the field of didactics, to reevaluations and substantial reconsiderations, meant to increase 'the rentability' of the traditional 'teaching-learning' dyad.

The goal is to offer, from the perspective of didactic methodology, possible alternatives, possible new perspectives:

- *restructuring the methods considered as 'traditional'*, by transforming them into efficient strategies for motivating pupils and making them more active;
- *ensuring a dynamic and open character for the didactic methodology* , so as to accept and apply in our field the latest scientific discoveries;
- *diversifying the didactic methodology* as a consequence to the necessity of agreement between the various theories of learning and the pupils' real possibilities;
- *improving the method-means relationship,* especially because *modelling* has an unstable epistemological status, even in pedagogy it is often considered anything else but a method, due to the fact that it frequently makes recourse to supplementary didactic materials or to didactic means;
- *increasing the formative character of the methods* by converting the didactic methods into instruments for the cognitive, emotional and psychomotor formation of the student. These are the most important directions in the restructuring and updating of the didactic methodology. (Ionescu, M., 1998)

From another point of view, "competence is today the most important criterion of validation in profession irrespective of the work content and of the position acquired in society." (Chis, V., 2001, page 5). Thus the theoretical and practical investigations that follow also aim at the development of what we call "didactic professional competence", by offering to the teaching staff some instruments of work, some performant didactic auxiliaries that reach the level of the standards required by the complexity of the educational phenomenon. The recent researches in the fields of psychology, sociology and pedagogy offer an amount of information that is impressive not only by its dimentions, but by the effective importance of its scientifically sustained statements, which, if they are taken into consideration and applied in the didactic process, can change radically the present perspective on the educational process.

Terminological Delimitations

While referring particularly to the schooling period, the great majority of knowledge of whatever kind it might be, is (or at least this is the educators' pride) assimilated in school. Here in school, the basis, the foundations, the first image of reality should be offered, an image that further on, by means of his/her own actions, the subject-pupil should develop. Practically speaking, there is a great chance that, for many categories of objects (real or virtual, concrete or abstract), the school should be the first one to offer the pupils a synthetic image. This image of a reality yet unknown to the pupil is transmitted, in a first stage, by means of a definition. The definition – *that is the conceptual formulation of a category* – is

doubled by a synthetic image built especially in order to represent in a simplified way the respective category, *through* ***the model.***

The use of the model in order to exemplify the category, the so-called *problem of "for example"*, is nothing new. Modelling, as a *method of mediated knowledge of reality*, has been used from times immemorial and it represents even today one of the most frequently used methods of aquiring new items of knowledge. We may even say that, before using the definition of a category, we use, in order to illustrate it, its synthetic, simplified image, that is the model.

These *models* offered by the teacher to illustrate a category, to facilitate its acquisition by way of analogy, turn into *prototype-images* (see figure number 1). The impact produced on the pupil's cognition by these models is extremely great. It might happen that the already existing *protoype* of a category (and 'built' correctly by the subject) is replaced by the prototype-model (too loosely) offered by the teacher incorrectly, due to the authority with wich he/she imposes himself/herself to the student.

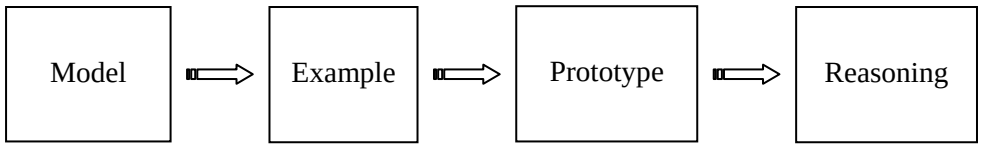

Figure number 1. The role played by models in reasonings

Certain mistakes that appear in learning, in the solving of problems, are due to some factors that cannot be verbalized, that is the *prototypes* with which the subject operates. The cognitivist psycologist E. Rosch's researches have highlighted the fact that, in most cases, we do not represent to ourselves the categories of objects as a concept of that respective category, but as a typical pattern.

M. Miclea gives an edifying example concerning the functionality of the prototype-theory and the role played by it in the learning process, focusing on the risk of offering some prototype-models that could lead, further on, to wrong reasonings. For the category called 'right angle triangle' the pupils will have in mind the concept of the respective category (the geometrical figure in plane that has three sides and a right angle) on the one hand, and, on the other, they will have also formed the prototype of the category above mentioned (placed in a certain position, with the right angle down, at the basis, on the left side, as it was offered by the teacher in the models given as examples). Although, in most cases, the students master the definition of the right-angle triangle, meaning that they have aquired the concept of the category, their performance in solving the learning tasks will be seriously affected and determined by the prototype or the typical exemplar offered as a model. It was observed that pupils manage to solve a problem, in

which the right angle triangle appears, more easily, if it is built according to the formed prototype image, that is if it appears in the typical form described above. (Miclea, M., 1998). This goes the same for other school objects too. For instance, in grammar, different parts of the sentence are considered as subject if they appear before the verb, where, usually, in the examples given by teachers, the subject is situated: the famous example "Outside it is raining".

"The prototypes are the *bricks* of the cognitive system. Consequently, the examples offered should be chosen with the highest professionalism, because these examples will orient the subject's way of thinking in the respective category, his/her *navigation* in the space of the problem."(Miclea, M., 1998, page 64)

At a superficial analysis of some textbooks of *Romanian Language and Literature* for junior and senior high school (the analysis of the curriculum from the perspective of the possibilities of 'modelling' will be the object of another paper) from the perspective of the possiblities of using modelling, one cannot not discover that they are very well anchored in the conceptual, that is that there are sufficient, even too many, attempts to define the categories under discussion. The problems appear when looking for the possibilities offered to modelling, for the models offered. One can see relatively easily that models are left to the teacher's choice. And thus we are once again facing the problem of *"for example..."*. Examples are offered– models usually – to illustrate a reality, that is representations under the form of some structured synthetic images are built and offered to the pupils. The problem is that these model-examples are offered too loosely, without realising their importance, or without taking into account the major impact that they can have upon the pupils' cognition. These example-models can very easily become prototypes of the respective categories, or can substitute already existing prototypes due, I repeat, to the authority with which they are 'charged' by the teacher. If the models offered are erroneous, the prototype of the respective category will be an erroneous one, the mental operations in which the subject will use these prototype-images will be erroneous, and implicitly the knowledge will have to suffer, even if, at the conceptual level, the respective category is well defined.

The solution? It is hard to say which is the solution. The idea from which I have started in the present paper would be precisely the solving, at least at a theoretical level, of this problem. It could probably be a wider offer on the part of the authors of the textbooks (of the textbooks themselves in fact) concerning the models, doubled by the teacher's special concern with the examples given, even if thus the risk of being anchored in the concrete and the intuitive increases. Finally, the human mind operates with images rather than definitions and, as specialists in pedagogy, we should not forget that.

A possible hypothesis of the reasearches that are to be developed is the following: "The learning realized with the aid of models leads to the formation of some cognitive schemes adequate to reality, and, implicitly, to the acquisition of

some efficient habits for the investigation of reality." The hypothesis can be further detailed: thus it refers to the role played by the examples given by the teacher as models in the correct formation of the prototype-representations, to the role played by the prototype-representations in the reasonings made by the subjects and in the formation of the cognitive scheme, and lastly to the role played by the cognitive mechanisms thus articulated in the knowledge and rational 'mastery' of reality.

The mental representation of the categories requires the analysis of this term from several perspectives. Cognitive psychlogy claims that a category – *meaning a class of real or imaginary objects formed on the basis of psychic and functional similarity* – receives a certain linguistic label in the natural language. This linguistic label *is not identical to the cognitive or mental representation* of a category. The mental representation on the one hand, and the words that name a category, on the other, are different things. (Miclea, M., 1994)

It was traditionally considered that the mental projection of a certain category is its *concept*. The experimental researches of the last years have proved the existence of another mental representation of the category – *the prorotype*. Both the prototype and the concept are symbolic representations of the object and are present in every mental operation made by the subject.

The concept of a category is expressed by a *definition* which contains all the necessary and sufficient characteristics of the respective class (by genus proximus and differentio specifica). On the basis of these characteristics one can establish the affiliation or non-affiliation of an item to the respective class. A new category emerges on the basis of the afferent concept acquired more or less correctly by the subject. If the subject possesses an erroneous definition of the concept, the category of elements that satisfies the properties of that concept, is not the correct one. An incorrect or incomplete definition – the concept being the shortened form of a definition – implies non-valid classification, an incorrect cutting-out of the environment we live in. (Miclea, M., 1994)

The most important consequence of the conceptual representations is the so-called *'equipotentiality'* of the elements in a certain category. Any member can represent equally well the category it belongs to, any member of a certain category should represent the category as well as any other representative. Still, the experimental researches have highlighted *the effect of prototypicalily: some elements are considered more typical for a category than others,* some members of the respective category are more representative for that category than others. The concept is not the only way of cognitive/mental representation of a category.

In a first sense, *the prototype* concerns *one or more real exemplars,* that *show up with the highest frequency* when the exemplification of a category is required or that *have the highest value of prototypicality.* (Miclea, M., 1994)

The members of the category with the highest degree of typicality are regarded as the prototypes of the respective category and are to be used in reasonings: "It is considered that the *mental representation of the category* is done

by these *typical exemplars or prototypes.* When we operate mentally on the category of 'fruit', for instance, we take into account actually some of *its samples* (the apple, the pear, the peach) not the *concept of fruit*, with its necessary and sufficient features, which we define with great difficulty. Consequently, the mental representation of the category is done by some *typical exemplars or prototypes* of the respective category." (Miclea, M., 1994, page 205)

The decision of whether an item belongs to a category or not is realised by the comparison of the item with the prototypes of the category, not by assessing the degree in which it satisfies the necessary and sufficient characteristics of the respective class. *If the degree of similarity between an element and the prototype of the respective category is a high one, the affiliation of the respective element to the category in question will be decided upon in a shorter time.*

In the second sense, the prototype does not regard a real exemplar of the category, but an ideal one, *a robot picture that summarizes the characteristics of several members of the category. It is assumed that from the contact with various exemplars of a category, the human subject abstracts* the medium tendency or the prototype of the respective category. *The affiliation of an item to a category is done by measuring its similarity to this* ideal exemplar *or* the robot picture*, resulting from the agglutination of several individual exemplars.*

The two senses of the term prototype actually point to different degrees of abstractization. In a hierarchy of the abstractization of a category, at the peak there would be the concept, at the basis – the real, typical exemplar, and in an intermediate position – the ideal exemplar or the robot-picture (see figure number 2) (Miclea, M., 1994)

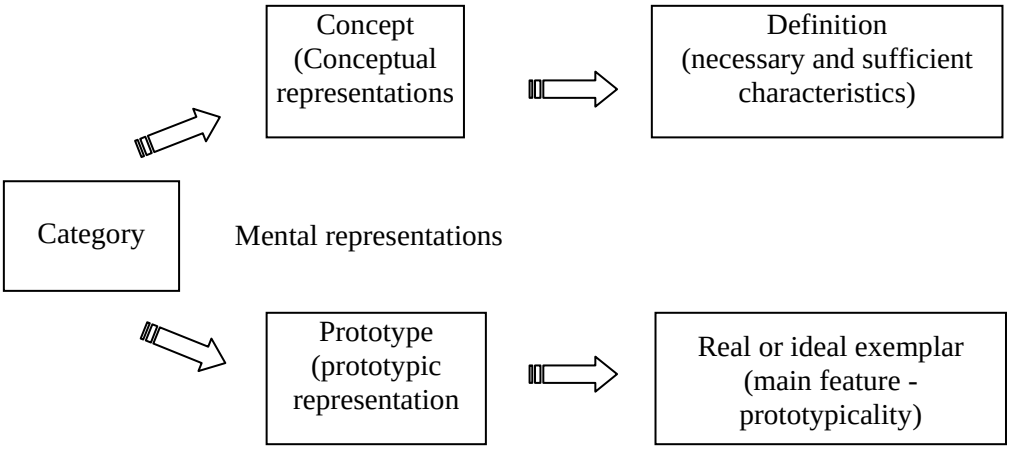

Figure number 2. The mental representation of categories

The prototypic representation of categories leaves its mark on the solving of problems and on reasoning. Often having considerable euristic valencies and being more easily evoked from memory than the concept, the prototype guides the process of resolutions. *The examples offered by the teacher or an illustration of a certain type of problem, of an equation or of a category of phenomena* are more often used in the subsequent solvings than the concept of the respective category . *The using of prototypes in the solving of problems can considerably facilitate the process of resolutions but, at the same time, it can also obstruct or wrongly orient it.*

The prototypic representation of a certain category does not exclude its conceptual representation.

Frequently, while teaching, one starts off from *concrete facts, natural objects or their substitutes, phenomena, processes etc. or their simulations.* The concrete facts or the representations of reality function as examples that make up for the pupils a *basis of investigation and of mental processing* .In fact, paradoxically, we operate with subtitues of reality rather than real objects. In this context, problems such as the informational contribution of examples, their articulation in certain sequences, the alternating of theoretical statements and examples, the role of the schemes, or of the models and so on become of great importance.

"*The example* is *the concrete and particular expression or the singular case,* ***a prototype*** of the notion or the phenomenon that is being studied, while the notion is the class or the general category of all referential examplars." (Chis, V., 2001, page 39)

In most cases, especially due to the teachers' unhappy or erroneous formulations of the definitions or of the examples, the phenomenon of *alteration of the notions' definitions* appears. The making up of some '*personal definitions'* (different from the ones recommended by the teachers) in the pupil's mind represents the consequence of the illustration of the respective concepts by a scarce intuitive material, by examples that are not relevant enough to make easier the extraction of essential characteristics. The teacher should ensure that the offer of examples alllows the complete identification of constant (essential) features and of changeable (inessential) features, through illustrating the notion by diversified and successive examples. (Chis, V., 2001)

"Systematic researches in school prove that the association of concepts with the prototype-examples, without a sufficient cognitive organization of learning, leads to the alteration of the contents of the notions for the pupils." (after Radu, I., Predescu, C., Chis, V., 2001, page 43)

We take the above definition for granted and, further on, we shall consider the example as a concrete, particular expression, a case, an occurrence, a prototype of the notion or of the studied phenomenon.

The majority of instruction methods have the capacity to function as didactic devices that can be converted into methods during the didactic activities. (Cristea, S., 2000)

Practically, every method, modelling included, has the capacity of rapid conversion of its functional status, at the level of a didactic device, with active operational resources within the initiated action. This characteristic of the methods to support one another by this subtle method-device game is not new for didactics.

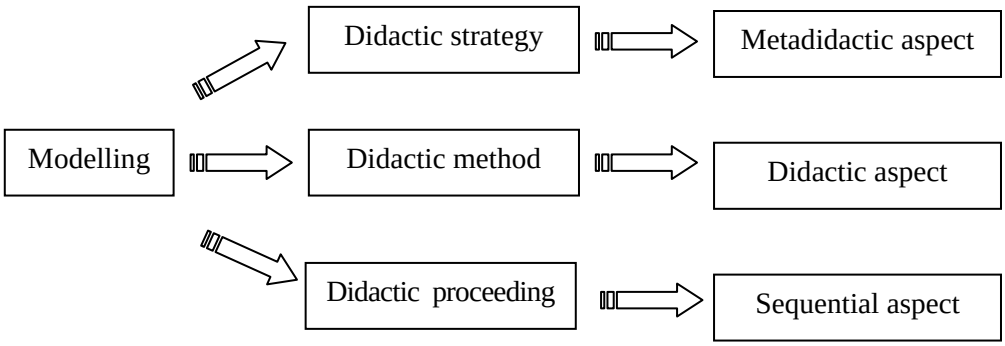

Figure number 3. The three aspects of didactic modelling

In figure number 3 we have tried to represent, in a simplified way, the three dimensions of didactic modelling:

- the metadidactic aspect: modelling becomes a didactic strategy that generates the management of human and material resources as well as the implicit choice of methods and of didactic devices that are to be further used. The instructive activity that is to be developed will have as a central idea the learning by analogy, with modelling as the starting point;
- the didactic aspect: modelling is a learning method, integrated into an overall strategy; it helps to convey the essential characteristics in the economy of the learning activity by means of the model;
- the sequential aspect: modelling is subjected to a method, being useful in a punctual sequence of the learning activity, its goal and intentions being totally subjected to the method or the strategy used.

This didactic tridimentionality of modelling is not something unprecedented. Pedagogy mentions other components of the didactic methodology that have the same kind of ambiguous behaviour. Problematization, algorithmisation, learning by detection, in fact the majority of active methods, are used in occurences that pass beyond their traditional status of method.

Before discussing the didactic term of model (in the classical sense of *didactic modelling)*, we should make some reference to the wider epistemological sense of the model and of modelling.

Cezar Barzea presents, in *The Art and the Science of Education*, the most important connotations of the term *model*. We shall present them further on: Means of instruction; Imitation; Layout; Plan; Draft; Category; Outlook on life; Example; Miniature; Mental scheme; Paradigm; Theory; Particular case of a theory; Mathematical expression; Logical representation of a theory.

The above mentioned author states that this great diversity represents an undoubted evidence of the utility of the model in the educational sciences on the one hand, and, on the other, a result of fluctuation, of semantic indecision and of the inconsistency of the pedagogical discourse.

Cezar Barzea offers, by means of a remarkable bibliographical synthesis, the most important definitions of the term *model*:

A. *The normative sense*

♦ Conduct to be imitated or copied, due to its value and significance (archetype, canon, manner, mode, rule, example);
♦ Person, fact or object with qualities representative of an entire category (type, prototype, norm, exemplar, hero);
♦ Original object after which an infinite number of copies can be made (standard, pattern, cliche, specimen, sample, copy, paste-up, layout);
♦ Ideal or perfect state that is to be followed in approximated, imperfect and intermediary ways (category, class, project, aspiration, goal, purpose, measure, principle);

B. *The artistic sense*

♦ Person or object whose model will be reproduced by the artist (subject, sample, figure, draft, model);
♦ Object of the same aspect as another object, bigger or smaller in size, miniaturized or increased (copy, replica, cast, imitation, miniature, layout);

C. *The scientific sense*

♦ simplified and tridimentional representation of an idea, of a process or a system (form, structure, scheme, illustration);
♦ Ensemble of elements or variables that make up a symbolic or social system (system, plan, configuration);
♦ Temporary truth (hypothesis, presumption, opinion);
♦ Logical or mathematical representation of a theory (formula, theoretical model). (Barzea, C., 1995, page 104)

In fact, in the didactic methodology all the three senses are used. The problem that occurs in pedagogy is, that in most cases, the normative models and the artistic models illicitly replace the scientific models (beyond the cases in which the functioning of the first two categories is to be desired, these being rare cases), which leads to confusions.

Essentially, the model is and *analogical* representation of some structures by means of other reduced or shematized structures, *with the purpose of facilitating knowledge and action*, the object of reference thus (through modelling) becoming more accessible to observation, measuring, and empirical or conceptual manipulation.

The model is essentially didactic, maybe one of the most "didactic" methods possible. "There are no *models as such.* Models are always *models of somebody or something*, they are the representations of some originals, whether natural or artificial." Then, models are *"the carriers of explicit significances and they express a certain syntax of the component parts." M*odels have goals that are as pragmatic as possible, they serve a purpose, they either stimulate, determine a new acquisition, or they bring about a future action.

Pedagogical modelling is a *didactic method* that is based on the *action of indirect investigation of reality* and in which this action is predominant. It requires that the teacher should elaborate and develop some research models that orient the activity of the student towards perceiving some pieces of information, features, relations about objects, phenomena, processes from nature and society, that are *structurally and/or functionally analogous.* (Cristea, S., 2000)

Modelling is seen as an operation involving the study of the phenomena of reality by means of *models* (whether *ideal* or *material*). Modelling, as a means of knowledge, is based on the *analogy* between the model and the system that it represents. Analogy sends to *the form, the structure, the functionality* of the whole or of some of the components of the system.

Modelling is a "didactic auxilliary that is highly efficient in the realization of a modern, mainly formative education. By removing the descriptive-static elements by means of their essentialization, modelling secures the dynamic, intersystemic, functional and operative character of the educational process. By reproducing the logical scheme for the transformations of information within a determined context, modelling, the model respectively, allows for the realization of the self-adjustment of the informational system and for the improvement in didactic communication. " (Ionescu, M., 1995)

The pedagogical model tends to reproduce the essential elements of the original phenomena and processes, *whether natural or social, abstract or concrete*, that are sudied in accordance with the specific and concrete objectives of the didactic activity that is taking place.

It fulfills a twofold pedagogical function:

- the function of initial information, that releases the logical and epistemological mechanisms which are specific to the analogical type of reasoning;
- the function of final validation of the acquired knowledge, at the level of some different systems of reference which engage the resources specific to formative evaluation.

Constantin Cucos states the fact that "the educational model is an exemplary corpus of norms, whether they are only stipulated, or only embodied, or simultaneously embedded and incarnate; the requirements for the perfecting of the person may be simply announced, but they may also be embodied at the level of some acts, behaviours, habits, belonging to some actual or potential individuals. The model may be an ideational, abstract construct, comprising imperatives and values, but it may also be identified in the manner of being or becoming that is specific to a personality. Models can be direct or indirect, real, natural, or ideal." (Cucos, C., 2000, page 93)

As a rule, models are suggested or delivered by others. This is a phenomenon which, from a didactic perspective, seriously complicates things when we state , fairly lightly, that the didactic methodology serves the purposes of both instruction and self-instruction.

Institutionalized education represents a case of heteromodelling made after reference points that are often singular, standardized, in keeping with a rather poor range of models. Quite often, the officially delivered models are illicitly replaced by the students with other models that they acquire for themselves. Self-modelling is extremely positive, but it appears after a necessary previous heteromodelling.

The model is self-reproductive, it perpetuates itself through other models that tend towards the same rank and the same value. (Cucos, C., 2000)

Cezar Barzea describes the four types of situations in which the model is applied in the case of the educational sciences:

- The object is a project, a process of becoming, an aspiration, and for this reason it can be best revealed through models;
- Generally speaking, education presupposes a totality that cannot be ‘de-structured’ into its component elements, therefore the knowledge of the whole, of the global significance can be realized very well through modelling;
- Education is a social phenomenon, having a permanent dynamics, a specific fluidity of its own, that can only be reproduced by means of an analogical type of knowledge;
- ‘Direct’ experimenting on the real object is difficult, being, more often than not, subject to moral or ideological restrictions, that we can avoid by resorting to models, as impersonal and insensible subsitutes.

We shall present further on some of the most important taxonomies of the didactic models offered by the specialized literature.

The classification of didactic models according to Sorin Cristea:

1. *Material models* may take the shape of an object, a substantial, physical, technical form. What is essential to them is the fact that they are built of palpable material. Into this category we may include such didactic models as models and moulds, which reproduce at a micro- or macro- level, the essential characteristics of the original object that is being studied;
2. *Figurative models* take a graphical form represented by various photographs, drawings, schemes, sketches, diagrams, organigrams, that are capable of reproducing the external form, the internal structure and the functional relations belonging to the original object that is being studied;
3. *Symbolic models* have an essentialized, ideal form expressed by means of formulae, equations, schemes that are capable of reproducing the essential qualities of the original object that is being studied by activating some conventional structures;
4. *Propositional models* have an abstract form expressed at the level of some theories or fundamental concepts, that are capable of defining, analysing, applying, assessing the functional relations presenting an utmost degree of generalization existing at the level of the internal structure of the object that is being studied within the framework of a certain paradigm of scientific research of reality. (Cristea, S., 2000)

The classification of didactic models according to Miron Ionescu:

A. Didactic models are classified *according to their form*, thus:

- *Material* (real) *models*, which are further subdivided into three groups:
  - constructs created in order to reproduce the spacial relations of the object (models, spacial representations);
  - models that are based on the physical resemblance to the object that is being represented and are called similar or identical models (moulds, maps, diagrams);
  - analogical material models (schemes)
- *Ideal* (mental) *models* are expressed by ideas, logical-mathematical equations of various degrees of generalization;

B. According to the *role* they fulfill:

- *Explanatory models*, that support the process of understanding;
- *Predictive models*, that reveal the transformations which would occur in the process or the object that is being studied.

The taxonomy offered by Cezar Barzea is based on a metamodel, whithin which each model will be described from a threefold perspective:

- *a semantic perspective*, referring to the relations between the model and its original;
- *a syntactic perspective*, regarding the means of expressing the analogy;
- *a pragmatic perspective*, relating to the concrete manner of using the models.

The models presented from a tridemensional perspective in figure number 4 will be shortly presented further on. We will insist a little more on them, because our option too is oriented towards this concise classification, which tends to exhaust the modes of usage of the didactic model

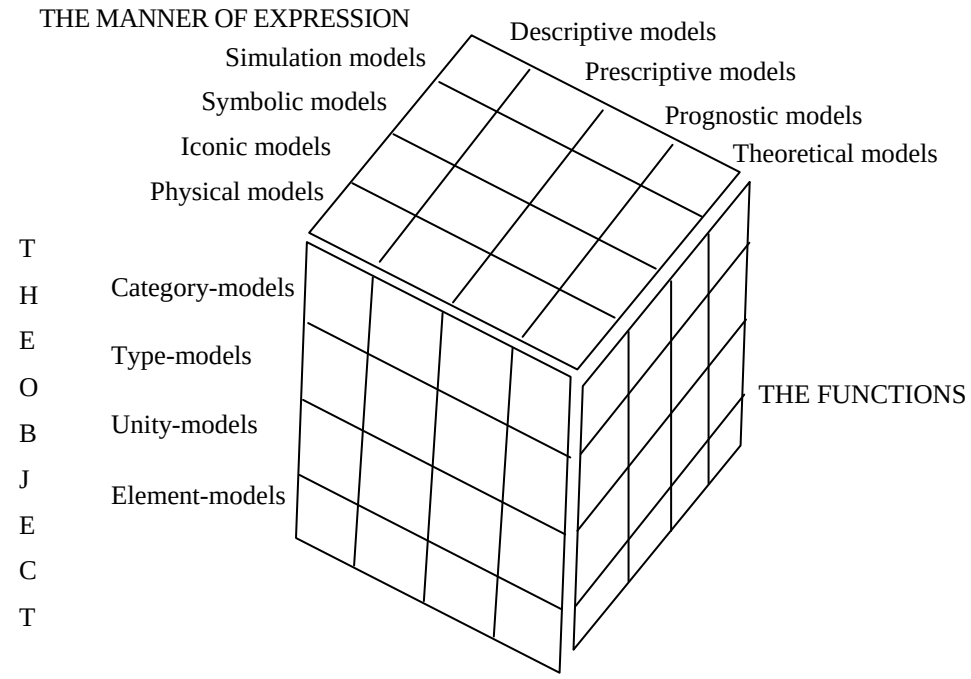

Figure no. 4 The metamodel represented tridimentionally, according to C. Barzea.

Realizing the didactic activity by means of the modelling method involves the covering of the following pedagogical operations (According to Sorin Cristea, 2000):

a). c*onceiving the model* at a strategic level by means of tracing some guidelines necessary in order to plan the activity under the best conditions (implementing the model at the level of the overall strategy chosen by the teacher);

b). o*bjectifying the model into a shape* (material, figurative, symbolic, propositional) appropriate to the instruction task (it requires special abilities on the part of the teacher, unless it is provided by a specialist);
c). *fixing the model at the level of a closed referential system*, which reproduces a limited number of characteristics capable of stimulating the analogical reasonings which secure the discovery of the essential features of the phenomenon that is being studied at the level of an open system (at any time capable of highlighting a certain characteristic);
d). *operationalizing the model* at the level of the methodological requirements specific to that particular didactic activity;
e). v*erifying the didactic efficiency of the didactic model* activated by means of some observational or experimental didactic applications, the didactic efficiency being defined by the capacity of the model of being adequate to the programmed subject and of reproducing the essential characteristics of the original.

There are also opinions which state that models, modelling, is an unsuitable, inacceptable means of knowledge (didactic knowledge included). It has been stated that modelling may easily become an obstacle, because essentially it is based on analogical thinking, and not on prospective, euristic thinking. A. Kaplan (Barzea, C., 1995) enumerates at least four inconveniences of models (didactic models included). They must be mentioned and we must become conscious of them from a pedagogical point of view.

- *Models overrate the importance of symbols.* Kaplan calls this aspect *the magic of symbols*, i.e. the simple and direct verbal utterance is replaced by a mathematical language (mathematical codification);
- *Models overrate the importance of concrete forms.* The emphasis is laid mainly on visualizations and intuitive representations, even when these are not necessary (an exacerbation of intuition and visual representations). In actual fact, the natural language is replaced by an intuitive one;
- *Models overrate the importance of structures.* Models do not explain by themselves, they represent best the internal configurations, but they do not express causal relations directly;
- *Models overrate the importance of analogy.* Analogy, with all its advantages, still remains a primary means of knowledge.

The above mentioned limits only put us in guard against the exaggerated confidence which we might have in analogy. They warn us against pseudo-mathematization made in order to give the impression of scientific precision, they warn us against the risk of excessive concretization, they show that the model in itself does not directly explain something, but it helps to explain and understand a certain reality situated beyond it. They give warning against the danger of turning the pedagogical language into a cliched language, by way of limiting the

expression at the level of intuitive imagery, which would eventually lead to defficiencies of vocabulary and expression among the students.

Analogy is a notion originating in the field of mathematics and indicating *the identity of ratio between two measures.* Later on, analogy entered the field of philosophy (and from there the system of the humanities), where it represents the *resemblance of relations among various things, objects.* From a historical point of view, analogy is perhaps the most widely used means of scientific knowledge. Without attempting to make a historical excursion, we might mention that Aristotle was the one who transformed analogy into a euristic means of knowledge "we must examine the *similitude* and, for the things that belong to different genera, we must look for the way in which the relation of one thing to the second one is to be found in another one, in relation to another one (...), because as long as one thing belongs to all the other, they are *similar.*" (Aristotle, quoted in Nicolau, E., 1977, page 55).

Knowledge through analogy represents the *epistemological foundation of models*. Analogy is the easiest way of thinking and, as a matter of fact, also the most widely used one, mainly due to the fact that among objects, generally speaking, similitudes are so numerous that the possibilities of analogical combinations are unlimited. Analogy was for a long time the most important means for the descovery of new scientific truths.

An analogical reasoning is a reasoning that makes an analogy with a different field. In the processing of information, the representation of a piece of external information is called *analogical*, and it retains the structure and certain properties of the initial information: *there is no symbolic coding* (whether propositional or numerical) in passing from the external information to its *representation.* In the field of psychology, the most widely studied analogical representation is the *iconic representation*, the one that comprises especially the *mental image*. (Duron, R., Parot, F., 1999)

Analogy is "the establishing *of a correspondence* between essentially different pieces of knowledge in order to override their diversity. Formally, an analogy is defined as *an isomorphism* between a field of reference that is well known, and a target field that is little known. Analogy then permits the *transfer* of the properties of the field of reference onto the target field." (Duron, R., Parot, F., 1999, page 65)

The reasoning by means of analogy is a *euristic type of reasoning* whose conclusion is uncertain, but it permits *the making of suppositions in a partly unknown field.*

The stages of the analogical reasoning:

- putting the two fields into partial correspondence;
- transferring the properties and procedures from one field to the other.

Modelling covers both stages of the analogical reasoning. What is really essential for modelling, from this point of view, is the fact that we will always deal with an object, phenomenon (whether concrete or abstract) that is to be put in a

relation of transfer of significance and characteristics with another object or phenomenon in order to facilitate knowledge.

The cognitive scheme is a *minimal unit for the organization of knowledge, an organized block of knowledge,* impossible to be reduced to its component parts. It represents an *organized ensemble of knowledge,* a general structure of knowledge, activated simultaneously and corresponding to a complex real situation. (Miclea, M., 1994)

In his work, entitled *Cognitive Psychology*, M. Miclea surveys the most important charactersitics of cognitive schemes. We will present them further on, having in view the fact that, as we have already showed, modelling leads to the formation of prototypic representations of categories, which also come up in the mental operations and in cognitive schemes, as a primary and elementary means or organizing the information:

- *Cognitive schemes are blocks of knowledge that are inseparable and autonomous in relation to other pieces of information.* Essentially, the cognitive scheme includes knowledge regarding a certain situation, a typical reality. It shows the way in which the component elements of a complex situation associate in reality. Cognitive schemes are extremely autonomous one in relation to the other (the cognitive scheme corresponding to the reality of the situation of a table in a restaurant in relation to the situation of having an examination is presented in a certain way)
- *Cognitive structures refer to complex real situations.* These structures are not limited to the propositional description of an object, of a reality, they will always present the relations, the context within which these will occur.
- *Cognitive schemes are general and pre-eminently abstract structures.* These structures do not apply to a particular case, but to a type of situation, in all its occurreces. They will apply to an entire class of situations.
- *Cognitive schemes are means of organization of declarative knowledge.* These pieces of knowledge are not connected to a certain usage, they present a state of affairs, not procedures. (Miclea, M., 1994, page 355)

The central objective of the teaching-learning process is the transmission and the assimilation of knowledge that should be as adequate to reality as possible, but we do not always succeed. On the one hand, the route taken by these ‘pieces of knowledge’ from the highest and most demanding level – the scholarly level – until they become assimilated by the student, is a long and laborious one.

In figure number 5 the successive stages in the transmission of knowledge are presented. The most complex level of the structuring of knowledge is the "level of scholarly knowledge". Researchers, scientists are the ones who study reality

proffessionally and with the aid of specific means, and starting from the events, objects, phenomena they study, they put forward the so-called ‘theories’, which try to ‘explain’, to transform into a text, a symbol and an artifact an overwhelmingly complex reality. In actual fact, subjectivity is inherent to such a transformation. A theory is nothing but the researcher’s own personal view about an object or phenomenon from reality.

Out of this huge corpus of knowledge, the essential must be selected in order to be transmitted to the students, as the transmission of all the knowledge is neither possible nor useful. This extremely difficult task is the responsability of the curriculum experts who select "*what they consider to be important"* out of the corpus of scholarly knowledge and they thus set up the curricular offer, placing the selected knowledge into analytical syllabuses and textbooks. Naturally, given the subjectivity of selection and the lability of the value selection criteria, *"what is considered to be important"* does not perfectly overlap with *"what is essential"*.

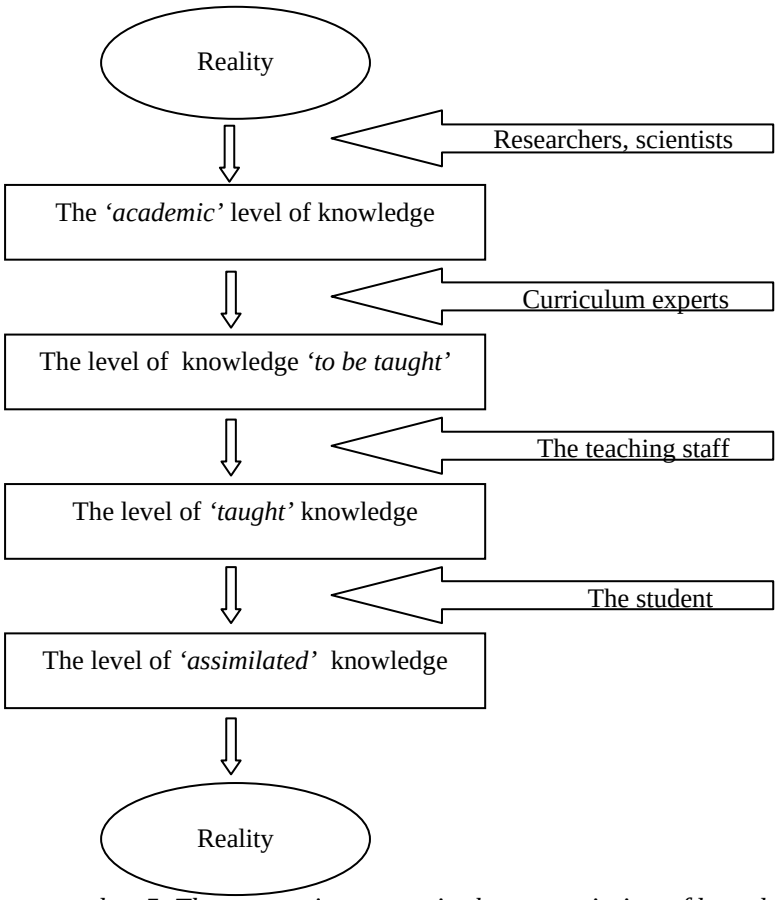

Figure number 5. The successive stages in the transmission of knowledge

This corpus of knowledge, called "the level of knowledge to be taught", considerably reduced as compared to the level of scholarly knowledge, once again undergoes selection and sorting. This time, the person to make the selection, which is again made from the perspective of "*what he/she considers to be important*" and is again subjective, is the teacher. Out of what the analytical syllabus and the textbook offer, the teacher extracts what is essential (from his/her point of view) and transmits it to the students.

The last link in this chain is the student. He/she is the one who benefits from the entire construct presented above. Yet, at the level of the student too, a drastic selection of knowledge occurs. Out of what the teacher teaches, out of what the textbook offers, the student extracts *"what he/she considers to be important"*. Practically speaking, that is what will remain in the mind of the student, a selection, a synthesis, in fact an organized structure of information, a cognitive scheme. This cognitive scheme serves the purpose of offering to the student an essential instrument for knowledge and the appropriation of reality. Reality is taken as the starting point in order to arrive at reality, yet in very many cases, the reality that was taken as a starting point no longer coincides with the reality in which the student lives, just as the information, the knowledge that the student acquires in school no longer match what he/she sees by direcly experimenting reality. This is where the central role played by the model in the didactic activity comes in. Models really assure a (mediated) knowledge of reality provided that they are constructed correctly and with full knowledge of facts. There is a risk in transmitting some models that do not correspond to reality, and that is the risk of transmitting an erroneous conception about reality to the student , due to which all his reasonings will have to suffer.

Conclusions

The central objective of the present work has been the conceptual delimitation as an initial step for the reasearch that is to follow. We have forwarded for analysis the most important concepts with which we are to operate in the future, in order to present our own opinion, our own view, with regard to the respective category. However, given the sometimes disarming diversity of the opinions of the specialists in the field of the educational sciences, consulted by way of bibliographical resources, we were at times forced to accept a middle course. The conclusions that we have reached after the theoretical conceptual analyses are structured and detailed below.

1. The majority of the categories discussed circulate, in the specialized literature, *with multiple and often ambiguous senses*. Our choice was guided by the most frequently used, common sense.

2. The term ‘model’ has invaded the scientific vocabulary with a multitude of sesnses which is an evidence of a *semantic laxism favouring confusion.*
3. The model, as a method based on analogy, *is pre-eminently a method of mediated epistemological knowledge of reality*, and its didactic usage is a particular application.
4. Didactic modelling *traditionally* considered a *‘didactic method’* by the majority of the works that we have studied, functions at a *metadidactic level* as a didactic strategy and at a *sequential level* as a didactic device, without overlooking the fact that it represents essentially a method. We may state that didactic modelling presents a *‘functional tridimentionality’.*
5. The examples that teachers give in order to illustrate a certain reality are far more important than it may seem at first sight. The situation is fairly delicate given the fact that there is no specialized work that treats explicitly of this didactic category, leaving it in fact up to the teachers.
6. The taxonomies of didactic models differ sufficiently from one author to the next; this proves the lack of a unified view on modelling. (Things stand differently in the cases of other methods belonging to the category of ‘active methods’, such as problematisation, algorithmisation, learning through detection, in which cases the ideas of the authors converge towards one and the same perspective.)
7. Reality is far more complex than its representations that are ‘modelled’ at a cognitive level, as a matter of fact the prototypical mental representations are extremely influenced by the model offered at the moment of their presentation.
8. The didactic model offered to the students by their teacher through exemplification, plays a central part in the correct formation of prototype representations and ensures the construction of cognitive schemes that are adequate to reality.
9. The results of recent research in the field of cognitive psychology tend to produce profound changes in the field of pedagogy and we are not risking too much by saying that there are signs of a fundamental change of paradigm at least in the field of the so-called "theory and methodology of instruction."

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THE INTEGRATED CURRICULUM AN APPLICATION FOR PRESCHOOL EDUCATION

ADINA GLAVA

ABSTRACT. The integration of the school disciplines content as well as of the curriculum areas is today considered as the main challenge within the field of school programs development. In the kindergarten this preocupation prolonges at the micropedagogical evel, as the preschool contents structure is roughly described in the curriculum official documents. Within the present work we will describe the practical and theoretical dimensions of the integrated curriculum, making an applicative approach at the level of the preschool education.

Starting with the second decade of last century, pedagogy assumed the concept of curriculum as a subject of debate as well as a field of sustained and systematic action. Firstly used within an educational context in 1582 in Holland, the term curriculum acquired with the years diverse meanings, from *a compulsory course of study* to *the assembly of the components of the educational process developed in and out of school*, in which children's *learning experiences* have a central place. In Romania, the term has been adopted especially after 1990, with his contemporary larger meaning. The notion of curriculum announced a new perspective towards the educational process, a new approach of the educational content selection, organization, design and presentation.

If the term itself is an integrative one, the educational practice asked by the adoption of this notion is also an integrated one, as all the components of the process act in a coherent structure for the accomplishment of certain predetermined goals (Văideanu, G., 1988, pag. 416).

Within the present work we do not intend to make a theory of the school curriculum, and not even to argue on the issue of the implementation of the term into the educational practice. Starting from the before mentioned idea of G. Văideanu, we will describe the practical and theoretical dimensions of the integrated curriculum, making an applicative approach at the level of the preschool education.

The integration of the school disciplines content as well as of the curriculum areas is today considered as the main challenge within the field of school programs development (Chiş, V., 2001). In the kindergarten this preocupation prolonges at the micropedagogical evel, as the preschool contents structure is roughly described in the curriculum official documents.

Within the last years, the conception regarding the preschool education changed dramaticly, and this change is fully reflected in the curriculum organiyation documents and their practical implementation regulations. This transformation follows the principles of the educational reform started to all the educational levels and reflects in a more effective manner the age particular characteristics of the preschool children.

In essence, the new preschool educational programme offers the teachers a larger decision power with regard to the content offer and a similar autonomy in the choice about the methodology of delivering the appropriate content. The only formal reglementation concerns the system of aims and goals with different grades of generality and complexity that act as refference elements during the development of teaching, learning and assessment process. Given these particularities, in our view, the kindergarten creates the optimal psycho-pedagogical and social context for the integrated structuring of the curriculum.

The natural need of preschool child to explore, the phsical and social environment and to gain a certain mastery on it is fully encountered by the integrated structuring of the curriculum. This is because the natural way children learn is not by accumulating knowledge from different scientific domains, but by integrating information, skills and diverse abilities arownd certain topics that raised their interest. The integrated study of reality offers the child the opportunity to globally explore different knowledge fields which are subordinated to particular aspects of environing reality.

The integrated curriculum – an innovative way of organizing the school curriculum

The recommendation of preserving a close link between the school learning experiences and real life is not new. The history of pedagogy as well as the contemporary theory of education register numerous findings regarding the danger of school detachment from the real life and its transformation into a close, self-sufficient and non-real milieu (Dewey, J., 1902, Mialaret, G., 1981, Neculau, A., 1982, Cucoş, C., 1997, Miroiu, A., 1999). Similar terms such as ccontents correlation, thematic teaching, synergic teaching, curriculum integration seem to offer the solution for overcoming this danger and efficiently prepare the individuals for their social insertion.

The integrated teaching of school subject matters implies the didactical organization and synthesis of different knowledge fields in order to create a holistic, interactive view the real world.

The curriculum integration must be understood in a double perspective: the longitudinal integration and transversal integration. The first integration perspective – longitudinal – refers to the convergence and coherence of the curriculum, seen as a sum of the learning experiences acquired by the individual during the school years, towards the accomplishment of the general educational goals and ideal. Though the longitudinal dimension of the integrated curriculum is not of our interest in the present study, we must stress that in this integrated vision, the preschool level of education is regarded as a phase complementary to primary education, a starting point of the outer family education. The vertical coherence of the curriculum is however far more presents in the contemporary educational practice then the second, transversal dimension of curriculum integration.

The transversal or horizontal integration implies the organization of curriculum in a holistic manner, both at the level of school programmes and at the level of their practical implementation.

We will analyze the principles and characteristics of the integrated curriculum, making references to their particular obiectivation into the early years education.

The characteristics of the early childhood curriculum and the curriculum integration

Generally, the integration of the curriculum implies certain adaptive processes (Chiş, V., 2001):

A. a thematic combination and its transposition into a coherent study programme;
B. the flexibilization of the timetable and of the teaching strategies;
C. the identification and the integration of new information sources.

The first adaptive process reffers to the modalities of the classical knowledge fields integration into a coherent and unitary structure, the second, to the implications of this process at the intracurricular level and the third to the extracurricular implications of the integrative approach.

The pedagogical literature describes three paradigms of curriculum integration that assure in different degrees the thematic connexions between different knowledge fields: **interdisciplinarity, transdisciplinarity and multidisciplinarity**. Each of these paradigms can be applied in the preschool curriculum integration, respecting the proportions given by the targets of early childhood education which aims at children’s general understanding of the basics of environing reality and not at the thorough study of a certain fundamental science field.

Within *the interdisciplinary paradigma*, the content of two or more study disciplines cross on common interest surfaces (*the epistemological perspective*). In the kindergarten curriculum, a subject such as "Communicating with and without words", which aims at the exercising certain ways of communicating ones thoughts

by using specific codes (verbal, nonverbal: artistic, musical, bodylanguage, proximity etc.) can be developed in an interdisciplinary manner.

The second meaning of the interdisciplinarity is given by the *pragmatic perspective* that implies the use of the solutions and findings given by different knowledge fields for the decision taking or for the projection of a certain action. A kindergarten possible subject to be structured in this manner can be "How to make a collection and what to do with it". Generally, the accomplishment of so-named transfer objectives such as "the acquisition of efficient memorisation technics" can be made through an interdisciplinary educational approach.

The multidisciplinary approach reprezents a less elaborated form of the subject matter trasfers. It implies the solving of a single curricular topic analised from the perspective of different knowledge fields. For an example, for the subject "The Autumn", the learning activities can be organized in interest centers structured on different study fields. The activities held in each center will contribute by specific means to the solving of the main subject. Within kindergarten activities, the multidisciplinary approach is best ilustrated by the project method which is more and more present in the preschool educational practice in our country. The integration of knowledge and work products that are obtained by studying a certain theme will be realized by creating a suggestive project illustration, which can be displayed on classroom walls.

The transdisciplinary integration represents a holistic approach of knowledge. The whole learning programme is organized on themes that are covered in a cross-curricular manner. A central theme assures the sequential accomplishment of the programme and the integration of diverse knowledge around it. In essence, the cross-curricular approach do not attempts to cover an only single knowledge theme. The organization of content is focused on the actions of the learner (communication, stimulus reaction, adaptation, decision-making, foreseeing, creation, transformation, demonstration, explication etc.). The informational contents, without being ignored are regarded as sources of learning experiences, which answer to children’s needs and cognitive interests. Most of the contents of the early childhood education are organized in this cross-curricular manner and the increasingly frequent use of the new project method in kindergarten implies such an integration of contents.

Transdisciplinarity grounds the learning process on reality, facilitates the transfer of knowledge in diverse contexts, but in the same time implies a sustained effort, responsibility and professionalism for the teachers as it can very easily determine accumulation of gaps, lack of thoroughness and depth in learning process and knowledge. That is why a coherent structure of the study programmes very important when the content is integrated.

Models of the curriculum integration

The field literature offers a series of models for the organization and management of the integrated curriculum. A part of them can be used in early childhood education programmes in kindergartens:

The ramificated integration model. The central element of this model is the study subject and the description of the learning experiences is made, at a first level, by considering the educational activity fields: language, mathematics, arts etc., and at a second level, by taking into consideration the personality development areas: intellectual, emotional, social, physical.

The linear integration model (hybridization model). According to this model, the curricular integration is made around a transfer objective, for example: "the development of social behaviour". Such an objective is targeted in the process of teaching different subjects.

The sequential integration model. In this model, subjects from the same knowledge field are taught in a temporal proximity, so that, though they are thought separately, teachers can facilitate the transfer of the knowledge accumulated in one field to another, by making comments, referring to learned information, asking questions, formulating interdisciplinary learning tasks.

The "absorbed" curriculum model. This model can be seen especially in kindergartens that have educational programmes focused on a particular specialization, such as musical kindergartens or foreign language kindergartens. The particularity of such a model consists in the study of diverse subjects from the perspective of a certain interest center that can be temporary or permanent. The success of such a model is only assured by its implementation along with other integration models, as its exclusive application can determine a limitation of children’s interest areas to the subjects that can be developed under the chosen central target.

The web integration model. This is the curriculum integration solution offered by the project method, which is today increasingly often used in our kindergartens. Starting from the project theme, children structure a web of themes and study resources that are correlative to the central theme. This central domain and the correlated ones are in themselves transdisciplinary themes and they will be developed as such. The shortcoming of such a model is that the multiplication of themes can go on beyond the possibilities of solving them.

The polarization model. Implies the development of a new knowledge field (which can be implemented as optional, for example), around which segments of other subject matters are polarized, in order that certain objectives to be achieved. An example in this respect can be the theme: "Story time" in which the development of communication skills and other objectives are achieved by the exploitation of the story contents from the perspective of certain classical subject matters.

In the educational practice the integrated curriculum is objectivated in compact structures that include elements of more then one of the before described models, which we clearly delimitated only for didactic reasons.

Cores of the curriculum integration

The different integration models, which we described, suggest the fact that the themes around which the content integration is made are of different types. In the kindergarten programmes the most frequent integration cores are:

- The polarization of knowledge on interest centers or general themes:

- The integration of knowledge around a scientific pole (concept, scientific research method; ex.: "Plants", "Microscope observation"
- The integration of knowledge around an applied pole (ex.: "How to care for the pets", "Plants and germination process")
- The integration of knowledge around a societal pole (social behaviours, values; ex.: "The friendship", "To be fair"
- The integration of knowledge around a personal pole (self-image development, the awareness of personal emotional feelings; ex.: "Who am I ?", "Children")

- The polarization of knowledge around a fundamental activity: buildings, a foreign language in which the tuition is made.

B. The flexibilization of the timetable and the teaching methods is a relatively easy requirement to put in practice, at least at the formal level, given the fundamental characteristic of the kindergarten educational process: the absence of constrains created by an externally imposed contents, the nonacademic knowledge, the absence of periodical rigorous programmed examination sessions, and the focus mainly on the process and not on the products of learning. Certain curriculum projection and programme development principles are still to be considered and they are mainly related to: a) the identification of the group and individuals particular characteristics and the consideration of children's specific needs and interests; b) the focus on intuitive learning tasks, which are relevant for the children according to their life experience; c) children's real involvement in the learning process at all levels: projection, decision regarding the learning methods and materials, investigation of reality.

All these general norms imply other more specific rules that will contribute to the flexibilization of the curriculum:

- The passing from an activity to the next one in the day programme must be made by the creation of natural links between ideas, knowledge domains, actions
- The learning activities can be prolonged, completed, alternated with other types of activities according to children's interests effort reserves and with other involved factors

- The learning activities must be alternated with recreation activities, indoors activities with out-doors activities.

All these characteristics will act as facilitators of the implementation of integrated contents.

D. The third applicative intervention for the implementation of the integrated curriculum is the identification and integration of new information and content selection sources others then the school manuals or other specially created sources. In the kindergarten, the absence of imposed information sources such as the manuals is theoretically an advantage, given the freedom of content selection, but in practice it proved to be sometimes a disadvantage, as many kindergarten teachers restrict children's access to sources of information considered to be school specific, or on the contrary, teachers overload the contents, creating a real superposition of preschool contents with primary school ones. The integration of new information sources do not mean the overloading of the existing programmes, but a better integration of the formal curriculum with the extracurricular contents and spontaneous educational stimulus. The creation of a partnership between the educational institution and community assures the optimal interference of these types of content.

Relevance criteria of the integrated contents

The success of the content integration in kindergarten is mainly related to the degree of content structuring into a unitary vision, according to certain objectives. The natural learning in one hand, and the rigorous programmed learning in another hand, are extremes that must coexist in an integrated curriculum. The parameters of the integrated structuring can be *the concepts to be transmitted, the skills and abilities to be created, and the applications to be made.*

Apart from this criteria of the internal harmonization, the coherence and the efficacy of the integrated curriculum is related also with its harmonization with the external factors and parameters: the world contemporary issues and the world evolution tendencies, the universal cultural values, the values of the period and of the community that must be reflected in the contents, as well as in the manner of their delivery, the general and particular expectations of the community and society. The existence of a diachronic and synchronic coherence of the contents is a fundamental requirement of curriculum projection and is once more important for the integrated contents where the variables involved are multiple.

Though, the definitions of term curriculum describe both, the meaning of a school programme and of the learning experiences, in our view the important fact is not that within the curriculum a certain school subjects list is prefigured, but the development experiences of the learner which will guarantee his optimal personal and social self-achievement.

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STUDIA UNIVERSITATIS BABEŞ-BOLYAI, PSYCHOLOGIA-PAEDAGOGIA, XLVII, 1, 2002

THE PEDAGOGICAL COMMUNICATION AND THE FORMING OF ABILITIES IN A HIGH SCHOOL

RAMONA RĂDUŢ-TACIU

The pedagogic literature has very many concerned with the pedagogic communication and, separately, some of these analize the interpersonal relations between the students, without making connections between the two aspects that assure the eficiency of didactic process.

Communication is often defined as being a relationship based on the sharing of some semnifications, again didactic communication has some factors to observe, such as:

- the factors of communication (the teachers, the students)
- the distance between these and their place in classroom
- the way of sending the message
- the code type used
- the didactic situation (lesson, debate, interview)
- the active or passive knowledge of the senders and of the receivers
- the retroactions used
- the factors of disturbing.

Beside all these, as a factor who controls the didactic communication, the teachers must
be aware that the result of communication shouldn't be only the mastering of the verbal contents. If through this verbal content they express only a certain categorical content, through the extraverbal (nonverbal) content they express attitudes; that's why, through their attitude (positive, neutral or negative), the teachers and the students establish and stop the effects of the proposed didactic comunication. In fact, the role of afectivity shouldn't be neglected because it is proved that the information received on a positive state of mind helps the forgeting.

Speaking of this we should mention that teaching means, as the psychologists and pedagogs think, the acquire and development of there abilities:

- the professional ability (or the didactic ability)
- the ability to maintain pleasant relations with the superiors (or the managerial ability)
- the ability of developing good relations with the beneficiars – the students (or the psyhosocial ability).

Beside these three abilities, we also have the "abilities" of the students:

- the scholar/peformancial abilities (the succes or the faillure)
- the interpersonal abilities (the relationships between the colleagues)
- the psyhosocial abilities (the relationship between students, between students and teacher, between the students and the school principal/manager).

As regards the first mentioned level the situation is relatively known, the abilities of the following two levels, still under go changes researches (from the pedagogic, psyhologic and social points of view).

Thus, nowadays they say that the improvement of didactic communication brings a rise of the students eficiency. The problems are not so simple, this mechanism functions by itself, taking into account the changes brought by the adolescence and the way they affect the relations of the students with the others. Especially the 9th and 10 th forms are a very difficult period when the students begin to have an image of their own person and the relations with the colleagues and the teachers are rather difficult.

Concerning the schoolmates relations, the teen-agers give up to their selfishness, specific to the age, showing that they would ask them the help in case that they need. On the base of some discussions, it revealed that 149 students justified their choice through the most importance of a known classmate's help (32 students, that is 21,4%) and also through the fact that in each moment someone need of help (30 students, that is 20,1%); 33 students them would ask the classmate's help, without argumentation why do it, whilw 34 maintain that to ask for the classmate's help is a sign of weakness or they prefer to fend for oneself, or with the parents' help as so follows from the table1:

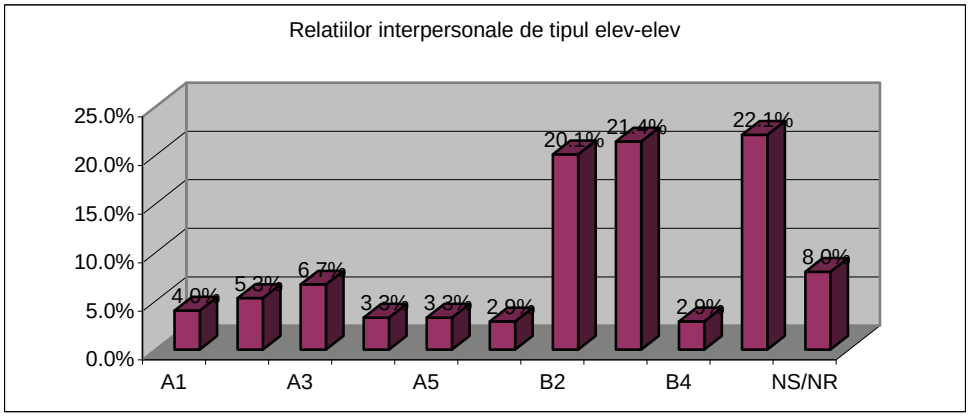
Table 1 The specific of interpersonal relations like student-student

Response code	The students answers	No.	Frequency
A1	to show you need help is sign of wecknees	6	4,0%
A2	untrusting in classmates	8	5,3%
A3	some of them prefer to fend for oneself, or with minim exterior help	10	6,7%
A4	another prefer the parents' help	5	3,3%
A5	no argumentation concerning the personal opinions	5	3,3%
B1	it's interesting to find more opinions in a problem to debate	4	2,9%
B2	**anyone may need help**	30	**20,1%**
B3	**never mind what think the others, the classmate's help is more important**	32	**21,4%**
B4	they ask for the help of their classmates	4	2,9%

	according to the situation		
B5	the negative answers, no argumentation	33	22,1%
NS/NR	no-answers	12	8,0%
Whole:		149	100,0%

The relevance of these dates increased together with their comparative analise, as how it reflected the first histograme. "Anyone need help" and "never mindwhat think the others, the classmate's help is more important" are dominant oppinions at this age. Now it is the moment when the self-acquisitance is as more important as, now in the period of teen-ager begin to outline the values and the attitudes according to some problems of life.

Histograme 1



In this context, in order to help the students the teaching-learning process can be based on a system of dinamic lessons which means to give up the elaboration and transmitting of strict didactic knowledge. Also we have to take into account the factors that make an open comunication and thier influence on the scholar succes. So, the teachers must satisfy some recquests, such as:

- to realize their role of organisers of teaching and coordinating activities of the students;
- to make the passing from the activities based on the content to those based on student;
- to change the teaching receiving process in the advising-discovering process;
- to contribute to the creation of some relations of real communication with the students based on knowing each other cooperation and real participation at the discovering of new knowledge, stressing the individual study;

- to build the teaching as an organization of knowledge stressing the practice and not the theory;
- to established the didactic recquests according to age and individual characteristics of the students;
- to be opened to their problems.

All these aspects are really importance because, at this school level, the teachers "has to face" to students initiative and pedagogic inovation, and we primarly should see the way the student's personality acts in interpersonal and group situations. That's why, any of the situational "aspects variants' count, with its own specific and inter-relations created, as we see in the next in figure 1:

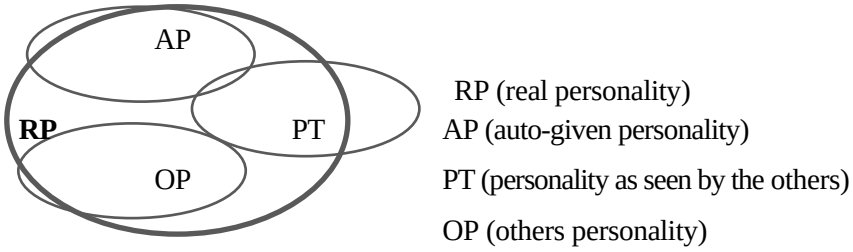


Figure 1 The situational "variants" of personality
- specific interferences -

a) RP = is the real personality with its structures, ways of manifestation, passive aspects;
b) AP = is the auto-given personality, the one he thinks he has, wants to have it or imagines that he has it;
c) PT = is the personality seen by the others;
d) OP = the others' personality as we see it and it reflects in our own personality.

As regards the last two aspects (PT and OP) we should say that image system of the parteners differentiate in consistency value and stability. So there are: complex images and/or superficial, positive/negative images, lasting images and extremely chancing images. In order to get the relation between your own image and the others' opinion (individual-group, individuals-groups), we have to analize "a tryple social-perception: your own perception, the other's perception as regard any member of the group, the group's perception as regards any of its members" (10, p.26).

In the scholar microgroup is absolutely necessary a positive psyhosocial climate to promote the instauration of the relations of cooperations, the students acting continuatly as parteners and in the sometime as parteners of the teachers.

Nicolae Radu (11, 1981), considering the relational values as personality features, proves that individual attitudes are formed in group and that's why any

educational initiative should start from here (from the group). On the other side Elena Zamfir (13, 1982) says "the way of the growing of the life quality doesn't pass only through social organization area but through individual life area and interpersonal relations."

Anyway there are three characteristic aspects of a psyhosocial microgroup

- cooperation and/or competition
- "the morality of the group"
- authority and prestige.

a) Cooperation and/or competition

Many times the eficiency and the optainage or performances and conditionated by interhuman cooperation. The eficiency of the individual is greater and his subjective perception is higher if that person is engaget in cooperation relationship than in a competitive relationship. "The cooperation assures an open relationship of parteners stimulates the orientation, toward the group, developes attitudes and behaviours based on trust, makes the common force to become to objective of the whole group" (8, page 83-84).

Kept for a longer time this cooperation develops the desire to inform and help each other.

b) "The morality of the group"

This aspect shows the trust of any individual in the microgroup he is part of.

A high moral statue determines connection of individuals to a common normative system giving the possibility of afirmation of different psyhosocial roles.

"The signs of good moral, group can be seen as regards behaviour in: the group's tendence to keep and show its unity, the minimum of separating cases; the group's ability to accomodate to the changes; the presence of socio-afective attractions, the same aspirations, positive attitudes toward the common objectives." (8, p. 86).

c) Authority and prestige genesis

The sources of authority and prestige are results of the individual's ability to solve the common problems of the group in certain situations; and they arenot a kind of personal qualities.

Generally speaking, the quality of the activity and the life of the microgroup can be seen in:

- the individualities that compose the group;
- their behaviour;
- interpersonal relationships.

Every student learns differently with his colleagues; there is a growing scale of eficiency as regards the way of learning. So, we can speak about the following cases:

- some students "copy" exactly what their colleagues do, usually they copy the learning type of the best students in their class;

- some students observe carefully what their coleagues do, analise their succes or failure and after doing this, they use only the best ideas and experiences;
- other students evaluate their own experiences and after that, they continue their learning; they test the learning situations, constantly asking: "What would happen if ...?"

In all these cases, the teachers should act differently because their role is to support learning and to help it. In doing this, the teacher should:

- project, organize and do differently the teaching act;
- help the planning of learning activities, giving further instructions where the case may be;
- stimulate the learning activity by keeping a balance between awards and punishes;
- evaluate the content of home-learning, to activate the autocontrol of home-learning activities.

Nowadays, the methodological and curricular innovation of the meanings of "learning" concept are forgothen or mixed-up. So, expressions like: "to learn something" – meaning the transmision of a certain ideatic content – or "to learn to" – transmitting the idea of getting some practical abilities – are used. But "to learn" should stress the climate, the area of acting, the totality of interpersonal relations, all these maitaining the school as an organization and institution.

Many times, the didactic activity consists of a long chain of debates that don't ever stimulate the students' mind; but there are teachers who are always in lock of time, who accept half-done answers and encourage silence.

The way of asking questions is really important for an efficient discusion but there are some others behaviours of the teachers that have the same importance, especially those that empty a certain attitude toward the student's opinion. These attitudes have like practical aim to stimulate the students' thoughts and to make them aware of their own thoughts. For doing this, the teachers should:

a) reflect on what the students said:

"I heard you saying that...", "Look what I think about what you're saying...", "This is an interesting idea, I've never thought to put it in this way...";

b) advise the students to look for alternatives or other variants:

"It's interesting what you're saying but what if this is only your point of view; how about comparing it with your colleague X's ...?",

"The student X gave us an interesting idea on this problem; what do you think about it; do you agree it or not? why?";

c) try to make it clear:

"I think it's a good idea but I'm a little confused. Can you explain it to understand it better?";

and/or d) classify the steps of thinking process.

If the teacher asks the students to express their own opinions on a subject, it is important to note all their ideas and treat them equally. On the other side if the questions are based on correct knowledge and answers, be should consider only the correct answers.

All these things should be made because, taking into account the factors involved in an open communication and their effects on scholar succes in a high school class, you have to stress:

- the valorification of the formative character of learning;
- the importance of communication in the didactice sense;
- the consideration of the teachers and colleagues as partners in a real communication;
- the forming of an eficient kind of work;
- the necessity of own-knowing and complex knowledge of the colleagues and teachers.

In the IXth-Xth forms, the students-teachers relation can be shown relatively simple answering the following questions:

1) What do you dislike about the way you communicate with your teachers during the classes?
2) Do you think it's impossible to be friends with your teachers?
3) Have you been to the cinema or in trips with your teachers?
4) In your opinion, your succes is due to your teachers?
5) Would you like to turn back time to see how your teachers were in school?
6) If your teachers were closer to you, would you still be interested in the subject they are teaching?
7) Would you like to talk about the problems you have with one of your teachers?

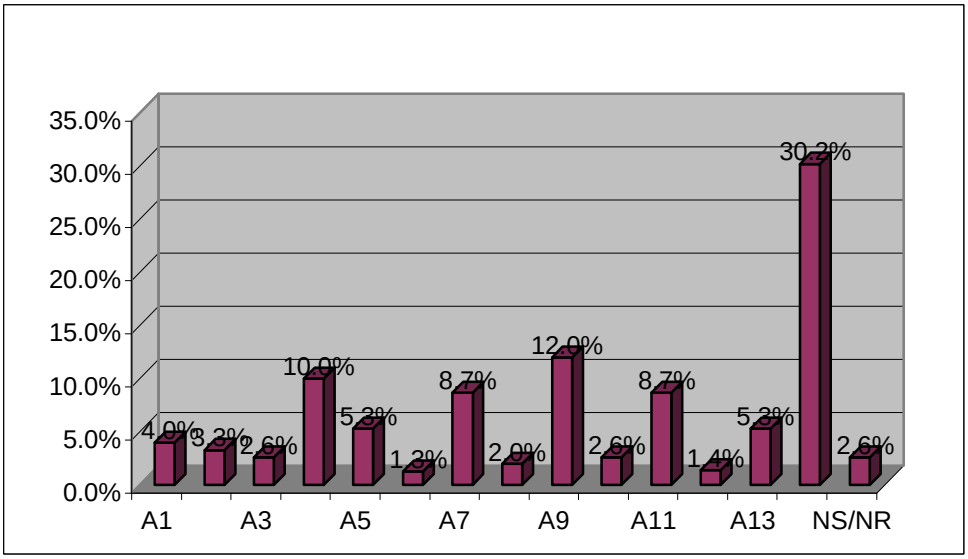
The application of this research shows the fact that the items adressed to a number of 149 student subjects in 9th and 10th grade revealed some significant aspects as it results from the tabel and histogrames that follow:

Table 2 Student's discoutent concerning the communication with teachers

Response code	The students answers	No.	Frequency
A1	the scool claims too vast	6	4,0%
A2	they do not be openly with students	5	3,3%
A3	the old mentality	4	2,6%

A4	**the teacher's subjective**	15	**10,0%**
A5	the deviation of the lesson's subject	8	5,3%
A6	the behaviour influenced by their personal problems	2	1,3%
A7	the lock of responsive according with the teen-ager's problems	13	8,7%
A8	*the teacher's tactless, the rigidity*	3	*2,0%*
A9	**non-communication in the time of courses**	18	**12,0%**
A10	the routine activity without afection	4	2,6%
A11	the excesive claims (severity)	13	8,7%
A12	the student's lock of activity	1	1,4%
A13	the exagerrated superiority of their attitude	8	5,3%
B	no argumentation	45	30,2%
NS/NR	no-answers	4	2,6%
Whole:		149	100,0%

Histograme 2



The students are discountent and practically, they do not accept the teacher's subjective (10%), as well as their rejecting according to the lock of communication manifestated as port of courses 912%) and also the magister status;

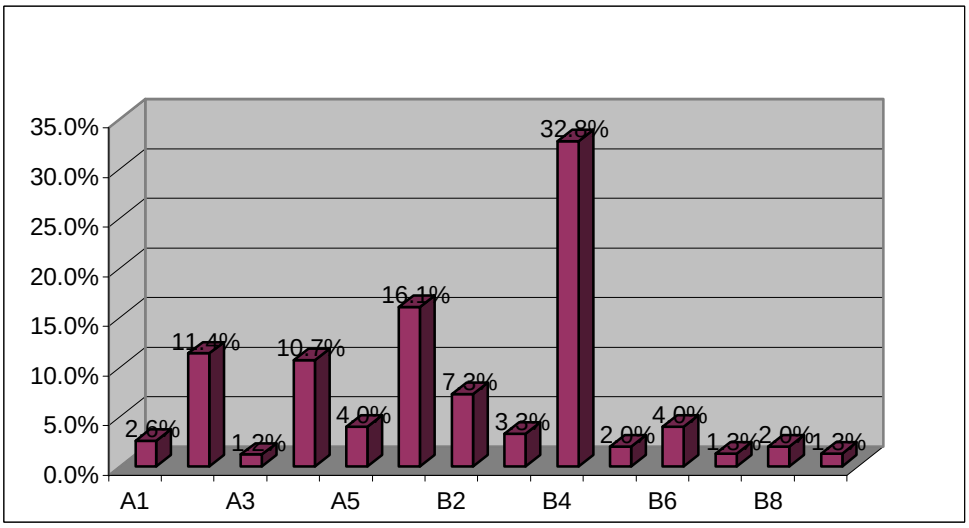
paradoxal or not, they do not raise the problem of pedagogic tact, only 2% noticing the lock of this.

In their relation with teachers dominates the essential condition of reciprocal respect; 32% mentioning it, and on the second place there is the teacher's experience of life. Hence, we should notice the modality in which the pupil try to analise and copy his master/expert.

Table 3 The interpersonal relations: teacher-student

Response code	The students answers	No.	Frequency
A1	the teacher's indiscretion	4	2,6%
A2	the gap between age and mentality (outlook)	17	11,4%
A3	the teacher like a "mentor"	1	1,2%
A4	the lock of responsive concerning the teen-age's problems	16	10,7%
A5	the excesive superiority of the teacher's attitude	6	4,0%
B1	**the experience of life and the left which teacher care offer than**	24	**16,1%**
B2	the youngness of some teachers	11	7,3%
B3	above their profession, they are human beings	5	3,3%
B4	**the essential condition is the reciprocal respect**	49	**32,8%**
B5	concerning the teacher's attitude	3	2,0%
B6	there is a relation ship with some of teachers	6	4,0%
B7	the student's manifestated interest according to the professional teaching	2	1,3%
B8	no argumentation	3	2,0%
NS/NR	no-answers	2	1,3%
Whole:		149	100,0%

Histograme 3



A significant role in the teen-ager's preocupations has the interpersonal relations and first of all the freedom of communication. They are feel conscripted by the impressive authority of the adults. The students have the fear of punishment in the case of their open thinking. So, 75 students maintain they often say "yes" even if they would say "no"; the great major of them recall the fear of eventually negative results and imposing of some restrictions.

Instead of conclusions, it can be affirmed that a optime communication teacher-student, but also an inter-communication and the utilisation of some methodes of communication, encrease the student's implication in learning, due to the characteristics elements: the intellectual tension and strong affective feelings: emotion, surprise, enthusiasm, the feeling of uncertainly, of restlessness, of amazement and paradox – the elements which raise the wish of participating to the solving of some situations proposed by the expert.

Practically,a didactic communication may stimulate a variety of attentions and consciences, contributing to the revelation of increasing:

- of some individual tendencies which must be controlled;
- of some school motivations which are imposed to be clarified;
- of some specific reactions to the some incident - situations;
- of some aptitudes of understanding adaptation to the both didactic and social situation.

So, a free communication, based on trust and reciprocal respect, can influence decisives and inclusives the school performance. From this, the teacher must be aware by the role in assurance of communicative efficiency and also of educative act and of negative elements which can influenced wrougly. Speck of full-fledged (matur) he can contribute at the inter-relation's improvement between students during the lessons as so follow:

- by the attention according the applaring contexts in transmition of different messages;
- by improvement the social perceptions due to putting up with the interlocutors;
- by helping students to detective the influence and style of medium;
- by watching the variety and diversity of adaptted speaking manner (graphics or gestuals, verbal-sonorous).

Concerning the form masters based on the relationships it means an improvement of communication, in these situations the students can find, in the teacher-person an adviser concerning the teen-ager's problems.

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THE SOCIAL REPRESENTATIONS OF MENTAL DEFICIENCIES. HOW TO CHANGE THEM?

LAURA E. ŞENDREA

ABSTRACT. This study aims to present a brief overview of the concept of mental deficiency, a review of the studies, which approached deficiencies in general, and the mental deficiency in particular, within the social representations paradigm. Finally, we will identify some modalities and techniques for changing the social representations of mental deficiencies.

Traditional and new perspectives on mental deficiencies

The concept "mental deficiency" is known under many "names", each of it having a different connotation. People, when confronted with this "situation" ask themselves if mental deficiency consists in a delay or a blockage in the cognitive development or it represents one of the types of the psychiatric illnesses. Each of these personal interpretations reflects the social representations, which are at its basis and manifest in the behaviors the members of a given society manifested in a given period of time, and some of them still manifest.

We think that it is important to understand the social evolution of this concept, as it is clear that the words we use reflect the way we think and act toward others. Sometimes names become labels; "labels like "retarded" direct our attention to specific aspects of designated people and they suggest how we should think about and treat them as well as provide a justification for action directed toward them". (Bogdan, Taylor, 1982)

In the following sentences, we will point the "evolution" of this concept/label, in different societies and in relation with the social impact on the terminology change, as it is well-known the fact that there were many abuses of labelling in the field of mental deficiencies.

In the ancient Greek society, the word "idiot" was used in order to name the individuals who were not able to take part in the social activities; but the word "idiotism" was still used by the French psychiatrist Esquirol, as late as the XIXth

century and in England it named a category within the classification of these individuals.

The European Middle Age population named constantly the individuals with mental deficiencies as "fools"; in the same period, in the Middle East they were considered as "innocents" and manifesting some divine qualities. (Das, 1998)

By the beginning of the XX th century, Goddard (1923) contributed to the development of negative attitudes towards "morons", as he considered them socially dangerous.

In recent literature, the popular terms are mental deficiency, mental retardation (in the USA, mainly), mental sub-normality and severe learning difficulties (in the UK).

We may notice how the concept was modified in relation with the different meanings associated with it, and with the importance of the IQ and how it was measured. Mental deficiency, mental subnormality and mental retardation mean the same condition defined by both intelligence and adaptive behaviour. But, one may notice that, from an historical point of view, the term was the equivalent of the "low intelligence", in spite of the efforts to include in its definition the social dimension, even if it meant "social incompetence". (Greenspan, Granfield, 1992)

By 1973, an important paradigmatic shift took place in the field of mental deficiency; according to Grossman' definition "Mental retardation refers to significantly subaverage general intellectual functioning *existing concurrently* with deficits in adaptive behaviour, and manifested during the developmental period". (apud MacMillan and Reschly, 1997)

The definition of mental deficiency, according to the American Association on Mental Retardation's book (Luckasson et al., 1992), states that: "Mental retardation refers to substantial limitations in present functioning. It is characterized by significantly subaverage intellectual functioning, existing concurrently with related limitations in two or more of the following applicable adaptive skill areas: communication, self-care, home living, social skills, community use, self-direction, health and safety, functional academics, leisure, and work. Mental retardation manifests before age 18."

Its structure is composed by three key aspects: capabilities (intelligence and adaptive skills), environments (home, work, school and community) and functioning. There are two essential elements within this new paradigm, which might operate significant changes in one's thinking.

1. Exclusively person-referenced categories based on only one aspect of the person are not sufficiently descriptive or predictive to fully characterize individuals with mental deficiency.
2. The new emphasis on actual functioning requires greater clarity in describing those adaptive skills and limitations that influence everyday living, thus resulting in the need to identify the specific adaptive skill area considered critical for coping with one's environment. (Schalock et al., 1994)

By synthesising the main ideas of this definition, Das (1998) considers that it emphasizes the way the individual with mental deficiency functions in the presence or absence of support given by the community (intermittent, limited, extensive and pervasive). For instance, when diagnosing and classifying the person, the process move away from the labelling of persons as "a person with severe mental deficiency" to the description of the person and his/her needed support, as "a person with mental deficiencies with extensive support needs in the areas of communication and limited support needs in the area of community use". (Schalock et al., 1994).

Das and Naglieri (1996) explain that one of the reasons the authors did not focus the definition on the intelligence, but on the social and community aspects, was the disputes among the professionals as far as it concerns the way intelligence is defined by the meaning of the tests' results. Consequently, the concept of "IQ" was radically changed, and individuals with mental deficiencies varry in their cognitive functions although their IQ is comparable.

Social representations of deficiencies and the psychology of the "common sense"

Each culture generates a body of representations, beliefs and rules, which allow their members to interpret the events they observe and to communicate with their fellows. This system of significances constitutes the "naïve" or the "common sense" psychology; its role consists in offering to the general public a body of "knowledge" about an unfamiliar individual, his personality, and behaviour in a specific situation and in creating the framework within which we relate and define "the other".

Many studies suggest that, in the attempt to explain the human behaviors, people tend to overestimate the characteristics of a person and neglect the external factors, which might contribute to the understanding of the reasons of a given behavior. As a result, individuals with impairments are labelled. Labelling an individual as deficient means, beside describing the characteristics of that deficiency, to overlap that characteristics with the individual, so that he/she will be seen by considering that deficiency. At his turn, the individual will adjust his behaviour in order to meet the expectancies associated with the label; consequently, the individual will be referred to the special services. Following this route, the circle is complete, as the label is reinforced and the individual is seen as "incompetent" and "dependent". Terms as "handicapped", "retarded", "idiot", "moron", etc., as they refer to the functional loss, insure the continuity and the legitimacy of specific answers, such as anxiety, fear, even horror, hostility, or behaviours marked by pity and overprotection.

By contrary, there are situations in which the group of the individuals with a certain type of deficiency is seen in a "bad light". In these situations the common

sense psychology", as it is rooted in the majority group of the "normal" population, uses strategies such as:

- "animalisation"; the group is described by the characteristics of the animals (for instance, the individuals with multiple disabilities);
- "naturalisation"; the group is seen as being close to the nature;
- "medicalisation"; the group is perceived as the source of illnesses, so that their exclusion from the society is recommended in order to prevent it to spread (for instance, the individuals with chronic illnesses, AIDS, etc.).

Even if these strategies might seem inoffensive, they constitute powerful psychosocial means to influence the way in which we approach different groups.

By using labels, we name and categorise groups, most of the time in a ridiculous way. This phenomenon is rounded up by the mass-media, which do not promote positive images of these individuals. Usually, mass-media appeals to the general public for charity, by invoking pity and sympathy, but in the same time it contributes to the maintenance of the same image of the individual with deficiency who is not able to handle its life events and who needs a constant support from the community.

The individuals with deficiencies were always represented and named as "deviant", "different", "wired", and destined to have an anomalous life. As Bogdan and Taylor (1982) mentioned, mental deficiency is "a defective concept – a concept conceived in ignorance at a time when our understanding of human beings derived from the supernatural". This idea may be very well illustrated by the words less educated people use, when referring to these individuals: "doomed", "evil's child" or "God's child", etc.

An overview of the studies on the social representations of deficiencies

Although recently debated on the field of social psychology, the social representations paradigm offers a new perspective for studying the deficiencies.

Having as a starting point the concept of "collective representation" (Durkheim, 1898), Moscovici (1961), has re-elaborated the concept of "social representation" as "a body of knowledge and one of the psychological activities which makes possible the understanding of the physical and social reality". Lately, Moscovici completes its definition by adding the idea that these systems of knowledge are shared in the subgroups, which belong to the society. (1992).

Jodelet (1997) defines social representations as "a type of knowledge socially constructed and shared, having a practical goal and contributing to the construction of a common reality to the social ensemble". Being at the crossing-point between psychological and social aspects, social representations are the result of the cognitive activities of an individual or group, in order to define their position in rapport with situations, events and social objects which draw his attention.

The most studied domains of social representations are those who rise present-days problems, subjects that draw the general public attention, such as: health, pollution, social rules, etc. But, from paradigm, there are a few studies on deficiencies, in general and on the mental deficiency in particular.

De Rosa (1997), in an analysis of the social representations' domains or social objects, in relation with developmental psychology and social cognition paradigm, mentions in the same framework studies on "mental illnesses, deviancy and handicap". It is interesting to observe this juxtaposition, as it usually happened in the "minds" and behaviours of general public too.

By the beginning of the '80s, Paicheler et collab. had studied the ways in which the general public represents the individuals with motor deficiencies, in wheelchairs. The collected data show two different representations:

- the big majority considers these individuals anxious and introverted;
- a part of the group describes them as calm, controlled and rational.

By analysing these representations, we may notice that the representation shared by the majority coincide with that of a "maladjusted" while the second one corresponds to the "personality-type". The representation of the individual who "feels good, is spontaneous, confident and has no worries", which described the individuals without this deficiency, was not attributed to the individuals in wheelchairs.

The same authors conducted another study in which were involved professionals in the rehabilitation field (physicians, ergo therapists). Their representations were relatively similar to those expressed by the general public, with the mention that the "social object" was divided in two:

- individuals who overcame the handicap
- individuals who did not overcome the handicap.

The professionals and the general public consider that there is one single way to overcome the handicap and adjust to this condition, that is a strong Ego, characterised by stability and perseverance.

In an example, Moscovici (1997) presents a "naive" model of how people represents the individuals with mental deficiencies, "disturbing as they are like us, but still different, so that we say they are "not educated", barbarian" and "irrational".

Morvan (1997, apud Mercier and Bazier, 2001), in a clinical study, collected data that suggest five categories of images which are at the basis of social representations. These categories refer to handicap, symptoms, functional aspects, relations and social maladjustment, and distribute as it follows:

- *The semiotic image*, which emphasises the physical deficiency, for instance, in the case of mental deficiency there are specific characteristics in the Down syndrome, autism and psychiatric illnesses.

- *The image of the figure "carrying" the characteristics*, based on which the individuals with deficiencies are seen as "children", even if they are adults, and unable to have an independent and autonomous life.
- *The secondary image*, or the consequences of the deficiency in terms of technical assistance.
- *The affective image*, represented by the feelings of the individual; for instance, the individual with mental deficiency lives in social isolation and is highly dependent.
- *The image of the relationships*, which is at the basis of the relationships between individuals with and without deficiencies; (for instance, the relationships with individual with mental deficiency are usually marked by feelings of fear).

There are mutual relations between these five images, and they influence each other in order to structure the social representations which are associated to the cultural models, to the ideology and the information available.

Morvan also identified five types of social representations of the deficiency:

- Social representations which are sustained and sustain concepts classifying deficiencies, disabilities and handicaps.
- Social representations which are the sources for the social exclusion, isolation and the refusal of difference.
- Social representations that associate deficiency and handicap to the technical, human, physical and institutional support.
- Social representations that reduce the deficiency or the handicap to the suffering.
- Social representations that assimilate the individual with deficiencies to the social representations of the childhood.

By combining these social representations usually results complex images of the individual with deficiencies such as "the suffering", "the institutionalised", etc.

Jodelet (1997), quoting Giami, analyses the ways in which educators and parents represent the sexuality of the children with mental deficiency. The results show that the educators attribute to these children a "savage" sexuality, "brutal and without any affection", while their parents share a "desexualised vision of their children, but full of affectivity".

In a study on the social representations of the employers who hire individuals with deficiencies and their colleagues, Mercier (1997) illustrate the following aspects:

- The employers share the same stereotyped images as the general public; deficiency means "loss" and implicitly a decrease in the abilities which are necessary to accomplish a working task.

- There are frequent associations between the individuals with mental deficiencies and those with physical deficiencies.
- The deficiency is always perceived as being progressive.
- The deficiency always reduces the work efficiency, in spite of the adjustments operated in the workplace, the initial training and experience.
- The individuals with deficiencies are usually underestimated, and as a consequence, they are hired in positions which are below there expectancies, abilities and training.
- The employers consider that they take risk when hiring individuals with deficiencies.

We need to mention that there is necessary to continue such studies on the social representations of mental deficiencies as the movement towards integration/inclusion of these individuals takes place in our society and its impact on the general public and on those involved with this category is not negligible.

Modalities and techniques for changing the social representations

Social representations are in a constant change as they are closely related to personal experiences, within a social context. A representation might change by adding information/knowledge to its structure, by changing its direction, by establishing new connections between elements or by inducing perturbations in the coherence of its elements.

Social representations are "socio-cognitive constructs" (Moscovici, 1976): cognitive elaborations (as a consequence of the symbolic construction of the reality) marked by social or collective experiences. In order to change this powerful constructs one may intervene in at least three ways:

1. An organised influence in order to re-arrange the central and peripheral elements of the representation (according to the theory of the "central junction", Abric, 1976, 1987, apud 1997).
2. To influence the group (the perspective of the group minority influence, Mugny, 1982).
3. The societal perspective (the role of the social practices in the changing of social representations, Flament, 1997).

Studies usually investigate the structure, content or the importance of the consensus in the process of the social representation elaboration; there are only a few studies that debate models of intervention, possible because of the difficulties inherent to the changing process, such as sampling, the validity/reliability of the instruments used before and after the changing process, time limits, etc.

The theory of the "central junction" and ways to change the social representations

One of the essential aspects of the social representations is their variety, so that we talk about social representations ant not about a social representation. Despite of this variety, we are able to identify a common structure that is the "central junction". According to the Abric' theory, the constituent elements of a representation are organised in a hierarchy (around the central junction or central elements), and establish relationships that define their significance and place within the representational system. (1997) The central junction is the main element, as it determines both the significance and the organisation of that representation, so that two different representations of the same social object are organised around two different junctions, which makes each of the representation specific.

Because of its stability, the central junction will resist longer to the changing influences than the peripheral elements. But, sometimes, with the re-organisation of the peripheral elements, as influenced by a given context, a social representation might change, and implicitly its central junction. The peripheral elements are indispensable to the adaptations in different contexts, as they "suffer" the first changes. (Flament, 1997)

In relation with our topic, Mugny and Carugati (1985) consider that when naming or classifying an individual as "intelligent" or "idiot", people do not use the cognitive theories behind these labels, but they refer at a **prototype** of an intelligent individual (as social representations function by using an analogical repertoire). This "imaginary" prototype of the intelligence could be broaden because of the two extremes "the genius' and "the moron" and their combination, which generates a socio-cognitive conflict "the savant idiots". Logic and mathematics might also constitute a prototype when representing the individuals with mental deficiencies (as long as school failure or success is usually evaluated in terms of this parameter).

When relating to a prototype people are not neutral, as this connection brings with it a newly positive or negative relation, and consequently it develops different behaviour patterns (Jodelet, 1992).

Even if these representations tend to be stable, for confirming their organisation, they change in order to adjust to the newly social experiences. Because the central and peripheral elements co-exist, one may characterise the social representations as "stable and dynamic, rigid and supple in the same time". Abric (1997). They are stable and rigid because the central elements are connected with the system of values shared by the group, but they are completed with the personal experiences which make them dynamic and fluid.

So that, when we "use" social representations we change them by re-structuring the peripheral elements within a new social context; but when changing

the central elements or the central junction we produce a radical change of all the elements constitutive to that representation. (Abric, 1997)

This theoretical aspects may be illustrated by a research on the changing of the representation of an ideal group (Moliner, 1988). There were presented the characteristics of an ideal group, followed by modifications of the central and peripheral elements. When an important element is modified (for instance, the absence of a hierarchy is changed with the existence of a hierarchy within the group), 79% of the sample consider that this group does not correspond to their representation of an ideal group. By contrary, when a peripheral element is modified (such as "the community of opinion") 37% of the subjects change their representation.

The social representation can be also changed by introducing a comparison between two different social objects. For instance, Poeschl, apud Doise (1999), demonstrates that the social representations of intelligence change when it is introduced a comparison between a human being and are animal. With the premise that the order effect is conducive to a different structuring of a representation, the researcher had presented the same list with items describing intelligence, but in a different order. There were changes when the subjects had to arrange first the items corresponding to the animal intelligence followed by those who described the human intelligence; these differences were explained by the comparison that was induced between the two categories.

The process of the content changing also depends on the type of information the individual has, as far as it concerns the object of that representation. For instance, in the case of the mental deficiency as a social object, the general public structures its social representations in relation to the experiences they had with these individuals, their lectures and images spread by the mass-media. At this very first level, the individual usually did not have access to an organised and scientific information, but he "collected" pieces of information from his personal environment; this informational weakness will influence the way he structures the representations he holds, and will lead to "a resurrection of the archaic beliefs". (Jodelet, 1997)

But, even in the case of shared knowledge within the socio-professional groups, the social representations differ as the sources of information are different. People do not try to look for new information, which may contradict their representation, so that there is a gap between the information they hold and the information they need in order to correctly appreciate the object of that representation. (Mugny, Carugati, 1985) We may presume that an adequate information, but which can bring something new or unfamiliar, might change a representation, as "the social incorporation of the novelty might be helped by the creative and autonomous characteristic of a social representation". (Jodelet, 1992)

When structuring or modifying social representations, it is important to take into consideration the specific interests or preoccupations of the

individuals/groups that hold them, because the individuals focus on specific objects as a result of the "pressure to inference" exerted by certain influential individuals/groups. This influence is associated with the population homogeneity, as it is also defined by the fact that the social representations are organised around the same central elements.

Doise and Mugny (1998) consider that intelligence constitutes a "strange socio-cognitive phenomenon", which is not understood by the general public, and as a consequence it is "almost supernatural". We have no doubt that mental deficiencies belong to the same category.

The minority group influence and the social practices role in changing the social representations

Some authors consider that a social representation cannot change from "the inside", but its change should be induced from the outside, within a social conflict situation, as social representations have a cognitive role, and contribute to the process of placing the individuals/groups in the social field. The life events are interpreted on the basis of what the individual or the group had previously constructed and has a significance by appealing to specific and different images, concepts and languages shared by the group. The social representations of mental deficiencies follow the same process, as a consequence of the legislations issued since the 60’s which contributed to the identification of the individuals with deficiencies as a minority group.

Social representations, opinions and behaviours can be changed through the process of social influence, which may be approached from the individual and group perspective.

Within the individual perspective, we are interested in the cognitive processes which take place at the individual level, in a specific situation. The mechanism of social influence is centred on the individual (with his cognitive abilities, personality traits, etc.), and it can be related to the theory of prototypes and cognitive scheme. Individuals are characterised by a set of traits, which are summed up into typologies; these categories facilitate the process of elaborating predictions regarding who and when will be influenced.

The processes of social influence also take place within the social interactions and negotiations between individuals as "social actors" (which put into question the issues of convergence and conformity). (Mugny, 1982)

It is well known that social status takes an important place in the process of social influence, in terms of perceived competency or authority and its role in changing social representations and social attitudes. Interpersonal attraction and the group cohesion are also important factors, as the social influence takes place in an easier way if the relationships between the members of the group are close.

In order to study these changes, Mugny describe a possible experimental paradigm, which consists in three phases:

1. A sample of subjects is evaluated in order to identify the representations of a stimulus/social object.
2. The sample is influenced (a "potential influence") by using one or more methods:
    - Direct influence (organised interactions with one or more representative individuals).
    - Video recording and presentation.
    - Lectures (for instance a lecture of a text which describes the individuals with mental deficiencies in terms of their capabilities and abilities). The lecture may be associated with an evaluation of the source' characteristics (flexible or rigid), by using lists of attributes associated to that source.
    - Free group discussions, based on the questions in the evaluation form, in order to find common solutions/answers to those questions.
    - Debates, leaded by a representative individual who will facilitate the change.
3. A second evaluation of the initial sample, with the same/different instruments in order to identify if a influence took place, in terms of changing the representation.

Each of these techniques may be used in relation with the type of sample, the influence we organise, the context and the changes we plan to take place.

In a typical experiment we have, the subjects who answer "correctly" according to the general norms, that is the majority, and the subjects who answer "incorrectly" according to the same general norms, that is the minority. The individual with mental deficiencies are seen as a minority group and they constitute a source of influences and, at the same time, they are influenced by the majority group. The professionals and parents are usually assimilated to this minority group, as they hold different opinions and social representations regarding the same social object.

In terms of consistency of their answers, this minority group, represented by the individuals with mental deficiencies, their family and some of the professionals, represents an active minority which had defined in time its specificity and had offered an alternative to the majority model. The influence of this minority is more effective if the group manifests a "synchronised" consistency (a consensus between the group answers) and a "diachronic" consistency (the same answers are systematically given in different social contexts and periods). (Doise, Deschamps, Mugny, 1999) But, the positive aspects of the group consistency or consensus also depends on the perceived rigidity or flexibility of the minority source of influence. Mugny shows that a flexible minority has more chances to induce a change than a rigid one; a rigid source is in the same time perceived as less cohesive, so that any possible influence is excluded.

Moscovici (1984), states that in the changing process the content of the minority group answers is not so important, but its behaviour significance in

relation to the majority. According to this, the minority group introduces itself as the firm "holder" of a given position, it is able to face any social test and any person who want to adhere to it might expect a significant social support. For instance, such a position may be shown by the professionals working with individuals with mental deficiencies, when establishing social interactions with a group of professionals who does not know the positive traits of these children.

But how does the majority respond or not to these social influences? There are two levels of influence, manifest and latent. Studies show that a manifest influence is difficult to obtain, but there are many latent influences, which might become manifest in time. Mugny notices that a minority influence is easier to observe when it happens in private contexts, and when it is not assessed immediately after the influence, but after some weeks. These changes manifest longer if the influenced group is involved in interactions with the minority group.

The minority group suffers also some influences during the changing process; by holding a different position it is often considered as deviant, but it suggests in the same time that the majority group behaviours are susceptible to be changed. In this way, the minority "breaks the consensus". (Doise, Deschamps, Mugny, 1999)

We may conclude that the process of social influence is complex, marked by tensions and its outcomes are not always clear and immediate. Still, the absence of explicit answers may hide a latent changing process. (Paicheler, Moscovici, 1984)

Social representations are also changed by a systematic change of the **social practices**. Flament (1997) considers that by modifying the external context of the representation, the social practices will be changed, and consequently the social representations. If the external context is perceived as irreversible, the changing process will be slower, because it is "advantageous for the cognitive economy to tolerate for a certain period of time the possible changes due to external circumstances". For instance, the integration/inclusion of the children with mental deficiencies (a change in the external circumstances of the representations), might not induce changes of the central elements in the representations the teachers hold, as there is the time perspective, which means that the implementation process will take place slowly.

Conclusion

This paper has presented some theoretical issues concerning the social representation paradigm applied to the individuals with mental deficiencies and three possible ways to change the social representations. There were two main reasons which had underlined this approach: firstly, there are many studies on how the social attitudes towards these individuals are structured and may be influenced, while there are only a few studies within the social representation paradigm and secondly, we had noticed a significant change in the Romanian educational policies

towards these individuals which will not be without any echo in the way the general public and professionals perceive this "social object".

Of course, there are other topics that may be added, such as how social representations may be changed within the paradigm of linguistic repertoires and discourse, as they manifest within a communicational context.

The concept of mental deficiency has also changed and its newly definition is more comprehensive than the older ones. Still, a big majority of the professionals tends to diagnose and intervene within the traditional approaches, and contribute in this way to the promotion of the same old social images of the individual with mental deficiencies.

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THE PROPOSALS OF EVALUATION IN THE FRAME OF THEME "OXIDES"

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REZUMAT. Lucrarea de față experimentează un set de probe de evaluare şi fişe experimentale cu aplicații la tema "Oxizi" la nivelul clasei a VIII-a, la Colegiul Tehnic de Construcții "Anghel Saligny" Cluj Napoca, în anul şcolar 2001 – 2002.

În experimentul didactic efectuat au fost cuprinşi elevii din două clase a VIII a A şi a VIII a C, prima clasă fiind clasă experimentală şi a doua, clasă etalon. Experimentul didactic a fost precedat de aplicarea unor probe de evaluare inițială cu rol dublu : testarea nivelului celor două clase, precum şi determinarea unor diferențe de nivel în cadrul aceleiaşi clase. Începând cu testul inițial şi cu cel final s-a realizat un progres şcolar la ambele clase. Aplicarea diferitelor metode a ținut seama de resursele psihologice a claselor; s-a folosit o activitate diferențiată pe grupe de nivel, ceea ce a permis fiecărui elev să "construiască" noua cunoaştere .

Introduction:

The evaluation constitutes a complex process "destined to measure and to estimate the outcomes value of educational system, the efficiency of means, of conditions and of operations used in unfolded of activity, comparing with the proposed objects talking decisions for the improvement of the activity in the next levels". (Wagner, 1998)

The evaluation of learning teaching process is a component activity of didactic technology, beside design, achievement and is followed by the regulation (auto regulation) witch is interrelates witch the evaluation. It is important for us to apply a continue evaluation in learning-teaching process, an evaluation centered on the operational objects. (Daro Nuttin 1990)

Bates show that: "Supposing our objectives are more important than the essence which we are teaching, it′s necessary to identify especially those process

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and activities which are included in experimentally teaching. This will determine a better evaluation". (Naumescu, Banc 2000).

In the first figure are indicated the levels experimental evaluation.

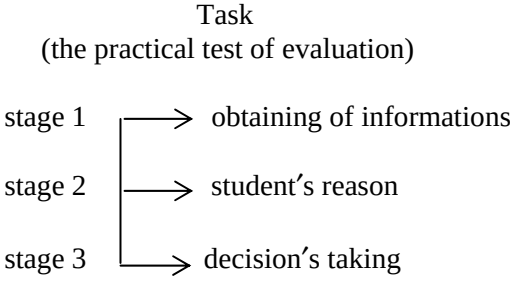

Fig. 1 The stages of experimental evaluation

Concerning the proceeding of practical evaluation, it must be planned before, for being useful:

a) What do we evaluate ?
b) When do we evaluate ?
c) Whom do we evaluate ?
d) Howe do we evaluate ?

Giuntini J.C. from Montpelier University remarks that the evaluation technics are conditioned by the habits, which the student has, existing for important qualities:
(Riviere, 1991)

1) the students to be able to build his own information;
2) the students to be able to auto evaluate correctly himself;
3) the students to display effective his information;
4) the students to demonstrate creativity.

The pedagogical research

The pedagogical research concerning the pupils from VIIIth A classroom (the experimental class) and VIIIth C classroom (the standard class) – had been effected at "Anghel Saligny" Colegium from Cluj-Napoca, in the academic year 2001 – 2002.

The experimental data during the first semester are following:

Initial test (1) – for experimental class and the standard class for the group with level I

Nr. Crt.	**Subject**	**Score**
1.	You are given next chemicals formula: Na_2O, $Mg(OH)_2$, H_2SO_4, Al_2O_3, KOH, HNO_3, $Al_2(SO_4)_3$, N_2O_3, HCl, SO_3, H_2, Al, Cl_2O_7, P_4, Pb. a) Show the simples or compounds substances. b) Name the oxides and specify the oxides category	1,5 p 1 p 1 p
2.	Write the chemicals formula for: a) kalium oxide b) calcium oxide c) chrom oxide (III) d) sulphur trioxide	1 p
3.	You are given the equations of chemicals reactions: a) $4Li + O_2 \rightarrow 2 Li_2O_2$ b) $P_4 + 5 O_2 \rightarrow 2 P_2O_5$ c) $Mg CO_3 \rightarrow Mg O + CO_2 \uparrow$ d) $Cu O + 2 HNO_3 \rightarrow Cu(NO_3)_2 + H_2O$ Indicate the type of chemicals reactions and identify the oxides	1 p
4.	Propose two obtaining methods for: a) Ca O b) CO_2 Write the equations of chemicals reactions	1,5 p
5.	Write the chemical formula for an oxide that in reaction with H_2O colors the red paper litmus in blue. Motivate the answer.	1 p
6.	Write the chemical formula for an oxide that in reaction with H_2O colors the blue paper litmus in red. Motivate the answer.	1 p
7.	How many H_2SO_4 solution 40% is necessared for the reaction with 510 g Al_2O_3 ($A_H = 1$; $A_S = 32$; $A_O = 16$; $A_{Al} = 27$)	1 p
TOTAL 9 p + 1 p = 10 points		

TABLE 2

Initial test (1) – for experimental class and the standard class for the group with level II

Nr. Crt.	**Subject**	**Score**
1.	You are given the chemicals formula: CaO, NaOH, HCl, CO_2, Al_2O_3, NaCl, K_2O, SO_2. a) Show the oxides. b) Name the oxides. c) Specify the metallic or nemetallic nature for the elements in the oxides composition	0,5 p 1,5 p 1,5 p
2.	Write the chemicals formula for: a) natrium oxide b) iron oxide (III) c) whater d) magnezium oxide	1 p
3.	You are given the equations of chemicals reactions: a) $4Al + 3\ O_2 \rightarrow 2\ Al_2O_3$ b) $S + O_2 \rightarrow SO_2$ c) $Ca\ CO_3 \rightarrow CaO + CO_2\ \uparrow$ d) $MgO + H_2SO_4 \rightarrow Mg\ SO_4 + H_2O$ 1) Identify the type for each chemicals reactions 2) Identify the oxides 3) Identify the equations that represent the methods at oxides synthetisis.	0,4 p 0,6 p 0,5 p
4.	Composite the color of litmus paper and the color of phenolphtaleina in the acid medium, in the base medium and in the acid medium and in the neutral medium	1,5 p
5.	Complete the equations of chemicals reactions a) $CaO + H_2O \rightarrow$ b) $SO_3 + H_2O \rightarrow$ c) $MgO + HCl \rightarrow MgCl_2 +$	1,5 p
6.	How mach Ca is necessary for the obtain 5,6 g CaO? ($A_{Ca} = 40$, $A_O = 16$)	1 p
TOTAL 9 p + 1 p = 10 points		

Time : 45 minutes

TABLE 3

The progress test 1 – for experimental class and the standard class for the group with level I

Nr. Crt.	**Subject**	**Score**
1.	Define the oxides	2 p
2.	Indicate one exemple for metallic oxides and the exemple for nemetallic oxide for the general formula: a) EO b) E_2O_3 c) EO_2	3 p
3.	Complete the symbols to the: a) metallics oxides : Na_2 ……; …… O b) nemetallics oxides: N_2 ….. ; ..... O_3	2 p
4.	Ilustrate two metallics oxides and two nemetallics oxides	2 p
TOTAL 9 p + 1 p = 10 points		

Time : 10 minutes

TABLE 4

The progress test (2) – for experimental class and the standard class for the group with level II

Nr. Crt.	**Subject**	**Score**
1.	Complete the definition of oxides : The oxides are substances …… of …….. with …….. other elements …… or ……	1 p
2.	Write oxides formula that contain the elements : Na^{I}, Ca^{II}, Al^{III}, C^{IV}, P^{5}, S^{VI}	3 p
3.	Underline red color the formula of metallies oxides and with blue color the formula of nemetallics oxides : SO_3, Fe_2O_3, SO_2, CaO, SO_3	3 p
4.	Indicate the acid oxides and the base oxides: Na_2O, CO_2, MgO, SO_2, CaO, SO_3	3 p
TOTAL 9 p + 1 p = 10 points		

Time : 10 minutes

TABLE 5
The final test (1) – for experimental class and the standard class for the group with level I

Nr. Crt.	**Subject**	**Score**
1.	Write the chemicals formula of the oxides: a. nitrogen penthaoxide b. phosphorus trioxide c. carbon monoxide d. stanium oxide (II) e. zinc oxide f. clorine heptaoxide	1,5 p
2.	Indicate the oxides and specify: the chemical formula the name, the ratings after composition: HNO_3, P_2O_5, CuO, NaOH, SiO_2, NaCl, CaO, H_2SO_4, Al_2O_3,	1.5 p
3.	Solve the scheme: I. C ↓ $CaCO_3 \rightarrow CO_2 \leftarrow Na_2CO_3$ ↑ H_2CO_3 II. $\rightarrow K_2O \rightarrow KOH$ K ↓ KCl	3,5 p
4.	Describe a chemical feature for an oxide. Indicate: a. the name of experiment b. the device and the laboratory tools c. the reagents d. the way to work e. the experimental observations g. the equations of chemicals reactions	1 p
5.	210 g mixture with 20% calcium oxide and the rest – copper –is treated with chlorum acid . Calculate: m H_2O	1,5 p
TOTAL 9 p + 1 p = 10 points		

Time : 45 minutes

TABLE 6

The final test (2) – for experimental class and the standard class for the group with level II

Nr. Crt.	**Subject**	**Score**
1.	Write the chemicals formula for: a. litium oxide b. iron oxide (III) c. magnezium oxide d. sulphur dioxide e. carbon dioxide f. lead oxide (II)	1,5 p
2.	You are given the chemicals formula: FeO, Na_2O, SO_3, HNO_3, Al_2O_3, K_2SO_4, CaO; a. underline the oxide b. name of the oxides	1,5 p
3.	Complete the equations of chemicals reactions: a. S + …….. SO_2 b. $MgCO_3$ …… + $CO_2\uparrow$ c. Ca + O_2 …….. d. CuO + H_2SO_4 …….. + …… e. CaO + H_2O …….. f. …… + H_2O H_2SO_3 g. CO_2 + $Ca(OH)_2$ $CaCO_3\downarrow$	3,5 p
4.	Describe a chemical feature for an oxide. Indicate: a. the name of experiment b. the device and the laboratory tools c. the reagents d. the experimental observations e. the equations of chemicals reactions	1 p
5.	48 g Mg reactions with oxygen. Calculate the mass of the magnesium oxide. (A_{Mg} = 24, A_O = 16)	1,5 p
TOTAL 9 p + 1 p = 10 points		

Time : 45 minutes

The processing and the interpretation of the results

Table 7

The results of the initial test at the group I A (14 pupils) and the group I C (18 pupils).

Mark	Pupils number		%		M	
	I A	I C	I A	I C	I A	I C
1.	-	-	-	-	8,78	8,55
2.	-	-	-	-		
3.	-	-	-	-		
4.	-	-	-	-		
5.	-	-	-	-		
6.	-	-	-	-		
7.	2	3	14,28	16,66		
8.	3	6	21,42	33,33		
9.	5	5	35,71	27,77		
10.	4	4	28,57	22,22		

Table 8

The results of progress test at the group I A and the group I C.

Mark	Pupils number		%		M	
	I A	I C	I A	I C	I A	I C
1.	-	-	-	-	9,00	8,66
2.	-	-	-	-		
3.	-	-	-	-		
4.	-	-	-	-		
5.	-	-	-	-		
6.	-	-	-	-		
7.	1	2	7,14	11,5		
8.	4	7	28,57	38,88		
9.	3	4	21,42	22,22		
10.	6	5	42,85	27,77		

Table 9

The results of the final test at the group I A and the group I C.

Mark	Pupils number		%		M	
	I A	I C	I A	I C	I A	I C
1.	-	-	-	-	9,14	8,83
2.	-	-	-	-		
3.	-	-	-	-		
4.	-	-	-	-		
5.	-	-	-	-		
6.	-	-	-	-		
7.	-	1	-	5,55		
8.	4	7	28,57	38,88		
9.	4	4	28,57	22,22		
10.	6	6	42,85	33,33		

Table 10

The results of the initial test at the group II A (8 pupils) and the group II C (13 pupils).

Mark	Pupils number		%		M	
	II A	II C	II A	II C	II A	II C
1.	-	-	-	-	6,75	6,15
2.	-	-	-	-		
3.	-	1	-	7,69		
4.	1	2	12,5	15,38		
5.	1	1	12,5	7,69		
6.	1	3	12.5	23,07		
7.	1	2	12,5	15,38		
8.	4	4	50	30,76		
9.	-	-	-	-		
10.	-	-	-	-		

Table 11

The results of the progress test at the group II A and the group II C.

Mark	Pupils number		%		M	
	II A	II C	II A	II C	II A	II C
1.	-	-	-	-	6,87	6,23
2.	-	-	-	-		
3.	-	1	-	7,69		
4.	1	2	12,5	15,38		
5.	1	1	12,5	7,69		
6.	1	3	12.5	23,07		
7.	1	2	12,5	15,38		
8.	3	3	37,5	23,07		
9.	1	1	12,5	7,69		
10.	-	-	-	-		

Table 12

The results of the final test at the group II A and the group II C.

Mark	Pupils number		%		M	
	II A	II C	II A	II C	II A	II C
1.	-	-	-	-	7,00	6,38
2.	-	-	-	-		
3.	-	1	-	7,69		
4.	-	2	-	15,38		
5.	2	2	25	15,38		
6.	1	1	12.5	7,69		
7.	1	2	12,5	15,38		
8.	3	3	37,5	23,07		
9.	1	2	12,5	15,38		
10.	-	-	-	-		

Conclusions:

Table 13

The situation of the averages at the initial test and the final test for VIIIth A.

The group	Initial test	Final test	The progress
I A	8,78	9,14	0,36
II A	6,75	7,00	0,25

Table 14

The situation of the averages at the initial test and the final test for VIIIth C.

The group	Initial test	Final test	The progress
I C	8,55	8,83	0,28
II C	6,15	6,38	0,23

In conclusion we can assert that the active methods stimulate the pupils interest for chemistry.

We can consider the evaluation process as a principal activity of didactic technology. The existence of "absolutely" quantitative evaluation in learning – teaching – process seems to be an "utopia", evaluation which refers both teacher's activity as a part of different instructional sequence.

The teacher's evaluation gets special valences when it's accompanied by autoevaluation, which is reflected through feed-back's achievement. A good teacher will know exactly how he realized the evaluation tests, centered on the operation goals. So, the activity evaluation (autoevaluation) of a high school teacher is interrelated with the pupils activity evaluations. This evaluation process must be more qualitative than quantitative.

It's important for pupil to understand the concept during the class so that he can build himself the new information being guided by teacher.

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POSTER DRAWING TO DETECT THE CHILDREN'S OPTIONS ON LEARNING PHYSICS

KOVÁCS ZOLTÁN[1]

ZUSAMENFASSUNG. Im ersten Teil des Artikels unterbreiten wir einen Vergleich zwischen dem alten und dem neuen Schulprogram der Gymnasiums 6. Klasse für Physik. Weiter werden die Kenntnisse und die Interesse der Schüler mittels der Postermethode untersucht. Die ausgewählte Methode bietet den Schülern die Gelegenheit, sich frei auszudrucken. Die Methode wurde auch in die Untersuchung des Grads der Interesse für die Experimenten verwendet.

Keywords: poster, drawing, desired; Physics, knowledge; assess; experiment, motivation

Introduction

In the first part of our paper we compared the requirements, the aims and the contents of the old and the new Physics curriculum used for twelve years old children. By using the poster-drawing method we try to establish which are the most interesting and desirable issues of the content in the pupils' opinion. Similarly, we tried to establish which of the Physics experiments are considered the most interesting.

I. Comparative analysis of the 6th grade Physics curricula

We have drawn a comparison between the old [1986] and the new [1996] Physics curriculum for the 6th grade concerning the following criteria:

- The amount and quality of the teaching matter;
- The compulsory and the optional content;

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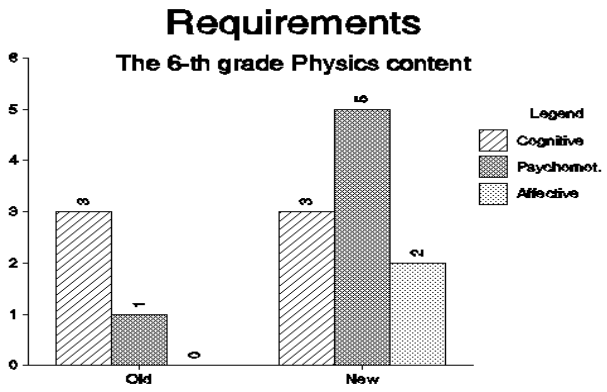
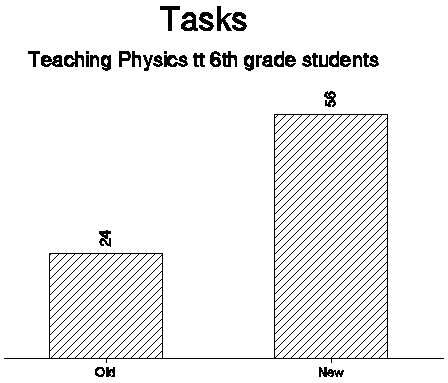
- The language of the difficult content (scientific, symbolic, iconic), its frequency and the applications that follow each theoretical item (the problems given to be solved);
- The motivational elements of learning.

The comparison led to the following conclusions:



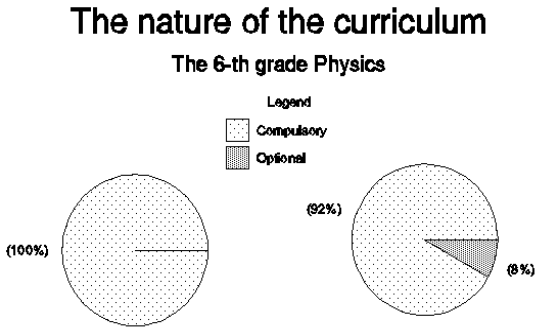
1. The new curriculum offers a larger amount of tasks and knowledge than the old one; in addition to that, it also presents transdisciplinary objectives (skills and abilities).



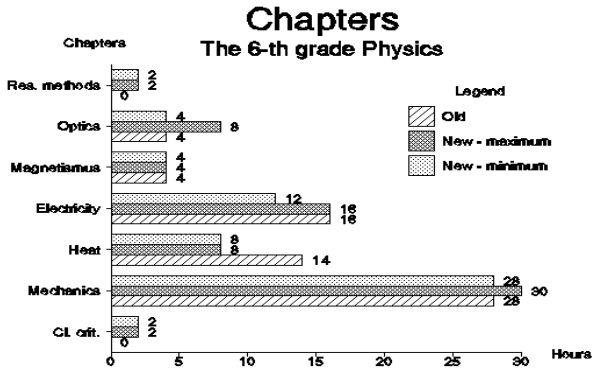
2. The notional content of the new curriculum is nearly similar to that of the old one (it consists of about 130 learning units, 2 per lesson in average); in the new

curriculum 11 units (8%) are optional. The old curriculum did not contain any optional issues.

The objectives of the new curriculum are twice as many than those of the old one, and they refer to the following areas:
- Knowing and understanding;

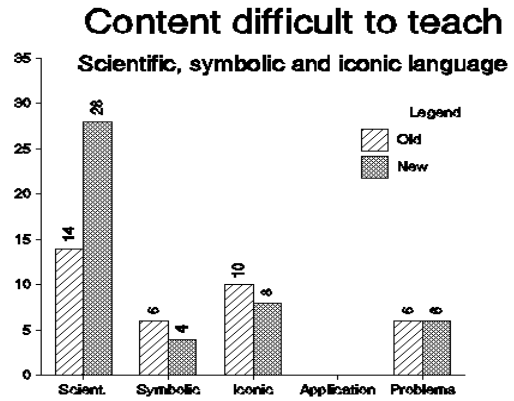


- Communication;
- Physics and life;
- Experimentation, investigation/discovery;
- The nature of the scientific imagination.



As compared to the old curriculum, the new one has new issues (such as classification criteria and research methods) and a certain part of the content is new. However, in the chapter on thermodynamics the state transformations are missing and in the chapter on electricity neither the electrostatics nor the chemical

effect of the electric current are treated. On the other hand, a number of new issues were introduced: the electric voltage and the intensity of current, the reflection and refraction of light, the lens and the forming of the image on them.



3. The number of the difficult scientific terms in the field of scientific language increased. The new curriculum requires from the students a higher level of intellectual work in the following activities: classification and ordering criteria, drawing of conclusions based on the observations of Physics phenomena, defining the laws. The student should be able to draw and analyze charts, to make the difference between homogenous and non-homogeneous bodies, real and imaginary images of mirrors and lenses, they also should be able to evaluate measurement errors, and must be familiar with scientific research methods. There is a large amount of complex knowledge much too difficult for students of this age, such as: the nominal parameters of various devices, electric voltage, light refraction, lens, real and imaginary images.

4. However, we have to admit that the learning motivation increased on account of the included elements and experiments based on real life.

II. Testing the desired content of 6-th grade Physics through poster method at the end of a school year

At the end of a school year in a revision lesson at the 6-th grade we wanted not only to evaluate the students' amount of knowledge on Physics but to test their

scientific language abilities as well, the quality of the group work (roles, taking decisions, presenting of different opinions, etc.) through the poster method. Students have to draw posters that must contain those issues they remember from the Physics lessons. From the beginning of the year the 36 students aged between 12-13 years (girls and boys alike) were organized into groups of four, being allowed to decide upon the group they would join in. Every group received a large sheet of white paper (size A0), a worksheet and colored pencils. They were allowed to cooperate, discuss the assigned tasks, but each group was isolated from the others. Each group received a certain task: explain to a foreign friend who cannot speak their language through drawing (pictures, formulas, charts etc.) what they have learnt at the Physics lessons during the year, what the most interesting things were, things they are still fond of. Even matters not included in the curriculum were allowed. The teacher's role was only that of a supervisor, but university students who made their in-service training in the school were there as well. The effective working time was a little more than half an hour.

In this paper we present only the amount of knowledge and the interests that were mirrored by the poster drawings. The sociometry results are interesting only for the teacher who may get to know the students better. We presented the drawn elements according to groups and chapters. The conclusions were presented in charts as well.

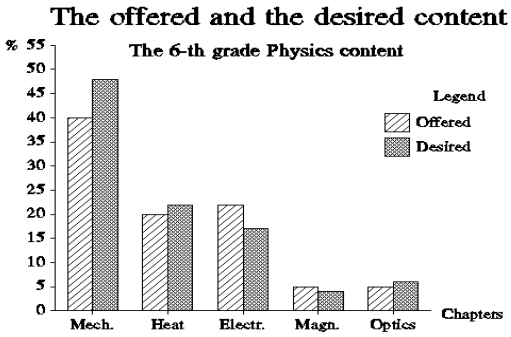
1. The knowledge and the interests appear on poster drawings.

According to their type, the distribution of drawings was as follows: theoretic problems 30% (formulas 13%, charts 4%, units of measure 13%), experiments 60% (directly related to the content 36%, devices 24%), problems 1%, other 9%.

2. The level of the groups

At each group we followed the frequency of formulas, charts, units of measure, experiments, devices, problems and other issues in order to evaluate the knowledge and the interest level of the group. Except two extreme groups all the others had the same level of knowledge. Due to corrections made by their group-fellows we found no mistakes in the drawings.

3. The frequency of the knowledge units:



In every group we counted the number of formulas (28), charts (10), units of measure (30), experiments (85), devices (55), problems (2), and other issues (20). The absolute number of these knowledge units fits quite accurately their distribution on the curriculum, reflecting at the same time the interest of the students in Physics.

4. The knowledge distribution related to different chapters (Mechanics 48%, Heat 22%, Electricity 17%, Magnetism 4%, Optics 8%, other things 3%) are in good accordance with that of the curriculum. A larger tolerance between the offered (by curriculum) and the desired (by student drawings) content can be observed in Mechanics (+8%), and Electricity (-5%).

We can thus conclude that the new Physics curriculum for the 6-th grade brings higher level requirements in every field than the old one. We can draw the similar conclusion in the case of other curricula as well. This leads to a greater exigency in preparing new teachers (both in their pre-service as in their in-service period), in textbook writing and other fields as well. We may point out that during teacher forming and training activities a lot of effort is put into adjusting them to the required level. The students' options as shown by their posters can offer a large amount of information for curriculum makers and textbook writers.

III. Physics experiments made in a holiday campus[2]

In the study campus that took place at Şuncuiuş (Bihor country) organized by the Hungarian Science and Technology Association in Transsylvania (EMT) with the head office in Cluj, one day was dedicated for Physics experiments made in open air. These experiments were made by campus students under the authors' supervision on the 21st of June 2001.

1. The pre-knowledge assessments

Initially we assessed the students' knowledge on Physics for different ages. The students had to draw posters with everything they remembered they had learnt in the Physics class. The results are presented in Tab. No. 1. We used (underlined) bold fonts for the topics and the grade in case when the same idea appears more times.

Table no.1

	Chapter	Topic (grade)
1.	Mechanics	sound propagation in different mediums (6,7); sound in a shell (6,7); **weight and free fall (Newton and the apple)** (6,7, 9, 11); propagation of the interaction with Newton's pendulum (6,7); a ball thrown by hand (6,7); inertia in a braking bus (6,7); the shape of a raindrop (6,7); waterfall (6,7);
2.	Heat	thermo-dilatation of water (6,7); water boiling (6, 7); the circuits of water in nature (6,7); the temperate climate in watered region (6,7); **tornado** (6, 7, 9, 11); skating (6,7);
3.	Electricity and Magnetism	magnets interaction (6,7); **lightening (stroke of lighting in a raven being connected to**

[2] KOVÁCS, Z.—NAGY, CS. (2001)

		the ground) (6,7, 9, 11);
4.	Optics	**rainbow (double)** (6,7, 9, 11); Fata Morgana (6,7); refraction on the diver's eyeglass (6,7); interference on oil film (9, 11)
5	Structure of matter	
6.	Astronomy	meteor (6,7)
7.	Geophysics	volcano (9, 11)

Some inscriptions collected from posters:

- A wonderful rainbow is arched on the East ceiling.
- The soil is a better sound conductor than the air, thereby the Indians hear the clatter of hoofs by putting their ear on the ground.
- The water at 4°C has the greatest density, that is why it goes down, and while the river is frozen fish live happily in the deep.
- The diver can see the fish bigger through his glasses.
-While listening into a shell we do not hear the noise of the sea, but that of the amplified pulse of our ear artery.
- Caloric capacity of seawater is large, that is why it becomes warm later.

2. Experiments

The students made nearly 50 experiments[3]. Some of the experiments were individual ones, others were made in groups. Explanations and applications related to the experiments were given as well. Table no. 2 presents these experiments. The bold fonts mark those experiments that appear on the evaluating posters the next day. On the posters they had to present the experiments they found most interesting and on which they were fond of. The brackets contain the grade of the student.

[3] JUHÁSZ, A. (1992-1996)

Table no. 2[4]

	Chapter	Topics that contained matters the students were fond of
1.	Mechanics (18)	**Reflex-time measurements with a falling thick** (7); pulley; force momentum; ball and bulb in weightlessness; the smoke-ring shut the fire; the shape of the falling ball on impact with the ground**; jet propelled engine** (6, 7); hydraulic brake model; Descartes' diver; **the sinking math-head** (7); barometer; Ping-Pong ball in a funnel; pulveriser made of straw; monochord; whistle; measuring the sound speed by resonance;
2.	Heat (5)	Brownian motion in a jar; crushing of a beer can with atmospheric pressure; **boiling at low pressure** (7); **produce the soap films and bubble using a metal frame** (7, 11);
3.	Electricity (9)	Electrifying and interacting between straws; visualizing the piezo-electricity with a phase-pencil and a rubbed can; electroscope made from a cup; the Bézard's compass; **compass made from a razor blade** (8,); **electromagnetic force** (9); **electric engine made from a glazed copper conductor** (6, 7, 9, 11); **the magnetic field of electric conductors** (9);
4.	Optics (16)	**solar eclipse in a shoe box** (6, 7); camera obscura; **to determine the diameter of the Sun with a camera obscura** (7, 9); Kepler's telescope; **Newton's telescope** (7); microscope; total reflection; **Newton's disc** (7); polarization of light; defectoscopy through polarization; **experiments with laser** (7): **diffraction grating** (11); **diffraction by transmission and reflection** (11); **Young interference** (11); **Michelin's interferometer** (11); **interference with a needle point** (11);

[4] KOVÁCS, Z. (2001-2002)

5	Structure of matter (2)	**To determine the base radiation with Geiger-Müller's detector** (7); **the activity of radioactive phosphorus** (7);

Conclusions

The poster method offers a pleasant way to evaluate the students' level of knowledge as well as that of the content's they prefer. The revision class is made in a pleasant and active way at the end of a school-period. We noticed that at this age Mechanics is much more preferred to Electricity. Table no 2 presents clearly those contents of Physics which represent a matter of interest for the students and are the most attainable for this age group.

Acknowledgement

We are grateful and we would like to thank for the help offered in carrying out our investigations to Nagy Csilla[5], Popescu Eugenia[6] and Predescu Constantin[7].

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STUDIA UNIVERSITATIS BABEŞ-BOLYAI, PSYCHOLOGIA-PAEDAGOGIA, XLVII, 1, 2002

STUDENTS AND TEACHERS' COMPETENCY TO PERFORM EXPERIMENTAL ACTIVITIES

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RÉSUMÉ. La compétence des étudiantes et des enseignants de réaliser des activités expérimentales. Le travail présent annalyse des aspects de la formation initiale et continue pour la carrière didactique en Roumanie, aux disciplines Physique et Technologie, insistant sur la compétence des enseignants et des étudiantes d'utiliser l'éxperiment didactique et la recherche dans la pratique didactique. Il décrit la recherche constatative qui a eu comme objectif la mise en évidence des troubles fonctionnelles qui aparaissent dans la pratique didactique, en ce qui concern l'utilisation de l'éxperiment didactique et de la recherche et l'identification des causes. Les sujets questionnés sont des enseignants, des étudiantes et des élèves. Le questionnement s'est réalisé par écrit. Les réponses des sujets questionnés ont amendé le curriculum actuel et menent les auteurs à la conclusion qu'il faudra réconsiderer non seulement le curriculum didactique mais aussi le curriculum académique.

The National Curriculum for Compulsory Education specify the need of developing pupils' abilities to investigate: "Developing the abilities to experiment and explore/investigate reality by using specific instruments and procedures". In school curricula this requirement is constantly specified in the objectives of Sciences, Physics, Chemistry and Biology (subjects that are part of the "Mathematics and Sciences of nature" field).

Naturally, the question is whether the need of developing pupils' abilities to explore/investigate reality experimentally is supported by teacher training process. In this respect we should take a look at pre-service and in-service teacher training curriculum.

In order to see the way that initial training develops students' competency to propose their pupils experimental investigating activities we have analysed the following issues:

- The initial academic training of students at "Babeş-Bolyai" University (Physics Faculty and Chemistry and Chemical engineering Faculty) as well as at the Technical University (Electronics Faculty and Mechanics Faculty). We have identified the courses that include laboratory activities for main subjects or

optional subjects. Thus we have determined the weight of the laboratory in the training process. We have also studied the content of the laboratory guide-books in order to assess the structure of the activities that students are required to perform;

- The initial teacher training curriculum (the so called "didactic module") at "Babeş-Bolyai" University. It includes two distinct components. On the one hand it is the initial training which is carried out through Psychology, Pedagogy, Didactics and optional subject courses and seminars. On the other hand it is the teaching practice carried out in different schools. The initial teacher training carried out in faculty does not involve laboratory activities for any of the subjects we have mentioned above;
- The programmes offered by the institutions involved: university, Teacher's House, County School Inspectorate and other organizations acknowledged as suppliers of such programmes;
- The answers of a number of Physics teachers with regard to the way they carry out experimental activities in the classroom during classes;
- The answers of a number of teachers, pupils and students with regard to the way students succeed in doing experimental activities during classes;
- The results obtained at the end of the school year 1999-2000 by a number of students that were asked to design an experimental activity. This experimental activity was selected from the activities mentioned in the school curriculum.

Next we present the findings that have been revealed, concerning:

a) *the initial academic training curriculum.* In the initial academic training curriculum for Physics students the weight of laboratory activities ranges between 25.66% (at mono-specialised departments) and 32.75% (at double-specialised departments) from the total hours allocated to academic training. The weight of laboratory activities in the initial training of future engineers is 43% from the total hours allocated to academic training.

b) the initial didactic training. The weight of laboratory activities in the initial didactic training of Physics students ranges between 4.55% (at mono-specialised departments) and 8% (at Physics-Chemistry department) from the total hours dedicated to a student for this activity. These figures have been obtained by taking into consideration the following aspects: a course activity (2 hour) and a seminar activity (1 hour) at "Physics Didactics" are alloted to the theme called "Experiment in teaching and learning Physics". Additionally, during teaching practice one of the requirements is to include an experimental activity in at least one third of the lessons assisted by the student (8 lessons) and in two of the five lessons taught by the student. At Physics-Chemistry department these figures are doubled. The initial teacher training for those

who will teach Technique Subjects does not involve hours dedicated to inserting experiments in the lesson. The stress is laid on laboratory activities.

c) the in-service teacher training. In the offer from the institutions involved in in-service teacher training there are no training programmes to support teachers in developing their own competencies to build pupils' abilities in experimenting and exploring/investigating reality;

d) the use of the experiment. A survey conducted in the school year 1994-1995 has revealed the importance that Physics teachers in Cluj County give to didactic experiment (a number of 114 teachers having between 2 and 31 years of teaching experience were inquired). Thus, when asked to draw up a hierarchy of the methods that are to be used systematically in Physics lessons the teachers inquired put the experiment in the first place and the systematic observation in the fifth place:

Table 1.

Hierarchy of methods that need to be used systematically in Physics lessons

Method	Credits obtained by the method	Position in hierarchy
Experiment	103	I
Modelling	96	II
Problem debating	49	III
Problem solving	47	IV
Systematic observation	33	V
Heuristic conversation	17	VI
Explanation	11	VII

But during the practice the experiment lies in the sixth place because of the shortage of necessary support material as most teachers point out.

Furthermore, by analysing teachers' answers we have concluded that they involve pupils mostly in setting up an experimental device by making use of a given scheme. Pupils are also involved in processing and assessing the experimental data. Hence, it can be noticed that teachers ask pupils to perform required tasks. This way teachers simply copy the pattern of laboratory activities they used to perform during their academic training when they were students.

The survey was repeated in the school year 1999-2000, a number of 15 Physics teachers in Cluj County being inquired. This second survey has revealed that teachers put the experiment in the second place after the methods based on problem debating, problem solving, debates etc. used in group work activities. Teachers' arguments refer to the use of the methods in the system "Reading and writing for developing critical reasoning" in teaching practice and the lacks in equipping schools with didactic devices.

We have also analysed the answers of a number of teachers, students and pupils involved in teaching practice in the school year 2000-2001. We have conducted

this study to find out whether young teachers' inability to perform experimental activities could account for the decreasing importance of the experiment in the system of methods required in teaching and learning Physics. A number of 258 persons have been inquired out of whom 10 mentors (school teachers and professors), 66 Physics students (at Didactic Physics, Mathematics-Physics, Technologic Physics and Medical Physics) and 182 high school pupils.

The next table shows the concrete difficulties encountered and the percentage of subjects' answers:

Table 2.

An evaluation of the difficulties encountered by students in teaching practice regarding the use of support materials

The subjects	Percentages of subjects' answers regarding students' difficulties to:									
	preparing experimentally support materials					using support material correctly during the lesson				
	YES	yes	no	NO	Abst.	YES	yes	no	NO	Abst.
Teachers	30	20	40	10	0	13	43	37	7	0
Students	6	6	35	51	2	9	17	28	43	3
Pupils	-	-	-	-	-	10	22	38	30	0

Key: YES-total agreement; yes-partial agreement; no-partial disagreement; NO-total disagreement; Abst.-abstentions.

By studying the observation sheets of the students' lessons drawn up by mentor teachers, a high frequency of observations that state students' inability to use experimental devices has been revealed. Students do not know how to capitalize on the results of an experiment and they often do not ensure the visibility of the device and of the operations performed during experimental demonstrations. Additionally, students lead pupils every step of the way during experimental learning activities and they are not able to monitor efficiently the activity performed by he pupil groups.

In their commentaries attached to the questionnaires mentor teachers point out that students do not know the components of Physics kits, cannot set up experimental devices on their own and they need constant help.

An analysis of the experimental activity sheets drawn up by 38 students asked to design a choice research experiment shows that methodological requirements acquired at Physics Didactics course and seminar are second to laboratory activities practice carried out over the years. Thus, at the end of teaching practice most student teachers readopt the familiar structure of a laboratory activity in which the stress is laid on confirming certain theoretic knowledge. Most students fail to follow the characteristic stages of an experiment inserted in the lesson such as stating the problem and the work hypothesis, designing and setting up the experimental device and evaluating the activity:

Table 3.

Students' mentions of experimental stages

Stages of didactic experiment	Number/percentage of students that mention the stage	
Oriented observation of certain general phenomena reproduced in laboratory and analysis of the general phenomena evoked	31	81.58
Formulating the problem and/or the work hypothesis	2	5.26
Designing the experimental activity (designing the experimental device, anticipating the way of working and reading the data)	8	21.05
Setting up the experimental device (methodological suggestions)	6	15.78
Data reading and processing (methodological suggestions)	38	100
Evaluating the experimental activity performed and assessing the value of the information acquired	11	28.95

By corroborating the results of the analyses mentioned above we have been able to formulate the following conclusion with regard to Physics teacher training: the initial training leads to a very poor students' initiation in the use of experiment in activities of investigating/exploring reality. For in-service training this competency of Physics teachers does not seem to be a priority. These conclusions can be expanded to the process of pre-service and in-service training for technical education.

Therefore, the initial training curriculum should be reconsidered by the universities that offer pre-service and in-service training.

- Revising and reorganizing the content of laboratory activities by taking into account the following issues:
  - activities should focus on students solving certain concrete, pertinent problems which are interesting to them;
  - the structure of the activity should state its objectives (formulated as concrete abilities and competencies that are to be acquired by each student at the end of this activity), the necessary support knowledge to carry out the activity, the concrete tasks to be carried out (many of them having open solutions), questions, problems and subjects on evaluating and applying the knowledge acquired;
  - the rational use of computer in laboratory activities (as a means of education, software and hardware, but without replacing the experimental activity completely). This is already practiced at certain subjects at the Technical University and it should be used at other faculties as well.
- Introducing certain laboratory classes in Physics Didactics curriculum in order to initiate students in performing experimental activities by using the existing devices in schools or introducing a course and laboratory classes on

"Theory and practice in didactic experimenting" at optional subjects. These solutions are beneficial, too.

- Training acknowledged mentors through in-service training programmes provided by the university in order to develop their competency in building students' experimental abilities, as well as offering all Physics teachers specialised seminars. All these measures provide a more efficient learning of Physics.

In conclusion, teacher training for inserting certain experimental research activities in Physics lessons, which really involve pupils, requires great efforts at all levels of professional education.

STUDIA UNIVERSITATIS BABEŞ-BOLYAI, PSYCHOLOGIA-PAEDAGOGIA, XLVII, 1, 2002

STRATEGIES OF REMINDING PREVIOUS KNOWLEDGE

MARIA ELIZA DULAMA

ABSTRACT. The introduction presents the significance of reminding previous knowledge in a lesson.We have described three types of strategies of reminding previous knowledge, strategies that have been experimented during lessons and seminaries: verbal strategies (conversation, brainstorming, the circle, the chain of ideas), written strategies (the cluster, graffiti, Venn diagram, the duble bubble, the tree of ideas).

I. The Significance of Reminding Previous Knowledge

The reminding of previous knowledge to an individual has at its basis the constructivist model of perception. The essence of this model was given in the following definition: *"Perception is a part of the vital process through which, each of us, starting from his or her point of view, creates for himself or herself a world where he or she experiences life and in which the individual searches for his or her satisfaction"*(Ittelson,1960, p.19). Ittelson affirmed that the created world of the subject who perceives, is a world of presuppositions, not necessarily in accordance with the real world. The individual, usually, chooses the presuppositions that proved valid during his anterior experience, those that prove to be more signicative taking into account his or her personal experience and those that correspond to the individual's purpose. Zlate underlines the fact that a subject's experiences will be the result of a temporal or permanent application of his or her previous experience, of his or her already-formed schemes. As his or her previous experience is under the incidence of scientific knowledge, and also of faith, prejudices, mythes, that means that his or her perceptions will be influenced by all these (Zlate,1999,p.115). The perceptive "construction" of reality is made according to the features of objects and phenomena, and, also, according to the schemes already had in an individual's own knowledge base.

Reminding previous knowledge to an individual is necessary because thought is possible with the help of different mechanisms. Thought does not operate upon reality, but upon the information given by sensations, perceptions and

representations, and also upon the stored information in the memory and reminded with its help. Thoght is facilitated by psychical mechanisms and by language too, in a duble hypostasis: as an element of exteriorisation of the products of thought and as a means of receiving, from the outside, the information to be processed. Human thoght is verbal in its essence, therefore it is mediated by its own products: mental associations, schemes and mental constructs. Analysing these facilitating factors, it is to be remarked that the value of thought depends on these factors(Zlate,1999, p.237).

On the basis of what we have mentioned, we underline that in the didactic process, the teacher has the essential role in determining the process of thinking, defined as *a "mechanism of processing, interpreting and evaluating information"*(Zlate,1999, p.236). Knowing the fact that any information construction of an individual is based on previous knowledge stored in the long term memory (LTM), we will present certain didactic strategies, through which the pieces of information stored in the students' mind is brought "out in the open" in order to be analysed, evaluated, selected and ansamblied in mental constructs.

II. Verbal Strategies of Reminding Previous Knowledge

Conversation is the most frequent method of up-dating students' knowledge in a traditional learning system, especially when passing to the "new" lesson. Because of lack of experience and of certain information from the psychology of learning, this moment is illogically organised as the information which is reminded is not necessary for achieving the new information. During an efficient lesson, which has in view the achievement of certain operational objectives, each learning situation may start with a moment of reminding previous knowledge. If the operational object is to learn the concept of "star", we address several questions to the students in order to make sure that they posses in the LTM the necessary knowledge for understanding the concept: *What stars do you know? What kind of shape do stars have? Which is the colour of the stars? Where are the stars placed? What is the importance of the Sun for the Earth?* Even if not all students have the necessary previous knowledge, by listening to the colleagues' answers, there is a possibility that they remember the ideas presented.

Brainstorming is the simplest and the most efficient strategy of reminding previous knowledege, through which the teacher and the students find out what the others, who learn about the subject, know. In order to start the process of reminding, the pupils, in groups, are given a task, with a short duration from 2 to 3 minutes. *Each group will formulate in 3 minutes as much answers as possible to the following question: What do you know about Holland?* As the purpose is to remind to them as many ideas as possible concerning a certain subject, when the ideas are uttered, the following rules are to be observed: everybody has the right to an opinion; there are no wrong answers; everybody listens to and respects the others' opinion; while uttering the ideas, no information is analysed; all ideas are written including

the provocative, shocking, funny and irrelevant ones. Brainstorming has many advantages : the participant produce as many ideas as possible about a subject, either by starting from previous knowledge or as a result of spontaneous association of their pieces of information and the information offered by the others; the more ideas are produced, the greater the chance of finding valuable ideas, novel, or valid solutions for solving certain problems; postponing the judgement of the ideas produced offers the possibility for each individual to produce ideas concerning the respective subject without being worried about censure.

The circle (Kagan,1990). Students form groups of six and each group take their seat at a table. Each member of the group contributes with an idea about a subject (Danmark), in a systematical way, from right to left. Nobody utters any comment after his colleague has uttered an idea. One from each group or each one in a group writes down the ideas of the group. For istance: *it has the capital at Copenhagen; it is a peninsula, the predominant form of relief is the field; it is situated in the west of Europe; it cultivates wheat, rye, potatoe, white beet, its climat is temperate-oceanic.* The strategy has the advantage that each participant is compelled to produce an idea, and also that the others are not permitted to have a greater contribution than their colleague. The fact that during the activity no student has the permission to comment, encourages the production of ideas. If the ideas are not written in the notebooks or on the table, there is a risc that they may be forgotten immediatelly, as they are used only in STM (short-term memory).

The chain of ideas is a frontal oral strategy. On the teacher's request, each pupil, in the order of the seats in the classroom, enunciates at his or her turn an idea about the respective subject. Th ideas are written on the table and in the notebooks after their evaluation, meaning that all pupils have agreed to them.

III. Strategies of Reminding Previous Knowledge in Writing

Free writing. Writing is usually used as a means of evaluating learnt knowledge (tests of evaluating knowledge), or as an exercise in order to test the capacity of expressing ideas or information (written papers on a given theme) in a written form. In writing, as a modality of expressing the author's personal reflections, the focus is on the final product and not on the process. The reader is usually the teacher who evaluates the papers and marks them. The students receive a weak feed-back which is to confirm or infirm their opinions on the respective subject. Free writing may be used as an efficient strategy of reminding and expressing in a written form the previous knowledge on a subject. We ask the pupils to write, in a minute's time, all the ideas they have on a certain subject, then we listen to what they have written. Writing becames a pleasure of expressing ideas in order to be read and evaluated by the others who offer immedialtely an efficient feed-back.

The strategy *"Think\Work in pairs\Communicate"* implies an individual moment in which, during 1-2 minutes, each student writes on a sheet of paper his

or her ideas on a subject: *What do you know about Portugal?* The partners in a pair or the rows in a classroom may have different tasks. There follows a moment of communication while, for 2 minutes, the students present their deskmates what they have written, they compare the answers and they formulate a common answer. In order to turn to good account the previous knowledge, the strategy implies a moment of presentation of the group's ideas in front of the classroom. One has to take, in turn, an idea from each pair or they are asked to resume in 30 seconds the ideas of the pair. The answers are written on the blackboard. If we have little time we have to take ideas only from 2 to 3 pairs. The first moment is important because all students are obliged to think upon the respective subject, to up-date the previous knowledge and to formulate them in writing. The second moment is important because students realise that the partner has different ideas and opinions and this consists in a good source of completing the information or for clarifying certain aspects. Each of them realise that, in certain situations, this becomes a source and a means of help to their colleagues in the process of learning. This moment is important when evaluating metaknowledge by comparison with the partner's knowledge. Students learn from the simplest procedures of finding answers: discussing with someone else. They learn to communicate in an accessible language in order to be understood and in order to formulate questions if they have not understood what they have been taught. It is easier to communicate to the pair than to the teacher in front of he whole class. The fact that the partner confirms his or her ideas increases the self confidence and the student is not afraid of expressing his or her idea publicly or the answer upon which the two have thougt about. This strategy does not take much time and may be used more than once during a lesson.

The round table (Kagan,1990) is a strategy that implies handing a map and a pencil from a member of a small group to another member of the same group. One member of the group writes down an idea on a sheet of paper and then, he or she passes it to the neighbour on his or her left. This one writes an idea himself or herself and gives it to the next one. The strategy has the variant in which each participant has a pencil with a different colour and the paper is the only one handed over. This variant has the advantage that all the participants are compelled to participate relatively equaly, and, moreover, the teacher can identify each student's contribution. The way in which a teacher uses this strategy during the lessons depends on the teacher's creativity.

IV. Strategies of Reminding by Organising Knowledge in a Graphic Form

Venn diagram is a graphic organiser compound of two circles that overlap partially. In the area the two circles overlap, they group the common features, and in the areas left , there are the different features of two aspects, ideas or concepts. In order to remind the previous knowledge, each student draws the circles in his notebook. The teacher communicates the task: *there are certain differences between Romania and the Moldavian Republic. Write in a circle the essential*

elements that are characteristic to Romania, and in the other one the specific elements of the Moldavian Republic. In the area the two circles overlap, write the common features of the two states. You have one minute for this task. The activity continues for two minutes with the presentation of the parteners' diagrams and their presentation. In order to turn to good account previous knowledge, the teacer takes from each pair an element written in the diagrams. Completing Venn diagram on the blackboard is necessary for the students to have the satisfaction of showing the result in front of the others, in order to compare the features they identified to those identified by their colleagues (interevaluation) and in order to get the teacher's feedback. The omission of this final stage may determine the students to learn incorrect information. Moreover, through reflections and a process of succesive information restructuring, the information is learned easier and it becomes acquired knowledge.

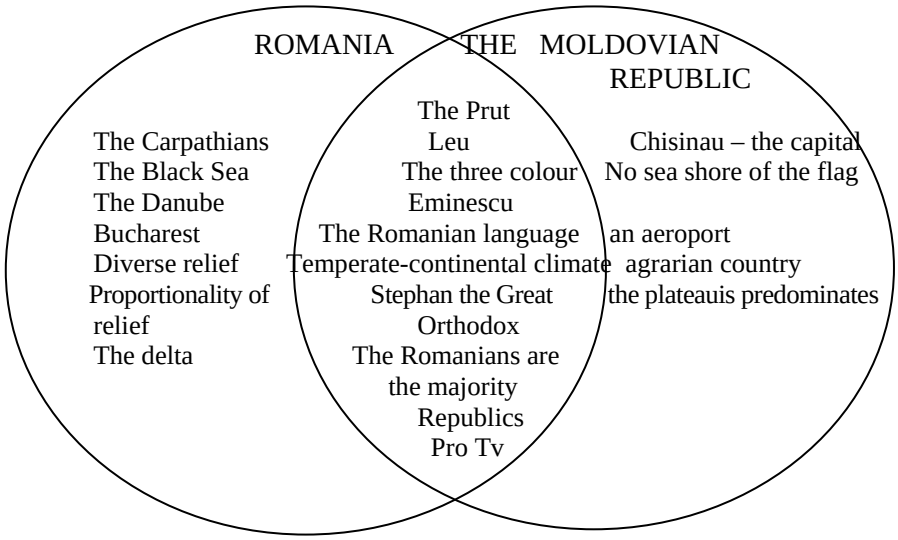

Fig. 1. The Common Features and the Differences between Romania and the Moldavian Republic

The duble bubble is a graphic organiser used to order the common features and the differences between ideas and concepts. It is compound of two large circles to which, by means of different lines, other little circles are connected. In the large circle, the key-terms are specified, in the small ones, situated in the centre, the common features are specified, and in the exterior circles, the particular features or the differences are specified. The diagram is completed by each individual, in pairs, in groups or by the whole class.

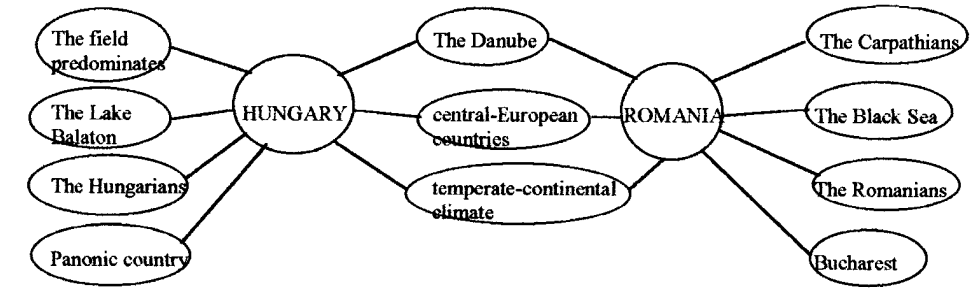

Fig. 2. The Common Features and the Diffrences between Hungary and Romania

The cluster is a graphic organiser, a type of non-linear brainstorming, through which all the reminded knowledge concerning a certain subject is connected in a network. The cluster is elaborated individually, in pairs, in a group or implying the whole class. In order to realise a cluser it is necessary to write a key-word inside a circle situated in the centre of the paper or of the blackboard. All the reminded ideas, and the ones that are connected with the key-word, are written in other circles and connected between them with lines. In the case in which we doubt the correctess of some of the reminded information, we write the question mark inside the respective circle. The cluster is completed with new information after we lecture a text on the respective subject.

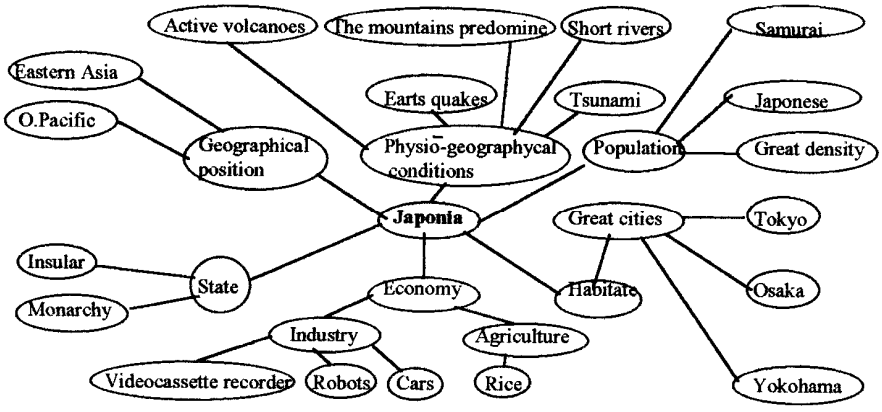

Fig. 3. The Cluster of Japan

Graffiti (Bennet, Rolheiser & Stevahn, 1991) is a graphic organiser that may be used in group activities. One group receives a subject, and the other group receives another subject. Each group writes the key-word in the centre of the sheet of paper, then, all the members of the group write simultaneously the ideas on the subject on that paper connecting them by lines to the circle in the centre. Without reading what the colleagues in the group wrote, after a certain period of time, which has been previously established, the sheet of paper is offered to the next group, in order to complete it with other ideas. After another short period of time, the sheets of paper with the ideas from the other two groups are taken, presented and discussed. By means of this strategy, each member of the two groups contributes with ideas on the two subjects, without making an evaluation during the idea production.

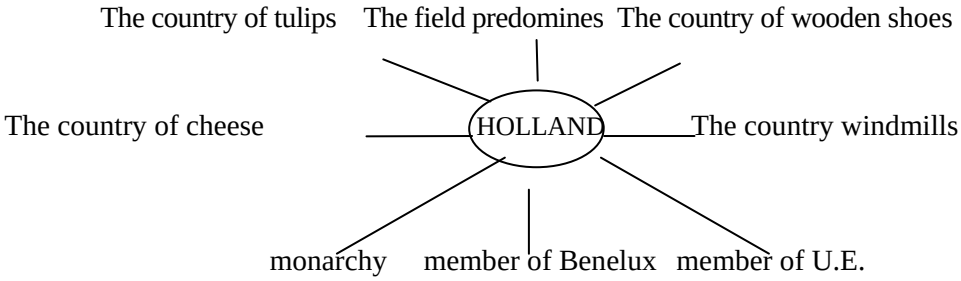

Fig 4. The Graphic Organisation of the Information Concerning Holland by Using Graffiti

The tree of ideas is a graphic organiser in which the key-word is written in a rectangle situated at the foot of the page. From this rectangle all the reminded information branches out like a tree. The tree of ideas may be completed individually, in pairs, in groups or by the whole class. If it is completed by the members of a group, the sheet of paper where the tree is drawn, is handed over from one member to the other and each student has the possibility to read what his or her other colleagues have written.

V. The conclusions

There is a great number of strategies of reminding previous knowledge, either as a form of structuring or of turning into good account knowledge, but we have presented only a part of those experimented during lessons and seminaries. During a lesson, each teacher decides upon the best strategy taking into account the available time, the respective subject, the students he or she is working with, his or her psycho-pedagogical and methodic experience. The use of these strategies during a lesson is essential as they ensure the construction of new information on

the basis offered by the information the students already posses in LTM. Through these strategies all the students are compelled to involve themselves in the process of remembering their knowledge and to confront the ideas they have on the respective subject with those of their colleagues.

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REPRODUCEREA ŞI SEXUALITATEA. ABORDARE INTERDISCIPLINARĂ LA CLASA A VII-A (I)

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ABSTRACT. REPRODUCTION AND SEXUALITY. AN INTER-DISCIPLINARY APPROACH WITHIN 7TH GRADE (I). The aim of the experimental study presented below is to keep track of the effects of teaching and learning the *Reproduction* theme (7th grade) on student's level of knowledge and education related to sexuality issue. Due to the large amount of work involved we have chosen to publish it in three parts. The lessons system have been reorganized and processed according to *interdisciplinary principles* in order to sustain efficient and positive changes in student's attitude concerning a healthy life and the sexual behaviour. We also get involved parents in the study because if they are / become aware about their educational duties they are able to support the teacher's effort to reinforce the true values in the student's life.

Introducere. În punerea problemei despre sexualitate în cadrul procesului de învățământ trebuie să se aibă în vedere două aspecte: paradoxul informațional în mas-media şi felul conținuturilor din manuale. Paradoxul informațional constă în redundanța de informații din mas-media dar cea mai mare parte a acestora sunt non-educative. Deci, din punct de vedere educativ şi instructiv nu există decât foarte puține informații în domeniul sexualității.

În privința conținuturilor din manuale, acestea sunt necorespunzătoare cantitativ şi calitativ (sunt puține, neactualizate). Se impun modificările corespunzătoare, creşterea numărului de ore afectate acestor teme şi accentuarea caracterului formativ al programei.

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Sexualitatea. Reproducerea fiinţei umane este manifestarea biologică a sexualităţii. În viaţa cotidiană reproducerea este confundată cu sexualitatea şi între ele se pune semnul egalităţii la fel ca şi între acestea din urmă şi viaţa sexuală.

Prezentând clar problemele trebuie să-i facem pe elevi să înţeleagă că sexualitatea este o caracteristică generală a lumii vii şi că omul are o mult mai largă manifestare a sexualităţii decât orice altă fiinţă. În această privinţă abordarea interdisciplinară este nu numai binevenită şi oportună dar este absolut necesară.

Aspecte ale sexualităţii care privesc viaţa intimă, în speţă manifestările fiziologice, regulile de igienă, manifestările pubertăţii sunt considerate stânjenitoare şi se evită discutarea lor în familie şi la clasă. În schimb, în întreaga *media* (ziare, reviste, cărţi, programe TV şi radio) există o explozie pornografică profund dăunătoare.

Ipoteza. Presupunem că elevii au deja o sumă de cunoştinţe mai mult sau mai puţin corecte, mai mult sau mai puţin structurate despre sexualitate, cunoştinţe pe care le-au cules din diverse surse, din necesitate şi/sau din curiozitate, ceea ce justifică pe deplin abordarea într-o nouă manieră a educaţiei pentru sănătate.

Presupunem că abordarea interdisciplinară uşurează accesul la cunoaşterea acestor aspecte ale vieţii, asigură o bună fixare a cunoştinţelor şi trăinicia lor. De asemenea, interdisciplinaritatea apropie mai mult informaţiile teoretice de practică, de viaţa fiecăruia şi, de vreme ce sănătatea este bunul nostru cel mai de preţ, mare parte dintre aceste informaţii trebuie să fie direct aplicabile în viaţă.

Inovaţia acestei abordări constă în:

- remanierea punctelor de vedere despre sexualitate prin tratare interdisciplinară;
- restructurarea temelor din manual privitoare la igiena sistemului reproducător prin creşterea ponderii educaţiei pentru sănătate;
- înnoirea metodelor în munca didactică: introducerea chestionarului, introducerea metodelor ergonomice şi de stimulare a creativităţii în munca de evaluare.

Orice inovaţie tinde spre optimizarea procesului instructiv-educativ şi a comunicării profesor-elevi.

Metode utilizate în studiu

1. *Observaţia* - a urmărit câteva aspecte, şi anume:

- atitudinea elevilor faţă de noile metode (ex. chestionarul), faţă de noile sarcini de îndeplinit în care se pune accent pe contribuţia proprie;
- comportamentul în timpul aplicării chestionarului;
- modul de îndeplinire a sarcinilor de lucru de către elevi;
- atenţia, modul de pregătire pentru ore şi participarea la ore;
- modul de comportare în timpul testării;
- realizarea feed-back-ului.

2. *Studiul documentelor şcolare* care cuprind:
- arhivele unei şcoli;
- materialele care oglindesc întreaga muncă în şcoală;
- materialele produse de cadrele didactice;
- materialele produse de elevi: lucrare de control, teste, referate, mape tematice, modele, etc. Acestea dau date prețioase deoarece reflectă nemijlocit activitatea elevilor.

3. *Experimentul de dezvoltare* pentru a verifica valoarea unor metode şi procedee didactice despre care presupunem că pot îmbunătăți procesul instructiv-educativ. Experimentul fiind o metodă ştiințifică riguroasă - ale cărei rezultate sunt măsurate, calculate matematic - în procesul educativ prezintă neajunsul că nu se pot studia toate aspectele unor determinări comportamentale, cum sunt, de exemplu, sentimentele, idealurile.

În experimentul de față s-a lucrat cu un eşantion numeros (5 clase paralele) şi reprezentativ.

Abordând şi interdisciplinar, din perspectiva altor discipline (ştiințe) problemele de sex şi sexualitate s-au urmărit schimbări în plan mental a manierei de captare, prelucrare şi utilizare a informației precum şi schimbarea percepției lumii interioare şi exterioare individului. Întrucât perfecționarea scontată este în planul formativ, rezultatele obținute sunt mai greu de cuantificat în date concrete şi imediate.

4. *Ancheta* cu instrumentul său *chestionarul*

Două chestionare au fost concepute şi utilizate în munca cu elevii şi unul în activitatea cu părinții:

Chestionarul 1

1. Ce este înmulțirea sexuată (în lumea vie)?
2. L a plante există înmulțire sexuată?
3. La animale există înmulțire sexuată?
4. Dă un sinonim pentru înmulțire (termen biologic).
5. La om sexele sunt separate. Cunoşti aberații de la regulă?
6. Descrie pe scurt cum se face înmulțirea la om (mamifere).
7. Ce este fecundația?
8. Ce ştii despre ciclul menstrual?
9. Ce este maturizarea sexuală, când se produce şi ce importanță are?
10. Ai discutat despre sex şi manifestări ale sexualității la om? Dacă da, când, cu cine?
11. Ai dori să discuți aceste probleme? Când? Cum? Cu cine?
12. De unde ai cunoştințe despre sex şi sexualitate?
13. Ce părere ai în legătură cu tema amintită - sexualitatea umană - având în vedere credința ta religioasă?

Chestionarul 2

1. Sexualitatea este o însuşire a tuturor organismelor vii?
2. Ce este sexualitatea?
3. Ți-ai clarificat anumite aspecte în urma parcurgerii capitolului *Aspecte ale sexualității umane?*
4. Ce probleme neclarificate au rămas?
5. Cine crezi că ți le-ar putea lămuri? Sau nu este cazul?
6. Ai putea explica unui elev mai mic decât tine cu 1-2 ani aspecte ale sexualității umane? Ai vrea?

Chestionarul pentru părinți

1. Sexualitatea este o problemă tabu pentru dumneavoastră?
2. Sexul şi sexualitatea copilului dvs. este o problemă tabu?
3. Considerați că aceste probleme despre sex şi sexualitate trebuie să şi le lămurească fiecare singur sau trebuie explicate copiilor?
4. Cui revine sarcina aceasta? Cine trebuie să prezinte aceste lucruri copiilor?
5. Ați discutat cu copilul dvs. despre sexualitate?
   Când?
   De câte ori?
   Sub ce formă?
   Cum a decurs discuția?
   Cine a pornit discuția?
   Ați fost stânjeniți / fireşti / exuberanți?
6. De unde aveți informațiile pe care le-ați dat copiilor?

În conceperea chestionarelor 1 şi 2 s-au utilizat următoarele idei:

- interdisciplinaritate pe nivelul disciplinelor biologice: botanica, zoologia, anatomia şi fiziologia omului şi între biologie şi religie, sociologie, cultură civică, psihologie şi informațiile mas-media;
- echilibrarea sarcinilor pentru elevi: chestionarul 1 cuprinde 7 întrebări cu barem de notare iar chestionarul 2 numai 2 (verificarea cunoştințelor s-a realizat prin testare);
- captarea interesului şi menținerea motivației de participare reală din partea elevilor;
- succedarea întrebărilor gradual, de la simplu la complex, de la concret la abstract.

Chestionarul pentru părinți a fost conceput pe ideea de a afla implicarea lor în educația sexualității la proprii copii.

Prezentarea eşantionului. Eşantionul se compune din 5 colective de elevi de clasa a VII-a (din cele 8 ale şcolii) de la Şcoala Generală "I. G. Duca" din Petroşani şi totalizează 128 de elevi: 64 fete şi 64 băieţi. Vârsta elevilor este între 12 şi 14 ani, marea lor majoritate având 13 ani.

Din punct de vedere social prezentăm două aspecte:

- situaţie materială: medie - VII G, peste medie VII E, VII H, VII F, bună VII C; elevi cu burse sociale în toate colectivele exceptând VII C;
- nivelul de pregătire al părinţilor: fără studii medii - puţini (VII G, VII H, VII E), cu studii medii - mulţi (VII H, VII E, VII F, VII G), cu studii superioare - mulţi (VII C), cu studii superioare - puţini (VII F, VII H).

Din punctul de vedere al nivelului de pregătire, colectivele se prezintă astfel, cu mediile anuale în ultimii 2 ani de studiu (Tabelul 1):

Tabelul 1

Pregătirea la Biologie a claselor utilizate în studiu (medii anuale):

Clasa	Medii anuale la Biologie în	
	clasa a V-a	clasa a VI-a
VII C	8,50	8,17
VII E	6,50	6,67
VII F	7,20	7,50
VII G	-	5,59
VII H	6,60	7,00

Desfăşurarea activităţii. Educaţia sexualităţii, în formele elementare, începe de foarte timpuriu, în familie, odată cu conştientizarea sexului de către copil, cu cunoaşterea regulilor simple de igienă.

În şcoală educaţia sexualităţii se poate realiza la orice disciplină, în forme multiple, în cadrul anumitor teme, deoarece sexualitatea se manifestă în toate domeniile vieţii noastre. Cu deosebire, însă, se poate realiza la orele de biologie şi dirigenţie (consiliere).

Experienţa noastră, descrisă în continuare, este una dintre multele posibile.

Educaţia sexualităţii în orele de biologie. Reproducerea, fiind condiţia perpetuării vieţii, este fenomenul de bază al sexualităţii. El se manifestă la toate organismele vii. În această formă elementară, elevii cunosc acest fenomen încă din ciclul primar şi chiar mai repede. În clasa a V-a însă, sunt cunoscuţi şi termeni specifici în legătură cu reproducerea la plante, apoi în clasa a VI-a, la animale. Astfel că în clasa a VII-a elevii au deja cunoştinţe structurate din şcoală dar şi o cantitate de cunoştinţe din mediul extraşcolar (familie, prieteni, media, etc.) ce le-ar permite o abordare interdisciplinară.

Cadrul de desfăşurare a activităţilor a fost reprezentat de orele de biologie la clasele VII C, VII E, VII F, VII G şi VII H, câte 2 ore săptămânal. Capitolul "Reproducerea - lege generală a vieţuitoarelor" a fost parcurs la începutul semestrului II, timp de 6 ore (3 săptămâni). Deoarece conţinutul manualului nu corespundea obiectivelor propuse de noi şi nici situaţiei şi cerinţelor actuale ale tinerilor, conţinutul capitolului dedicat funcţiei de reproducere a fost restructurat astfel:

1. Reproducerea - lege generală a vieţuitoarelor
2. Anatomia: a. Sistemul reproducător masculin
   b. Sistemul reproducător feminin
   (1 oră)
3. Fiziologia sistemului reproducător
   a. Pubertatea
   b. Fiziologia sistemului reproducător masculin (funcţia endocrină a testiculelor, funcţia spermatogenetică)
   (1 oră)
   c. Fiziologia sistemului reproducător feminin (funcţia endocrină a ovarelor, funcţia ovulatorie)
   d. Concepţia (fecundaţia). Sarcina
   (1 oră)
4. Igiena sistemului reproducător
   a. Ce este sexualitatea
   b. Reguli de igienă
   c. Boli cu transmitere sexuală şi prevenirea lor
   (1 oră)
   d. Contracepţia
   e. Tulburări de pubertate
   (1 oră)
   f. Viaţa sexuală şi viaţa socială
   (1 oră)

Cronologia evenimentelor, pe scurt:

- chestionarul 1 a fost aplicat în semestrul I;
- parcurgerea capitolului "Reproducerea" la începutul semestrului al II-lea;
- chestionarul 2 a fost aplicat după testarea sumativă la capitolul parcurs.

Activitatea la clase, în timpul orelor, a constat în parcurgerea temelor propuse utilizând următoarele metode şi procedee:

- pentru subcapitolele 1 şi 2: expunerea, explicaţia, desenul, observarea, conversaţia, utilizându-se planşe, fotografii, imagini microscopice;
- pentru subcapitolul 3: expunerea, explicaţia, problematizarea, conversaţia, desenul, modelarea pe planşe şi scheme, observarea;

- pentru subcapitolul 4: explicația, problematizarea, bainstormingul, conversația, studiul de caz, fotografii ca material didactic.

Pe parcursul orelor s-a menținut un permanent dialog care a asigurat feed-back-ul şi prin care s-a urmărit interesul şi s-au verificat cunoştințele. Cu excepția clasei a VII-a C, celelalte 4 clase au dat o testare sumativă, anunțată, cu subiecte din tot capitolul, cu bareme de corectare.

Aplicarea chestionarelor s-a făcut în condiții relativ optime. Timpul de răspuns a fost o variabilă reglată de către elevi, cu nişte limite impuse. Înainte de fiecare chestionar li s-au făcut elevilor câteva precizări şi lămuriri: deoarece participă la un chestionar, lucru care nu este identic cu o testare, participarea nu este obligatorie, răspunsurile trebuie să fie sincere şi serioase şi să se concentreze asupra lor pentru că uneori li se cer cunoştințe mai vechi sau la care trebuie să gândească; au fost permanent asigurați de confidențialitatea răspunsurilor. De asemenea, li s-a subliniat deosebita importanță şi valoarea tuturor răspunsurilor, date de fiecare dintre ei, pentru un studiu, deci, îşi ajută profesoara, dar în acelaşi timp se ajută pe ei, pentru că profesoara, la rândul ei, va putea să îi ajute. Astfel că la întrebările la care nu doresc să răspundă se acceptă lipsa răspunsului în loc de răspuns fals.

Receptarea chestionarelor de către elevi a fost favorabilă: elevii au dorit să participe, au fost atenți, serioşi şi avem motive să credem că au răspuns sincer.

Educația sexualității în orele de dirigenție. Începând cu clasa a V-a s-au propus şi realizat în orele de dirigenție teme prin care s-a conştientizat la elevi ideea că o anumită conduită este dată şi reflectă apartenența la un sex.

L a clasa a VII-a s-au realizat unele teme de educație a sexualității în orele de dirigenție pentru asigurarea continuității dar şi ca o firească extindere a orelor de biologie.

Activitatea s-a desfăşurat pe două planuri:

a. cu elevii clasei VII H, la orele de dirigenție;
b. cu părinții elevilor clasei VII H, la şedințele cu părinții

Cu elevii s-au programat şi realizat în semestrul I, înainte de parcurgerea capitolului *Reproducerea* în orele de biologie, următoarele teme: *Fetele despre ele, Băieții despre ei* - aceste ore desfăşurându-se separat, cu fetele şi cu băieții. Elevii au fost anunțați să pregătească pe foi nesemnate întrebări şi probleme care îi preocupă la acest subiect.

Părinților li s-a aplicat chestionarul într-o şedință la începutul semestrului al II-lea. Au răspuns de bunăvoie toți părinții prezenți (15). Unii au dorit să semneze. În prealabil, părinții au fost informați despre importanța răspunsurilor şi valoarea lor atât pentru copii cât şi pentru dirigintă. Părinții au participat cu deosebit interes, cu multă seriozitate şi atenție, ceea ce dovedeşte că sunt real

interesați de educația copiilor şi aceasta este o garanție în privința sincerității răspunsurilor.

Rezultate. Constatări. Concluzii

1. Activitatea la orele de biologie

Chestionarul 1 solicită elevilor să realizeze un transfer de cunoştințe, să le sistematizeze şi să opereze anumite generalizări. În clasa a V-a ei iau cunoştință de înmulțirea sexuată şi asexuată (vegetativă) la plante iar în clasa a VI-a de înmulțirea sexuată şi asexuată (regenerarea, diviziunea celulară) la animale. Tot din clasa a VI-a au cunoştințe despre modul de înmulțire al mamiferelor, când se face permanent referire la încadrarea omului în acest grup şi deci este posibilă indicarea a numeroase similitudini (anatomice, fiziologice). De asemenea, elevii cunosc fenomenul de hermafroditism la animale dar şi faptul că cel mai mare număr de specii animale au sexe separate.

Răspunsuri corecte (aşteptate de la elevi) la întrebările cu barem:

1. Înmulțirea sexuată este numită şi reproducere şi presupune participarea unor elemente cu potențe diferite - masculine, feminine.
2. Da / ex. …
3. Da / ex. …
4. Reproducere
5. Da / ex. …
6. Presupune participarea indivizilor de sexe diferite (cu organe sexuale femeieşti şi bărbăteşti). Prin acuplare (împerechere, act sexual) spermatozoizii ajung în tractul genital femeiesc, are loc unirea unui spermatozoid cu un ovul rezultând celula - ou. Din aceasta se dezvoltă embrionul, apoi fătul (în uterul matern), după care are loc naşterea iar copiii sunt îngrijiți de părinți şi hrăniți cu lapte matern.
7. Unirea celulei sexuale bărbăteşti - spermatozoidul cu celula sexuală femeiască - ovulul.

Barem de corectare:

- câte un punct pentru fiecare întrebare 1 -7, rezultă 7 puncte
- 1 punct pentru conceperea răspunsurilor, exemple

total: 8 puncte

Echivalarea punctajului în calificative:

8 p - foarte bine (fb)
7-6 p - bine (b)
5-4 p - suficient (s)
3-4 p - insuficient (is)

Caracterizarea generală a răspunsurilor. Elevii nu au cunoştințe sedimentate şi structurate. Nu au fost capabili să transfere şi să generalizeze cunoştințele dobândite în clasele a V-a şi a VI-a şi ca urmare, răspunsurile sunt

destul de vagi, insuficient gândite şi arată că cei mai mulţi dintre elevi au cunoştinţe discontinui şi inexacte, învăţate mecanic.

Răspunsurile evidenţiază o mare preocupare de a se informa despre sexul propriu şi despre sexul opus şi tendinţa de a reduce orice problemă legată de sex şi sexualitate la actul sexual.

Rezultate. La chestionar au răspuns 93 de elevi - 49 fete şi 44 băieţi. În urma corectării răspunsurilor pe baza baremului prezentat şi a echivalării punctajului în calificativ s-au obţinut datele cuprinse în Tabelul 2.

Tabelul 2

Rezultatele evaluării punctelor 1-7 din Chestionarul 1:

Calificativ Clasa / efectiv / componenţă F/B	foarte bine	bine	suficient	insuficient	Total linie
VII C - F 23 - B	- -	2 4	10 6	- 1	12 11
VII E - F 18 - B	- -	1 1	5 2	8 1	14 4
VII F - F 18 - B	- -	1 2	8 12	3 2	12 16
VII H - F 24 - B	- -	- 2	3 7	8 4	11 13
Total F coloane B 93	- -	4 9	26 27	19 8	49 44
Procente parţiale F,B	- -	8,16 20,45	53,06 61,36	38,77 18,18	-
Total elevi %	- -	13 13,97	53 56,98	27 29,03	93 100

Constatări şi comentarii. Rezultatele obţinute sunt nesatisfăcătoare şi se desprind uşor din materialul prezentat. Aceste rezultate se explică prin următoarele aspecte:

- Manualele conţin un volum mare de informaţie insuficient sitematizată şi noţiuni greoaie de specialitate adesea greu de asimilat în raport cu nivelul de vârstă şi de pregătire generală al elevilor. De multe ori lecţiile au o ilustrare şi o redactare necorespunzătoare. Progrmele şcolare care sunt rigide şi la fel de încărcate nu permit cadrelor didactice să trateze flexibil temele.
- Pregătirea lecţiilor acasă de către elevi lasă de dorit: timpul acordat învăţării este insuficient la fel ca şi eficienţa acesteia.

- Intrarea în (sau trecerea prin) pubertate duce la scăderea atenției, a capacității de concentrare şi preocuparea față de alte probleme decât învățatul - toate acestea determină o uşoară şi de obicei pasageră scădere a randamentului şcolar.
- Haotica şi incorecta informare din multe surse mas-media contribuie la starea de derută în care se află elevii (tinerii) dar şi părinții şi profesorii (adulții) în momentul socio-istoric actual.

(va continua)

STUDIA UNIVERSITATIS BABEŞ-BOLYAI, PSYCHOLOGIA-PAEDAGOGIA, XLVII, 1, 2002

RECENZII

Pedagogy – Supports for Teacher training*, M. Ionescu and V. Chiş, coordinators* (-book review-)

The present book "Pedagogy – Supports for Teacher training" represents an answer to students' needs for their initial training as future teachers. The book discusses the topics of the national pedagogy syllabus topics as well as certain topics from the Department of Educational Sciences of the Cluj University. The target readers are also teachers from all the pre-university and university levels and students who intend to develop their knowledge in pedagogical sciences in order to attend different exams required for their initial and in-service training as teachers.

The major aim of the author was to offer the future and present teachers the newest theory and research findings in the field of educational sciences within the actual context of the educational reform. Thus, the present work offers the readers elements of applied pedagogy: definitions, terminology clarifications, classi-fications, examples, comments and methodology suggestions, using an ecological language, in an accessible manner, so that the information becomes easy to assimilate and apply into practice.

The second chapter "Didactics – the theory of instruction", the fifth chapter, "Methodology of instruction", chapter seven, "Working formulas in the instructional and educational process. Didactic design and chapter eleven, "Pedagogical research and educational innovation" represent the contribution of an important theorist of the didactic field, Prof. Miron Ionescu, Ph.D. All the above mentioned chapters develop topics from the field of theory of instruction. Starting with an introduction to didactics, Prof. M. Ionescu identifies the present tendencies of development in the educational process, analyzes the concept of didactic methodology, the functions of the didactic methods and the most proficient methods, with a special accent on the active teaching means. The debate of the author continues with the description of the working formations within the educational process where the main place is taken by the organization on classes and lessons. Prof. Ionescu's contribution to the volume is finalized with the analysis offered together with lecturer Muşata Bocoş, Ph.D., of the present issues of the pedagogical research and the instructional innovation.

Prof. Vasile Chiş, Ph.D dedicates Chapter III to the analysis of the educational process within the contemporary conception of the modern pedagogy. The novelty of the conception described here is the systemic approach of the instructional activity, of the didactic components involved and of the teaching and learning as dynamic processes.

Chapters I, "Education, the system of Sciences of Education", Chapter VIII ‘Evaluation and Self-evaluation within the didactic process" and chapter IX, "Theory and methodology of moral behaviour development" represent the contribution of lecturer Cristian Stan, Ph.D. to the present volume. The topics discussed here are part of the theory of education. In the beginning, the author makes a thorough analysis of the concept of education, the functions, aims and forms of the educational process. An important contribution of the author is represented by the approach of the process of evaluation. The author offers a clear image of the mutual determinations between evaluation and self-evaluation, stressing of the normative and formative dimensions of the two processes. Considering the development of moral behaviour as one of the main challenges of contemporary education the author dedicates the ninth chapter to the identification of certain theoretical and methodological key ideas regarding the accomplishment of the above mentioned aim.

Chapters IV, "The school curriculum. Educational contents" and chapter VI, "Educational means"together with chapters V and XI represent the contribution of Lecturer Muşata Bocoş, Ph.D. to the present collective volume. The concept of school curriculum is a relative new term within the Romanian educational theory and practice and the author aims at offering a clear organization of the existing theoretical contributions to the clarification of the concept. The educational mean, the criteria for their choosing and utilization represent the focus of the sixth chapter where the information is made operational through the presence of useful tables and classifications.

Chapter X, "The educational work in schools" of Prof. V. Lăscuş, Ph.D., draws the attention of the reader to the formative dimension of each school action. A special focus is made on the relationship school creates with community and its institutions.

The volume is ended within a modern note given by the last chapter of C. Baciu that argues on the formative contributions of the use of information and commu-nication technology, of the INTERNET in he educational process.

The work "Pedagogy – Supports for Teacher Training" aims at being a support for reflection offered to those interested in the issues of education and teaching process and it clearly represents an accessible and necessary reading for teachers involved in all levels of the teaching process.

Cătălin GLAVA

Teacher's activity between curriculum and evaluation, **by** *Vasile Chiş, Presa Universitară Clujeană, 2001 (-book review-)*

New orientations within the theory of education, the practice of learning and of development conduct, profoundly changed the paradigms of the contemporary pedagogy. The curriculum reform initiated in 1998 marked the expected start of the Romanian educational system renewal and one of the important components of the changing process is teacher training. The issues raised within this volume are from the sphere of the initial and continuing teacher training. New solutions are offered to the challenges addressed to a school found into a

significant change, "passing from the *uni-form* to the *re-form"*.

The training of a competent teacher involves various dimensions: the academic, specialty, psycho-pedagogical, methodological and practical training. The theoretical training is an on going one and during the career it is supported by the variety of experiences and school confrontations.

The author, Vasile Chiş, identifies three types of competencies that define the today educator as a professional:

- Personal competencies (responsibility, problem-solving competencies, critical thinking and creativity, the capacity of initiating changes, emphatic capacity and tolerance);
- Psycho-pedagogical and methodological competencies: (the knowledge on pupil's psychology and on the development of personality, learning experiences elaboration, communication with pupils, parents and other actors of the educational system, measurement of learning progression etc.);
- Field knowledge of the curriculum area that the teacher translates into school learning experiences.

Belonging to the school perimeter as well as to the community, the teacher finds a challenge not only within a more sophisticated educational terminology but also in developing a modern exercise, a practical and more efficient pedagogy. The author argues that the scientific offer, translated into the school programme requires new itineraries: from the curriculum to evaluation; from teaching to learning; from learning information to creating competencies.

The first analyses plan taken by the present work (The educational process-concept and practice, Chapter I) anchors the pedagogical issues to the macro-systemic level, the place where school meets the community, the society and its specific phenomena. The message comes out clearly: the existence of teacher doesn't depend exclusively on the taught subject matter and on his pedagogical experience. The educational philosophy and politics, the social phenomena going on in proximity or at the distance unconditionally include him, without a clearly expressed perception, quite invisibly.

The attention is focused on the syntagm: educational process, a syntagm that is acknowledged within the contemporary didactic research. The description of the educational process implies two main plans: *the systemic approach*, more precisely the reference of the process to its integrative system and the componential and functional analysis that includes its internal structure, the components of the educational process and, finally, its main approaches or activities: teaching – learning – evaluation.

The second chapter holds questions and hypothesis meant to stimulate the continuing re-evaluation of the instructive-formative practice. The author finds answers to the questions about what are teacher's jobs in the classroom, which is the optimal structure of a teaching sequence and how is the teacher's offer translated into pupil's cognitive progression, in which conditions the teacher – pupil relationship develops and when the cognitive, emotional, attitudinal disparities occur. The principles and newest contributions of the cognitive psychology are taken as bases for the explanatory approach developed here.

The analysis takes into account mainly the three categories of

interacting activities: the projection of didactic activity, the accomplishment of teaching and the leading of the learning process, the didactic evaluation and apart of these, other professional duty: consulting/guidance and support for the pupils and parent; activities of creation on the benefit of school, pupils' class and teaching of the subject-matter; administrative activities; services for the community; participation to the social life.

The topic of curriculum, as theory and practice is the main focuse of the third chapter of the present work. The author offers arguments for the fact that the curriculum and its theoretical and practical dimensions, well settled in concepts and concrete experiences, has the power to re-design the didactic activity in a global manner. Given the novelty elements, but also the inaccuracies and hesitations inherent for a beginning experience, chapter III articulates concepts and examples meant to offer support to the teaching staff involved into such a project.

The development of an efficient curriculum becomes a problem of adequate pedagogical methodology and technology.

The educational activity involves a diverse and flexible methodological support; the evolution of science and social practice offer schools new models for the design and conduct of the learning experiences. Placed on the interface between the technology and methodology (Chapter IV), the teacher is invited to create and put into action new educational projects.

The concept of didactic technology specific to traditional didactics is analised and a number of teaching-learning methods are described. The reader is confronted also with the newest acquisitions regarding the educational methodology such as the development of multi-media in education (e.g. Information Technology [IT]).

Chapter V is dedicated to the analyses of the evaluation process, seen by the author as the main source of an innovative practice and of a continuing professional development. The didactic evaluation firstly represents the occasion of a self -introspection as educator and pedagogue, then a systematical challenge for getting knowledge on pupils and, synthetically a joint programme that involves the whole field of instructive-formative influences.

The importance of school assessment within the educational process is legitimated by the following findings: the teaching act implies aims, instructive and formative objectives and pupil's performances show the degree of their accomplishment; the evaluation of scholastic results offers the teacher the opportunity to optimally restructure the didactic approach; the didactic assessment actions hold a significant weight, until 40% of teacher's activities.

The experimental school which is the topic of the last chapter draws the attention on the issue of initial and continuing teacher training through numerous national educational projects. Chapter VI describes the traditions and the novelty promoted by the currents of the experimental pedagogy in our country and all over the world. The experience acknowledged within the contemporary educational systems justifies the re-establishment of the experimental schools in our school system.

Analizing important topics of the educational science and practice, from a modern and often genuine point of

view, the present work is remarkable for its contributions in redifining and placing of the proper value on the processes of teaching and learning. It will certainly invite teachers to reflection, assessment and improvement of their own working strategies.

Adina GLAVA

The book entitled ***The theory of education. Actuality and perspectives*** by *Cristian Stan (2001, Presa Universitara Clujeana*, Cluj-Napoca) highlights some approaches of the contemporary phenomenon, within the framework of five chapters: *Human personality and its development, Pedagogy-the science of education, The education, The dimensions of education and Education and contemporary society (*- Book review -)

The first chapter presents an analysis of some theories of human development such as: genetic perspective, environmental perspective and integrity perspective. The influence of heredity, environment and education is treated in an objective manner; the author succeeds to offer a valuable synthesis. A novelty in the presentation of the theories on human development in Romanian specialty literature is the inclusion of the ecological development model, described by the American psychologist Bronfenbrenner. This model is originally adapted and explained by C. Stan.

In the second chapter the author demonstrates why pedagogy should be considered the science of education, emphasizing the epistemological unity of the science of pedagogy. A very interesting idea is the necessity of interdisciplinary approach on education, generated by the progress of knowledge in the domains related to pedagogy.

The third chapter takes into account education viewed as an object of the pedagogical science through the presentation of the forms and the finalities of the educational act. When society change, education also has to change its orientations.There are two ways of materialize the reform of contemporary educational systems: the reform of evolution and the reform of restructure. A means that ensures the attainment of these goals is innovation. "Innovation" is different from "change" by its intentional character.

The intellectual, moral, esthetic, religious and intercultural areas represent the dimensions of education, in the author’s point of view. The difference between moral and religious education consists in the difference between their objects of study: morale and religion. The moral one is defined as a "complex system of norms and ethical values that settle the behavior of human beings towards the others, the society and her/himself". The religious one is understood as an "ensemble of beliefs and rituals that includes both the subjective dimension of faith and religious feelings, and the objective dimension, materialized in the existence of some institutions that offer specific ceremonies". It is demonstrated that, even though religion and morale are related to values, the content and the way in which these values are imposed differ.

The last chapter synthesizes the current influence on the educational action of postmodernism, culture and freedom. The tendencies that have been generated by these influences consist in

the emergence of new educations, continuous education, and enhance the prospective character of education.

The book has two qualities that recommend it as a useful tool for the readers: coherence of the structure and clearness of the language. "Theory of education" represents a valuable and actual synthesis of the influences, tendencies and challenges of nowadays education.

Simona Elena BERNAT

Muşata Bocoş, ***Instruire interactivă. Repere pentru reflecţie şi acţiune,*** **Ediţia a II-a,** revăzută*, Editura Presa Universitară Clujeană, Cluj-Napoca, 2002*

După lucrările de pedagogie recent apărute la aceeaşi editură, o nouă lucrare importantă vine să contribuie la dezvoltarea şi modernizarea pedagogiei şi anume volumul intitulat "Instruire interactivă" al colegei noastre, lector dr. Muşata Bocoş.

De data aceasta este vorba despre o lucrare care subliniază în mod deosebit complexitatea domeniului ştiinţelor educaţiei şi modul în care acelaşi material poate fi supus unor analize mai nuanţate, mai subtile, mai profunde şi mai apropiate de cerinţele inter-disciplinarităţii şi ale multidisci-plinarităţii. Nu lipseşte nici o notă mai critică a examinării situaţiei prezente din învăţământul nostru.

Autoarea examinează situaţia pedagogiei dintr-o perspectivă mai pragmatică şi încearcă să-i schiţeze sau să-i adauge noi direcţii de dezvoltare în concordanţă cu noile date pe care cercetarea ştiinţifică le pune la dispoziţia învăţământului. Chiar titlul lucrării "Instruire interactivă" vrea să sugereze necesitatea accentuării caracte-rului "inter-activ" al instruirii şi al educaţiei în general.

Simpla enumerare a celor cinci titluri ale capitolelor lucrării îi permite cititorului să aprecieze noutatea şi diferenţa între unele lucrări mai vechi şi cea în discuţie: cap. I – Instruirea interactivă - o provocare actuală; cap. II – Pedagogia interactivă; cap. III – Activizarea în cunoaşterea şcolară. Consideraţii pedagogice şi biopsi-hologice; cap. IV – Pentru o pedagogie interactivă operaţională ; cap. V – Reformarea învăţământului românesc şi instruirea interactivă; Bibliografie şi un rezumat în limba engleză.

Structura lucrării şi formularea titlurilor capitolelor îl avertizează pe cititor că este vorba despre unele "provocări" şi tendinţe clare de a sugera actualilor educatori din domeniul învăţământului necesitatea unor noi orientări şi a mutării accentului de pe actualele practici şi tendinţe ale pedagogiei clasice pe unele trăsături active, moderne şi mai eficiente.

Reconsiderarea locului elevului şi al profesorului în procesul didactic şi organizarea procesului de învăţământ pe baze noi, va duce la creşterea calităţii şi a eficienţei acestuia. "Instruirea activă reprezintă un tip superior de instruire, care se bazează pe activizarea subiecţilor instruirii, pe implicarea şi participarea lor activă şi deplină în procesul propriei formări", precizează autoarea la pag. 8.

Problema instruirii este abordată într-o modalitate modernă, susţinută cu date ştiinţifice recente, care sugerează noile direcţii de dezvoltare a învăţământului. Lucrarea este astfel structurată încât îl conduce pe cititor, după parcurgerea capitolelor, la

acceptarea concluziilor fireşti ale modernizării învățământului românesc în sensul accentuării instruirii interactive.

Referirea autoarei la reforma învățământului din perspectiva tematicii abordate, accentuează nota de actualitate a lucrării. Capitolul IV – "Pentru o pedagogie interactivă operațională", care se întinde pe aproape 200 pagini, examinează metodele active dintr-o perspectivă complexă, precizând: ce este metoda respectivă, de ce este o metodă activă, tipurile metodei, etapele utilizării ei şi câteva exemple concrete care arată cum pot fi aplicate la un caz dat precizările teoretice făcute de autoare. "Principiul de bază în contextul educațional actual, susține necesitatea situării elevului şi a activității de învățare şi formare a acestuia, în centrul procesului educațional" (pag. 349) este o precizare care îl avertizează pe cititor şi pe practician, cu privire la modificarea strategiilor de lucru la lecții şi în afara acestora.

Autoarea îmbină într-un mod ingenios precizările teoretice cu sugestiile şi recomandările practice. Iată un exemplu: "Concretizarea idealului educațional în scopuri educaționale şi a acestora în obiective curriculare, cadru, de referință şi apoi operaționale, se realizează prin precizarea şi particularizarea/concretizarea performanțelor sau competențelor pe care educații trebuie să le posede la sfârşitul unei anumite perioade de instruire" (pag. 354).

De altfel, autoarea se adresează frecvent cititorului cu numeroase întrebări, oferindu-i ocazii şi "repere pentru reflecție şi acțiune".

Cartea d-nei Muşata Bocoş sugerează şi noile direcții de dezvoltare a învățământului. Bazată pe o bibliografie selectivă, bogată şi recentă, în limba română şi limbi străine (peste 150 titluri), lucrarea îl pune la curent pe cititor cu preocupările contemporane ale ştiințelor sociale şi cu principiile care ar trebui să stea la baza funcționării instruirii.

Scrisă într-un stil ales şi accesibil şi însoțită de numeroase tabele, scheme şi sublinieri în text şi de comentariile adecvate diverselor situații, lucrarea d-nei Muşata Bocoş pune cititorul într-o situație de autoevaluator al propriei activități. Departe de a fi o simplă expunere a unor opinii sau teorii privitoare la instruirea interactivă, opera nu este numai o provocare actuală, ci şi o sursă bogată de sugestii şi de recomandării privind perfecționarea procesului de instruire în ansamblu.

Lucrarea "Instruire interactivă" nu se distinge numai printr-o îmbinare fericită a teoriei cu practica, ci şi prin modul în care se adresează cititorului şi-i oferă numeroase exemple concrete menite să-i întărească şi mai mult convingerile în justețea sugestiilor şi a concluziilor la care a ajuns autoarea.

Dumitru SALADE

STUDIA UNIVERSITATIS BABEŞ-BOLYAI, PSYCHOLOGIA-PAEDAGOGIA, XLVII, 1, 2002

CATEDRA DE PSIHOLOGIE

Cronica ştiinţifică a evenimentelor pe anul 2002

Anul 2002 a însemnat pentru Catedra de Psihologie un an bogat în evenimente ştiinţifice, atât prin invitaţii care au susţinut diferite conferinţe la Cluj, cât şi prin deplasările în străinătate ale membrilor ei în scopul participării la conferinţe internaţionale, al cercetării şi documentării.

În luna mai a avut loc un workshop cu tema "Training in REBT (Primary)", la care au fost invitaţi reprezentanţi de la Albert Ellis Institute, New York, SUA: Dominic Dimattia şi Jim McMahon. De asemenea, în luna septembrie a fost invitat în cadrul unui proiect de cercetare John Raven, proiect care se va concretiza în adaptarea testului Matrici Progresive Standard pentru populaţia românească. Catedra a organizat în acest an Conferinţa Naţională de Psihologie Industrială şi Organizaţională, Cluj (aprilie – organizator: prof.univ.dr. Horia Pitariu) şi Şcoala Internaţională de Vară de Psihologie Industrială, Bran (iulie – organizator: prof.univ.dr. Horia Pitariu).

Membrii catedrei au participat la importante conferinţe naţionale şi internaţionale de specialitate. Astfel, prof.univ.dr. Mircea Miclea a participat la Conferinţa Internaţională din cadrul Netherland Institute of Advanced Study, Olanda (februarie); Salzburg Seminar, Austria (septembrie); European University Association Conference, Zurich, Elveţia (octombrie). Prof. univ. dr. Horia Pitariu a participat la Conferinţa Naţională de Psihologie Industrială şi Organizaţională, Cluj-Napoca (aprilie); Conferinţa de Psihologie, Singapore (iulie); Convenţia APA, Chicago, SUA (august); Şcoala Internaţională de Vară de Psihologie Industrială, Bran, România (iulie). Conf. univ. dr. Adriana Băban a participat la Conferinţa de la New Europe College, Bucureşti (iulie); Conferinţa Europeană de Psihologia Sănătăţii, Lisabona, Portugalia (octombrie). Conf.univ.dr. Sofia Chirică a participat la Conferinţa Internaţională de Psihologia Personalităţii, Jena, Germania (iulie); Conferinţa Rectorilor Danubieni, Bratislava, Slovacia (septembrie).

Lect.univ.dr. Daniel David a participat la Convenţia APA, Chicago, SUA (august); Conferinţa "Cognitive and Behavioral Therapies", Maastricht, Olanda (octombrie). Lect.univ. drd. Oana Benga a participat la Conferinţa EURESCO "Brain Development and Cognition in Human Infants", Acquafreda di

Maratea, Italia (iunie). Lect.univ. dr. Cristian Sârbu a participat la Conferința Internațională Proceedings of the 16th Congress of the European Association for Cranio-Maxillofacial Surgery, Munster, Germania (septembrie). Lect.univ. drd. Anca Domuța a fost la Conferința Internațională privind Tulburarea de Tip ADHD, Cagliari, Sardinia, Italia (octombrie). Asist.univ. drd. Petru Curşeu a participat la Conferința Națională de Psihologia Muncii şi Organizațională, Cluj (mai); Zilele Academiei Clujene, Cluj (iunie); Conferința Națională de Psihologie, Neptun (iunie). Drd. Aurora Szentagotai Tătar a participat la Conferința Europeană de Psihologia Sănătății, Lisabona, Portugalia (octombrie). Drd. Thea Ionescu a participat la Conferința EURESCO "Mind, Language and Metaphor. Euroconference on Consciousness and the Imagination", Kerkrade, Olanda (aprilie).

De asemenea, membrii catedrei de psihologie au urmat diferite stagii de cercetare şi documentare în cunoscute centre universitare din lume. Prof.univ.dr. Mircea Miclea a urmat stagiul de pregătire "New Leaders in Europe", Salzburg, Austria (septembrie). Conf. univ. dr. Adriana Băban a fost la School of Social Science şi Institute of Public Health, Cambridge, Marea Britanie (mai). Conf.univ.dr. Sofia Chirică a urmat un stagiu de cercetare la Paris, Franța (aprilie-mai). Lect.univ.dr. Adrian Opre a fost la Universitatea Tilburg, Olanda (iunie) şi summerfellow la Albert Ellis Institute, New York, SUA (iulie). Lect. univ. dr. Daniel David a fost la Mount Sinai School of Medicine, New York, SUA (iulie-septembrie). Lect.univ.dr. Cristian Sârbu a fost la Neurocognitive Laboratory, Virginia University, SUA (martie-aprilie), la National Institute of Health, Bethesda, MD, SUA (mai-iunie), iar în prezent este cu o bursă postdoctorală la Neurocognitive Laboratory and Child Study Center, Virginia University, SUA. Lect.univ.drd. Anca Domuța a urmat un stagiu de cercetare la Universitatea Amsterdam, Olanda (mai-iunie). Asist.univ.drd. Gabriela Lemeni a fost la Universitatea din Lisabona, Portugalia (iunie). Drd. Aurora Szentagotai Tătar a fost la Universitatea Indiana, Centrul de Ştiințe Cognitive, Bloomington, SUA (mai-iunie). Drd. Thea Ionescu a urmat un stagiu la Universitatea Indiana, Centrul de Ştiințe Cognitive, Bloomington, SUA (mai-iunie) şi unul la Laboratorul de Ştiințe Cognitive şi Psiholingvistică, EHESS, Paris, Franța (septembrie).

Activitatea catedrei s-a concretizat şi în constituirea Casei de Editură a Asociației de Ştiințe Cognitive din România (ASCR), precum şi în inițierea Centrului de Consultanță Psihologică şi Orientare Profesională "Expert", care va oferi servicii de consultanță în primul rând studenților, dar şi altor categorii din populație.

CATEDRA DE ŞTIINŢE ALE EDUCAŢIEI

Cronica evenimentelor majore pe anul 2002

24 I 2002, Asist. drd. Adina Glava a participat la o acţiune centralizată Socrates Comenius 2 la Cluj-Napoca, în cadrul căreia au avut loc discuţii în vederea realizării unui proiect Comenius 2.1 împreună cu Isabelle le Guillaux, reprezentanta Centre du formation continue "Language et Comunication", Rennes, France şi Claudine Leveque de la Departament de Pedagogie du Haute Ecole Blais Pascal, Iles, Belgia.

10-11 V 2002 Prof. univ. dr. Miron Ionescu şi lect. univ. dr. Muşata Bocoş au participat la Conferinţa Internaţională "Educational Challenges in Post-communist Countries", Cracovia, Polonia.

22 V 2002 Vizită a profesorului Ingemar Emannuelsson de la Universitatea din Goteborg, Suedia, care a susţinut o conferinţă cu titlul "Incluzion Education in Sweden".

20-25 V 2002 Vizită la Catedra de Ştiinţe ale Educaţiei a unui grup de 30 de profesori olandezi, coordonatori pentru cerinţe educaţionale speciale, unde au avut loc diverse activităţi academice, incusiv la şcolile de aplicaţie: Colegiul Pedagogic "Gheorghe Lazăr", Şcoala Specială nr. 1, Grădiniţa Specială. Grupul a fost coordonat de profesorii Tonneke van Galen şi Piet Vendel, de la Universitatea Windesheim, Zwolle, Olanda.

31 V 2002, Asist. drd. Simona Bernat şi asist. drd. Catalin Glava au participat la a II-a ediţie a Sesiunii de comunicări ştiinţifice "Cariera didactică – Standarde şi strategii" a Catedrei de Pedagogie a Facultăţii de Psihologie şi Ştiinţele Educaţiei a Universităţii din Bucureşti.

4-17 august 2002, Şcoala de vară "Cooperare şi interdisciplinaritate în învăţământul universitar". Am beneficiat de prezenţa Prof. dr. Charles Temple de la Hobart and William Smith Colleges, Geneva, New York, co-director al proiectului internaţional "Reading and Writing for Critical Thinking". Din partea Catedrei de Ştiinţe ale Educaţiei au fost implicaţi: Prof. dr. Miron Ionescu, Prof. dr. Vasile Chiş, Lect. dr. Cristian Stan, Asist. drd. Simona Bernat. Participanţii au fost cadre didactice universitare din centrele academice Bucureşti, Iaşi, Galaţi, Oradea, Braşov, Suceava, Alba-Iulia, Arad, Sibiu, Cluj-Napoca. Partenerii externi în proiect au fost: International Reading Asociation, Washington DC.

8-10 septembrie 2002, vizită pregătitoare la Catedra de Ştiinţe ale Educaţiei, în vederea dezvoltării unui

program de masteratat în comun, Prof. dr. Donald Bear, Prof. dr. Susan Tchudi, Prof. Launie Gardner, University of Nevada Reno.

14-15 octombrie 2002, Cluj-Napoca, Seminar Internațional "Standarde profesionale pentru cariera didactică universitară" Cluj-Napoca, organizator Asist. drd. Simona Bernat.

10-22 noiembrie 2002, Curs demonstrativ "Critical Thinking for Faculty and University Students", lector invitat prof. dr. Rick Traw, University of Northern Iowa, organizatori Prof. dr. Vasile Chiş şi Asist. drd. Simona Bernat.

6-10 noiembrie 2002 Seminar internațional "Perspectives on life long learning at initial stages", Santiago de Compostela, Spania, participă asist. drd. Simona Bernat.

25-30 noiembrie 2002, Proiectul Comenius 2 "Think, construct, and communicate: ICT as a virtual learning environment", prima întâlnire de lucru care se va desfăşura la Valladolid, în Spania, participă asist. drd. Adina Glava.

CATEDRA DE PSIHOPEDAGOGIE SPECIALĂ

Cronica manifestărilor ştiinţifice

Manifestări interne cu participare internaţională:

Workshop-ul româno-britanic: *Educaţia copiilor cu surdo-cecitate (Mai 2002)*

Workshop-ul româno-olandez: *Intervenţia timpurie în educarea copiilor deficienţi vizuali (Octombrie 2002)*

Simpozionul: *Orientări metodologice în educaţia integrată/incluzivă (Noiembrie 2002)*

Participări la manifestări internaţionale:

Prof.dr. Vasile PREDA şi lector.drd. Mirela ARION au participat la workshop-ul: *Training of teachers of the visually impaired in Europe (Aprilie2002-Varşovia, Polonia)*

Prof.dr. Vasile PREDA, lector.drd. Maria ANCA şi asist.drd. Laura ŞENDREA au participat la workshop-ul: *Early intervention for visually impaired children (Mai 2002- Padova, Italia) organizat de Universitatea Padova şi Fundaţia Holman*

Prof.dr. Vasile PREDA a participat la workshop-ul: *Education specialisée et education inclusive (Iunie 2002 – Centre national d'études et de formation pour l'enfance inadaptée – Suresnes, Franţa)*

Prof.dr. Vasile PREDA şi asist. drd. Laura ŞENDREA au participat la conferinţa: *New visions: Moving toward an inclusive community*, cu lucrarea "A cognitive approach to teaching-learning methods of Braille reading" *(August 2002 – Noordwijkerhout, Olanda)*

Asist. drd. Dragoş CÎRNECI a participat la conferinţa: *XXXVIIIth International interdiscipinary conference on clinical and experimental study of higher nervous functions* cu lucrarea "Negative priming: Evoked potentials in panic disorder" *(Septembrie 2002 – Hradec Kralove, Cehia)*