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An Organization Game as a New Form of Organizing and a Method for Developing Collective Thinking Activity

Introduction

The mid-twentieth century has brought many changes in our living conditions, including some cardinal changes in the ways, means, and forms of organizing our thought and activity. It has been recognized that *engineering thinking* is fundamentally different from *theoretical research thinking*, and for its development requires nontraditional logical and methodological paradigms and rules capable of combining research with *designing and planning*. Moreover, it has been noted that *organizational and managerial activity* has become professional, has become part of the system of industrial work, and hence also requires its own logic and methods of thought. *Planning* has become a special type of thinking activity [*mysledeyatelnost'*] (i.e., thinking within a context of practical activity) and has created around itself a special layer of *projective thinking* (combining forecasting, programming, organizational design, etc.), which also requires new means, a new logic, and new forms of organization. We now know that scientific research, partly in the process of its own immanent development and partly under the influence of the aforementioned changes in other areas of thinking activity, has broken itself down into a number of scientific subjects that have developed almost independently of one another. Consequently, to resolve any practical task effectively, special means must be adopted to reassemble these scientific subjects again, to co-

Vop. Psikhol., 1985. No. 3, pp. 33–53.

ordinate them with development, and, finally, to fit them together into standard forms and modules of coordinated organization [*soorganizatsiya*], leadership, and management of thinking activity carried out by groups of people (see [1–4]).

The reassembling process seems to us to be independently important since it correlates changes in the structures of thinking activity with the working conditions of each individual. Today, in operating the technical systems we have created, and in the process of our ever-expanding appropriation of the world around us, we continually encounter assignments and tasks whose solution is beyond the capacities of any one person and requires the participation of a large team that includes representatives of different professions, different scientific disciplines, and different subjects. However, the coordinated organization of all these people into one working system has, as a rule, proved impossible: a person's thinking, organized by profession and subject, poses obstacles that are difficult to overcome, and a high level of professionalism interferes with, more than helps to achieve, joint team effort. The impersonal, specialized thinking of each person, encapsulated in his professional work, does not link up with the impersonal thinking of others; it does not become part of the *aggregate of multisubject and multiprofessional thinking* necessary in such cases.

This situation, which may be noted almost everywhere today, in practically every sphere and branch of thinking activity, produces a very complex *cultural-historical problem*, with many different aspects. Dealing with this problem entails changing many social factors, e.g., training specialists and professionals who will be able to deal with the most complicated tasks of the nation's economy under conditions of collective teamwork; creating more flexible and substantial forms for institutional and administrative organization of collective activity; changing existing forms of education; etc. It is our profound conviction, however, that the most important and crucial factor is still the development of new means, methods, and forms for organizing a kind of thinking that extends across, or transcends, individual subjects and professions, a kind of thinking that is *supradisciplinary and supraprofessional*, i.e., methods, means, and forms of organization that in the recent literature have been termed *methodological*.

In our country, conscious and deliberate development of these means, methods, and forms of organization of thinking began in the late '40s and early '50s, and is currently being intensively pursued in many areas. In one of these, two types of games have been invented or

created as a means of practical realization of two methodologies, one we call *systemic thinking*, and the other, *systemic thinking activity*. These two types were, in the early '60s, intellectual-methodological games and, in 1979, *organizational activity games*.

Today, organizational activity games have begun to be very popular as a means of dealing with complex problems important to the nation's economy and, in addition, as a quite universal and effective form of organization, development, and investigation of collective thinking activity.

The prehistory of organizational activity games

A number of basic components may be distinguished in the process of the genesis and elaboration of organizational activity games, and this prehistory itself can be broken down into a number of periods organized in accordance with the *logico-ontological structure of the category of origin* (see [5]).

Organizational activity games are basically constructed according to the Marxist theory of activity. Their specific origin (their first foundational component) is to be found in certain methodological concepts that have undergone three basic stages in their development: (*1*) from 1952 through 1960—a stage of *substantive-genetic epistemology (logic) and theory of thought* (see [6–10]); (*2*) from 1961 through 1971—a stage drawing on the *activity approach and the general theory of activity* (see, for example, [10–16]); (*3*) from 1971 on—a stage involving the systemic thinking activity approach, with a simultaneous shift in focus of theoretical research and development to the "general structure of methodology" and its basic units, i.e., "*approaches*" (see [19,4]).

Although ideas from all three stages are realized in the practice of organizational activity games, nonetheless, an organizational activity game itself, as a special form for the organization of collective thinking and thinking activity, could appear only in the third stage, in which systemic thinking and systemic thinking activity ideas and methods were combined.

The second foundational component of organizational activity games was the *practice of conducting multidisciplinary methodological seminars*, which began in 1955 and became widespread in the early '60s (see [20,14]). By late 1962, in the course of discussions on *problems of reflection*, on *problems of mutual relations among a project*

organizer, director, and the collective (see [21. Pp. 61–68]) and, finally, on the *organization of multisubject thinking* and, accordingly, on methods and technical syntheses for the coordinated organization of knowledge from different subjects into a unified configuration (see [3,4,22–24]), this methodological practice came to be conceptualized in the idea of intellectual-methodological games. The strictly methodological problem continued to be formulated in a reflexive relationship with the practical experience of the methodological seminars being held at that time (see [21. Pp. 61–68; 12. Pp. 106–21; and 4,20,22,25]).

Parallel with this—and this is the third very important component of an organizational activity game—general methodological, sociocultural, and psychological-pedagogical studies of children's games became a fixture at the Research Institute for Preschool Education of the RSFSR Academy of Pedagogical Sciences after 1961 (see [26–29]). The combination of theoretical and organizational-methodological analysis of children's games with the practice of the work of methodological seminars produced in 1962 the idea of an intellectual-methodological game, which later was to have its own role to play in developing the idea of organizational activity gamess.

By the late '60s or early '70s, we had begun to understand that methodology was not simply a theory of the means and methods we employ in our thinking and activity, but was also a form of organization and thus a "framework" for all of people's vital activity, including thinking activity. This kind of methodology could not be transmitted, like knowledge or a set of instruments, from one person to another, but rather could only evolve, grow out of a context, as it were, through people's being brought into a sphere of methodological thinking activity that was new for them, but in which they were given the opportunity to participate in a complete and integral vital activity. At this point we began to ask ourselves if it might be possible to create practical forms of thinking activity in which collective methodological thinking could evolve not only in narrow esoteric groups of methodologists but also in much broader and more varied groups of professionals and specialists.

This line of reasoning was reinforced and stimulated by projects searching for effective organizational forms for complex and systemic research and development that could provide solutions to the most important problems and tasks of the nation's economy. The purely theoretical search for these forms continued until about 1976.

This entire long period from 1952 through 1976 may be considered

the initial incubation period in the genesis of organizational activity games.

The second period, which was essentially a transitional period, was relatively brief: from the end of 1976 through July 1979. Studies begun jointly with D. A. Aros'ev and V. A. Astakhov involved an attempt to situate the means, methods, and organizational forms created during the course of an intellectual-methodological game in the context and system of *practical learning games*, which we carried out with teams of athletic trainers working in the Olympic training centers. As a result, some quite unique hybrid games, combining the properties of practical learning games and those of intellectual-methodological games, were born.

During this period we carried out four such games, lasting several days, and a few games, on a smaller scale, in which diverse fragments of the larger games were refined. Each of these games was analyzed in detail in subsequent reflective analyses lasting several weeks, and three reports on games were prepared for the Central Athletics Club of the Volunteer Athletics Association of the trade unions (see [30]).

This attempt to situate the intellectual-methodological game within the organizational context and ideology of a practical learning game may be regarded as the fourth and most important component in the genesis of organizational activity games. The principal result of this period was that in the practical work, we saw and came to understand that the task of training topnotch athletes was almost impossible to imagine in terms of any generally relevant norms and models. Under such conditions no one can enact the role of a teacher who has mastered the desired standard; consequently, the means used to train each individual athlete invariably pose an emerging problem that, like many economic or methodological problems, can and must be dealt with as a unique and nonrecurrent case by organizing (modeling) the complex conflict situation, detecting and specifying a set of problems that reflects different aspects of that conflict situation, translating them into packets of traditional and new tasks, and then, finally, resolving tasks in accordance with work plans created simultaneously.

In this experiment we also came to understand that first-rate trainers could not be taught, but had to be *developed in an ongoing process*, and that the organizational form necessary for this should resemble an intellectual-methodological game more than a practical learning game. By spring 1979, a direct and highly concretized project had taken shape for developing a new form of game designed to resolve complicated

economic and sociocultural problems, a game that would thoroughly and vitally involve all the participants in the brain work, develop them, and thus be sufficiently similar to the organizational forms of an intellectual-methodological game, but at the same time would give them a more esoteric and active, practical form. Furthermore, this entire range of questions was also regularly discussed by the people involved in sessions at various conferences and congresses.

We were therefore quite interested in a proposal from one planning organization, made in July 1979, that an analysis be made of the topic "Developing a range of consumer goods for the Ural region," which would include discussion of various economic problems of great importance. This proposal coincided in time with the beginning of joint work by a team from the Research Institute of General and Pedagogical Psychology of the USSR Academy of Pedagogical Sciences and the Moscow Section of the State Institute for Physical Culture on a new topic: "An analysis of techniques for dealing with complex problems and tasks on a teamwork basis when information is incomplete." We immediately decided that this new proposal was optimally suited for designing and testing in practice a *new, complex and systemic organizational form for team thinking activity* aimed at dealing with a complex economic problem; specifically, during the course of this designing and programming development, and later during the organization and accomplishment of the teamwork in general, we could also carry out parallel studies of processes of problem-solving on a teamwork basis when information is incomplete in addition to investigating processes of collective thinking activity in general. Thus, the structure of an organizational activity game came to include—as an indispensable condition and component—the study of work processes, game processes, and everyday living processes of groups and whole collectives. Later experience showed that such studies were one of the most important factors in collective thinking activity, so they were made a permanent, basic component of the very form of an organizational activity game.

Essentially, the decision to design a new organizational form for collective thinking activity aimed at dealing with the problem of "developing a range of consumer goods" brought to a close the *prehistory of the development of the organizational activity game*. The next problem was to *create an organizational activity game* (see [5]) in a situation combining all the components that had naturally evolved during the prehistory with a purposeful, practical setup for the conscious creation of a new organizational form of thinking activity.

The situation surrounding the genesis of an organizational activity game

The situation in which the organizational plan and program for the first organizational activity game were developed was quite unusual from the standpoint of traditional industrial and research situations. It combined a number of factors that we now regard as indispensable conditions for any organizational activity game:

1. The client was in a very complicated situation: he did not know, nor could he imagine, how to achieve the target set forth in his plan, and hence could not himself formulate a plan for the upcoming task, but was waiting to be led out of the blind alley in which he found himself.

2. Methodology developers were clearly aware that the blind alley in which the client found himself in this particular assignment was no accident, but was to be expected, owing to the fact that there were no models or methods within existing professions and disciplines for carrying out the assignment he had received; in other words, this assignment was not a task, but a *problem*, and hence necessarily cut across various professions and disciplines, i.e., it was *multiprofessional and multidisciplinary* [3].

3. Methodologists already knew and well understood that an assignment of this type—and such assignments had become quite typical and numerous by that time—could be resolved only by developing and constructing new organizational forms for collective thinking activity, i.e., specifically, those forms that in the literature have come to be called interdisciplinary, comprehensive, and systemic [2].

4. All of the preceding development of the team of methodologists had placed them in a position for creating a simulated organizational game form for collective thinking activity that incorporated the basic ideas and principles of systemic thinking activity methodology, a form that would graphically demonstrate and prove the practical, applied efficacy and importance of both the form of the game itself and the systemic thinking activity methodology behind it.

5. All the participants in the prospective game, above all, the methodologists themselves, understood quite well that none of them possessed any way to solve the assignment confronting them or to organize the collective brain work necessary under these conditions. Both had to be sought and found during the course of the teamwork itself, and this meant that all the participants had to *develop* existing

means, methods, and organizational forms of thinking activity and to *develop themselves* as well.

It was with this understanding and with these attitudes that we commenced work on the organizational plan and program for the first organizational activity game. The concept of "game" was initially used solely as a convention, and had a predominantly negative connotation, given all the theoretical conceptions of children's and adults' games at our disposal, and given all our experience with intellectual-methodological games and practical learning games. "Game" meant not a conference, not a meeting, not a symposium, and not even work in the ordinary sense of the word, but something quite different, which we only vaguely understood at the time.

Nonetheless, the action we were designing was conceived and discussed mainly in terms of the assigned topic and of its possible thinking activity content, i.e., the work process we had undertaken to develop together with our colleagues at the institute. Since a total of nine days had been set aside for the main part of the game, from the very outset our sights were set not on completing the original assignment as a whole, i.e., developing a range of consumer goods for the Urals, but on concentrating on the first, preliminary stage of this work (which for us was more important): *programming comprehensive research and development* (hereafter R&D), which would later lead to the creation of a range of consumer goods. We were thus, from the very beginning, able to design several work teams each of which focused on its own special range of goods, although as far as programming R&D was concerned, they were all engaged in identical work.

This slight shift of focus had no fundamental influence on the nature of the problem situation: the second topic was just as problematic as the first, since at the time there were no professionals in the area of R&D or any means and methods for such work in the [existing professionals'] established technologies and procedures. We were well aware that if we wished to resolve this problem by collective efforts, then, drawing on the resources of each of the participants as we went along, we would have to grope about, find and fit together means, methods, and techniques for programming thinking activity, on the one hand, and, on the other, symbolic forms for expressing and recording the R&D program itself. But in principle we did not know what any of these things might be, since all existing forms known to us were clearly unsuited for this particular case. Thus, even for us, the formulation of the target assignment was quite paradoxical, and in a certain sense simply unacceptable

(although we now understood quite well that this was a necessary way, perhaps even the only possible one, to formulate a goal in a problem situation): "Go somewhere, and bring back something."

The developers of the organizational plan and the game program were clear that the means, methods, techniques, and symbolic forms for programming thinking activity could be obtained only from what the actual participants in the game already possessed, namely, the means, methods, techniques, and symbolic forms of designing, research, methodological, and organizational and management thinking activity—but again, not through merely combining, mechanically adding up this experience, but only by *reforging and developing* all these things in a collective, multiprofessional, and specially organized thinking activity. This meant that the principal, practical task was to find organizational forms for collective thinking activity that would compel all the participants, first, to work together—and this could be done only if professional work were grouped and systematized—and, second, during the course of this joint work, to transform their own means, methods, techniques, and symbolic forms of thinking in such a way that the result would be new means, methods, and techniques of programming.

It is quite clear that in this first stage of organizational planning and programming of the action to be undertaken, all our goal definitions were strictly situational and contained no ideas for creating a new sociocultural game form. Of course, the developers of the organizational plan and program pursued their own formal goals and ends as well, i.e., to create forms for applied systemic thinking activity methodology and to demonstrate their practical effectiveness (this has already been discussed above). For this reason, all the discussions in the first, preparatory stage were in terms of quite general formulations, although the goals of the work still remained strictly practical and situational: it was necessary to create organizational forms for collective interprofessional thinking activity by a group of people; these forms had to be such that as they themselves developed during the course of the work, they should result in the formation of a thinking activity of a new type, namely, programming in the strict sense. Moreover, this had to be done for the *given concrete conditions* and for the *given*, quite familiar group of people. The developers of the new organizational form for thinking activity at that time had undertaken to do no more than that. Hence, they did not, and could not, know what it was they were creating: whether this would be an organizational form

of collective thinking activity for one time only, a unique and singular creation, or whether it would acquire more general importance and become a general cultural form that would be effective whenever it was necessary to organize collective thinking activity to resolve complicated economic problems. If such questions suddenly arose during the course of the discussions in the preparatory stage, they were mercilessly cut short as premature and totally irrelevant to the essence of the task at hand.

All reflective metaquestions were cut short in the same way: e.g., why we called the projected form of collective thinking activity "a game"; to what extent it really was a "game"; how work processes and game processes and methods of operation were connected in what we were designing; that a person might be playing who only worked or struggled within the framework of the "game" and in principle did not accept the game form and did not perform the acts of the game. All these questions did arise, and were posed in the process of preparing the first game; but, we repeat, they were cut off as unimportant at this stage of the work, and so put off to a future time, i.e., to the reflective discussion of the entire effort after it had been completed.

This, of course, was the weak point of this part of our work: we were operating without many of the necessary concepts, but we did what we could.

For purely external reasons, the work in preparing and conducting the game was divided into two stages, which differed appreciably from one another both in the composition of the participants and in the organizational forms. The first stage, the preparatory stage, took place in Moscow; the participants were mostly future organizers of the game at the R&D institute. At this stage it was necessary to develop the basic idea and conception of the action to be undertaken, to formulate the major *working goals* that were to be achieved with the game (the latter was in this case a *means* for achieving these goals, and was conceived and planned with just this function in mind); to develop an *organizational plan, a program, and a plan* for the game, and even *scenarios* for the most essential and critical aspects; to produce the first, preliminary, functional structuring of the group, to distribute responsibility and duties among the organizers, to define theoretically the major places, roles, and functions that the principal game participants were to fill; etc.

In conformity with the organizational plan of the upcoming game in Novaya Utka—although to a greater extent in conformity with the

interests and the capacities of the organizers—four able figures (or sets of figures) who competed in determining the organizational focus and control of the game were distinguished from the very beginning:

(*1*) a developer of one of the alternative versions of the game program, and, later, a co-leader of one of the working groups; he proposed a *design approach* as the principal and dominant approach for organizing and carrying out the game;

(*2*) a group of young methodologists who had to implement a setup for *situational programming and situational control* of the working processes in the game; this group had to function as the joint leadership in the second working group;

(*3*) the leader of the research on the game, who continually insisted that a *detailed and quite rigid program* for the upcoming investigations should be developed, and that thereafter all of the acts involved in directing and controlling the game should be guided by this program;

(*4*) the organizer and leader of the game as a whole, and at the same time co-leader of one of the working groups, who throughout the entire period of preparing the game criticized the other organizers, insisting on a *freer and more indeterminate, situational, and essentially exploratory style* of leadership and control of the game and the working processes in it.

Again, for purely external reasons, we had only 25 days for the entire preparation of the game; during this time, 11 working discussions were held (of approximately four hours each).

In form this preparatory stage was a "small game" for the organizers, and many of the processes and techniques of the future game were not merely thought through and discussed on the spot but were literally *simulated and played out* (see Figure 1).

Since the means, methods, and techniques of programming R&D were not known, to create them it was necessary to start out on the basis of other different types and kinds of thinking activity. We understood all this quite well, since some fundamental divergences and disagreements arose immediately among the principal co-organizers of the game on the question of how *working processes* should be represented in the game, how they should be constructed, and on what type of thinking activity they should primarily be based. Some said that this should be *systemic designing*; others, that it should be *forecasting*; a third group said that it should be *a technical investigation*; and a fourth group said all these elements had to be combined, but the most important should be the *process of genesis and development of a new type of*

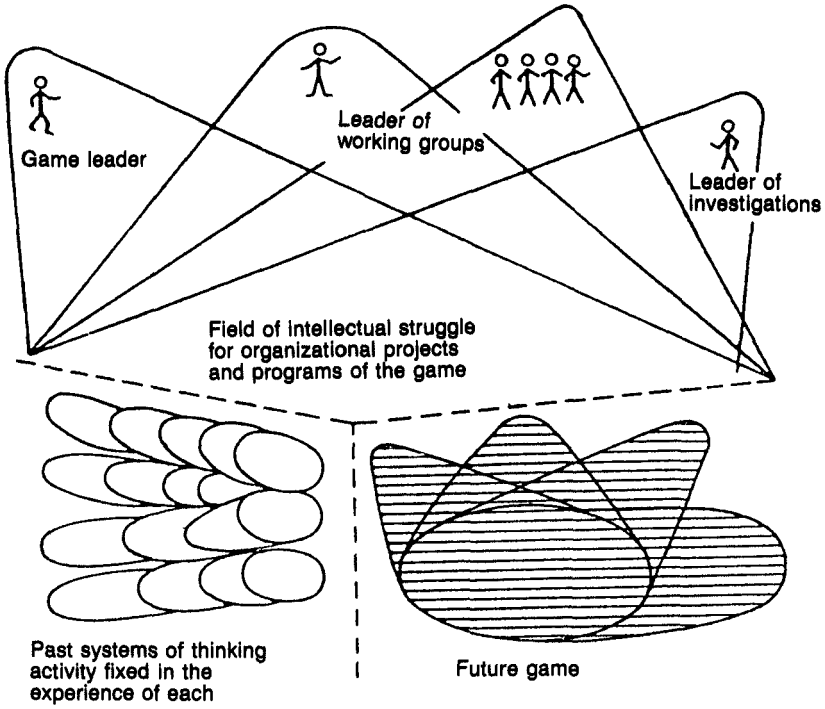

Figure 1. Organizational and technical structure of organizational activity games.

thinking activity—that is, the actual programming of R&D itself. A constant intellectual battle was waged throughout the preparatory stage among [representatives of] these different positions, which, on the one hand, gave the organizers on-the-spot training in the idiosyncrasies of the game and, on the other, went a long way toward promoting a general understanding of the essence of the problems confronting all of us.

The main stage of the game took place from 18 to 26 August 1979. Surprises were in store for us from the very start: since the first days of the game fell on a Saturday and a Sunday, a good many of our institute colleagues simply did not show up, and we had hurriedly to reorganize both the program and the organizational plan of the game. Thus, because of external circumstances, an initial, introductory phase prefatory to the main stage of the game and lasting two days was born, during the course of which we discussed with those institute colleagues who were present the theoretical and methodological problems of R&D programming of the topic "A range of consumer goods." This enabled us, calmly and unhurriedly, to form the main nuclei of the working

groups. This unexpected circumstance considerably facilitated the initial organization of the groups, but it also substantially reduced the time available for developing the game.

The third day was spent mainly on reports about fundamentals, the following being analyzed: (*1*) the general conception, the goals, the program, and the rules of the game; (*2*) a general methodological schema for R&D programming (see [25,3]); (*3*) the conception and ideology of the system-plan approach to programming; (*4*) the connections and relations among work processes in the game, the functional organization of the collective involved in the work processes, and the processes of interindividual and interpersonal interaction among the participants. This was the second phase of the main stage of the game, during which *self-determination* of the participants was to take place with regard to the aims of the game, the game situation, the other participants, etc.

The fourth and fifth days were combined into a single third phase, whose main purpose was to *itemize* and, consequently, *decompose the rigid structures of professional thinking activity* into their component parts: *intellectual implementation, reflection, thought communication, understanding, and pure thinking*. At the same time, we had to delineate the problems of the situation that had evolved in the game and, through it, those of the "greater" sociocultural situation in which the participants of the game would be compelled to work and accomplish the tasks posed them by their particular professions and disciplines.

The sixth day was a buffer day, essentially a reserve day. One-half of it was intended for rest, and the other for a collective theoretical discussion of the working theme of the game in the light of the situation that had evolved during it. This was the fourth phase of the main stage.

The fifth phase, on the seventh and eighth days, was a phase of intensive work on designing and drafting an R&D program on the [given] theme, putting all the material obtained in the process of itemization and problem definition into new *tabular forms* for recording, and refining forms and methods for the coordinated organization of programmatic diagrams into clusters and systems.

On the ninth day (the sixth phase of the main stage of the game), the most important working results were presented: the principles of R&D programming, pure forms of recording program content, diagrams or "moduli," fragments of concrete proposals on the topic "A range of consumer goods," etc. In addition, a *reflective analysis of the course of the game* was undertaken, i.e., its weak and strong aspects, failures and

successes, interrelationships among participants, organizational forms of communication, forms of thinking, and thinking activity were analyzed.

The results of the game impressed all the participants. Although the work had been very stressful, and—compared with other forms of work organization—downright headlong, we of course were unable to do everything we had intended. (The program had been deliberately constructed with an orientation toward work loads that were practically unachievable, and we later made this an obligatory principle in organizational planning and programming of organizational activity games, considering that their principal purpose was to *develop thinking activity and the participants themselves.*) But what had been accomplished practically in nine days of work went far beyond any, even the boldest, expectations of the participants: we had developed symbolic forms for recording R&D programs; we had defined their content, worked out new means, methods, and techniques for programming thinking activity, including new means, methods, and forms for recording general characteristics of collective thinking activity; re-created and refined new means of itemizing and made considerable progress in developing theoretical notions of systemic thinking activity methodology; etc. Most important, we had demonstrated, by a concrete example of practical organization of collective thinking activity, that it was possible to create forms of organization for joint work and interprofessional thinking that would necessarily lead to a fusion and development of original forms of thinking activity and to the generation of new symbolic forms, means, methods, and techniques of mutual understanding and thinking and compel if not all, then at least many, of the participants of the collective work to develop themselves.

The last day of the game took place in an atmosphere charged with emotion. The participants, i.e., the planners, the researchers, and the methodologists, were literally "on a high"; and none of them, despite the tremendous tension and numerous stress situations in the course of the game, wanted to halt the overall work. The success of this form of organizing collective thinking activity was beyond dispute. Hence, the game participants decided to extend it to other cases and situations, which meant that they: (*1*) had adopted what had taken place as a *standard* (model), on the basis of which they could build other similar actions;, and (2) had now essentially undertaken to answer the questions of what this "game" had been all about, what had occurred, and to regard all that had taken place as a new type of game and, according-

ly, to reconstrue and develop the very concept of a game, to develop a methodology and a theory for the organization of games of this type, and to describe at a theoretical and technical level all the processes of collective thinking activity and vital activity that had unfolded within its context.

This essentially completed the prehistory of the organizational activity game and the process of its genesis as a form for organizing collective thinking activity; and completely different processes, processes of development, which constituted the *actual history of the organizational activity game*, began.

On that day, 26 August 1979, the principal stage, organizational activity game–1, ended; and a third stage, the stage of *emerging from the game*, whose first phase was detailed reflection and discussion of the principal methodological results of the game, began; this took place on the train from Sverdlovsk to Moscow on 27 and 28 August. The second phase consisted of four discussions at meetings of the Committee on the Psychology of Thinking and Logic in Moscow in the period 30 August through 15 September 1979. It was then decided to continue this discussion in the same game style in which the first probe had taken place; thus, the reflections on stage organizational activity game–1 became stage OAG–2, which continued up to 14 May 1981 (see the organizational activity game outline).

Organizational activity game practice

During the period from July 1979 through September 1983, the group of researchers that had formed around the Committee on the Psychology of Thinking and Logic of the All-Union Society of Psychologists, the team from the Research Institute of General and Pedagogical Psychology of the USSR Academy of Pedagogical Sciences, and the Moscow Section of the State Institute for Physical Culture carried out studies on the topic "An analysis of practical procedures for resolving complex problems and tasks on a teamwork basis when the information at hand is incomplete"; 20 "big" organizational activity games were conducted under our direction.

This set of games is very difficult to describe as a single entity because of the multigoal, multifunctional, and multilevel nature of each game. It is as difficult to do this as to describe the life of a group of people as a whole. An attempt to get around this difficulty by enumerating the themes of each game in the order of their implementation (see

[37]) elicited understandable reproaches: a purely nominal, yet realistic, method for presenting the material, which entails laborious work of thinking through and putting oneself in a situation, was at odds with our own way of thinking, which was to create conceptual and strictly scientific generalizations. But any abstraction formed on the basis of any one single parameter of a game, even a very essential one, proves to be only a *one-sided cross section*, transforming it from a living, real whole into a lifeless corpse. This was understandable as well, since any organizational activity game is an incredibly complicated, multifaceted structure that can be properly understood and imagined only if it is *lived through* either actually or in a simulated manner; accordingly, only *systemic and exemplified descriptions* can be appropriate to the game (see [22,9,4]). Every organizational activity game should be described, using the *method of going from the abstract to the concrete*, as a totally unique system. This means essentially that there can be no unified theory of organizational activity games, but only, first, the *concept of organizational activity games*, and, second, a *typology of such games*, developed on the basis of the concept and at the same time grounding it.

But to construct such a typology of games, the means and methods for a systemic-topological representation of complex, multifunctional, and multistructural objects must already have been developed beforehand; at present, however, the development of such means and methods is only just beginning to be tackled in those areas of science that are most advanced at this level. Thus, a typology of organizational activity games will more likely appear at one of the later stages of the entire work.

Nonetheless, the games already implemented must be represented in some way, and if possible in a categorized and conceptually defined form. . . .

Among the most important characteristics we can distinguish in the first ventures of this sort, several immediately stand out.

The first of these is the *goal of the client*, which determines the purpose and function of a game from the standpoint of the client's thinking activity and is, to some extent, expressed and recorded in the formulation of the client's order-task for the game.

The second characteristic, of no less importance, is the *goal of the organizer and the leader of the game*, which in most cases is specified in the formulation of the theme, in the organizational plan, and in the program of the game.

The third characteristic is the *structure of the organizational plan*

and program of the game, which is usually recorded in the rules of the game and is discussed in detail in the leader's preliminary reports. A description of the organizational plan and the program of the game makes it possible to go on to a typography of the games.

The fourth characteristic, the *results, products, and consequences of the game*, are usually recorded in *reflections after the game*, but can also be noted during the stages of conception and preparation of the game, in which they will then be expressed and embodied to some extent in the organizational plan and in the program.

These four factors, which surfaced, we repeat, in the very first attempts to classify types of organizational activity games, are, of course, interrelated and interdependent—indeed, we endeavored to underscore this. Nonetheless, each of them has, at the same time, its own independent life, and may continually diverge from the others. The aims of the client may differ from the aims of the organizer and the leader of the game; moreover, each of these usually has several concurrent aims, not just one, and these may change in rank during the course of the game. The formulation of the topic may not correspond to the formulation of the client's order, or the organizational plan and the program of the game may have a multitude of aspects that diverge from the objects of the client and the leader. For all these things there is sufficient freedom of action for the entire team of participants in the game. Competition and struggle therefore occur, and the end result will be a mass of new products and consequences not envisaged either in the aims of the client and organizer of the game or in the organizational plan and program.

All these factors make categorized descriptions of organizational activity games extremely complicated, of necessity syncretic, very unsystematic, and dependent on our situational goals. This is what, in the past, induced us to turn to a simple listing of past games according to the titles of their topics so as to achieve some degree of objectivity. But this has become impossible. Hence, we have to define a set of very provisional *integral parameters* on which to base our categorizations of organizational activity games, which we may call the "*semantic orientation of organizational activity games.*" We have distinguished nine such general semantic orientations in all, and then classified our past major games accordingly, which has yielded the following list:

1. Three games involved an orientation toward the *solution of industrial organizational problems* (1–11: "Shutting down a nuclear power

plant and determination of prospects for its further use," August 1981; I-15: "The city. Fundamental tasks of developing programs for development, models, and a general plan of a city," April 1982; I-18: "Improving the organizational forms of a repair and assembly facility for a nuclear power plant," August 1982). Three additional games (I-1, I-3, and I-22) had this as their most important secondary topic.

2. Six games had an orientation toward the *solution of fundamental scientific problems* (I-7: "Securing normal functioning and the development of technologies and activity at a nuclear power plant," March-April 1981; I-23: "A systemic approach to geology—Prospects for dissemination and development," April 1983; I-24: "New forms of learning and investigation: A situational analysis and an analysis of situations," April-May 1983; I-25: "Ways and means of defining systemic objects," May 1983; I-26: "A geological taxonomy and systemic approach," May 1983; I-23: "Prospects for and ways to automate thinking activity systems," May-June 1983). This was also the most important secondary topic for four other games (I-3, I-11, I-12, and I-22).

3. Three games involved an orientation toward *programming the development and implementation of radical innovations* (I-10: "Programming the social development of the work force in construction of a nuclear power plant," June-July 1981; I-15, mentioned above; I-22: "Goals, programs, and forms of coordinated organization of research and development in the principal scientific planning institute of a sector of the economy," March 1983). This was also the most important secondary theme for two other games (I-20 and I-29).

4. Six games had an orientation toward the *programming of comprehensive scientific research* and development (the above-mentioned I-1; I-2: "Putting together a work team and developing a program for comprehensive interdisciplinary and multitopic methodologically organized studies of organizational activity games," September 1979-May 1981; I-5: "Formation of an organizational structure and program for the work of an 'Institute of Comprehensive Applied Studies of Organization, Management, and Administration,' operating within a system of a research and industrial association," February 1981; I-14: "An organizational activity game on the topic 'Communication and mutual understanding as an object of composite studies,' carried out in the form of an activity game," April 1982; I-19: "Goals and processes of goal formation in collective thinking activity: Development of the target part of a research program on a topic," August-September 1982; I-20: "Programming and organizational planning of industrial practice and the practical training of students in institutions of higher learning," October 1982). This was also the most important secondary topic for another three games (I-3, I-17, and I-22).

5. Five games had an orientation toward the *development and study*

of new forms of instruction and education in institutions of higher learning (I-12: "The educational process in an institution of higher learning," November 1982; I-21: "Ways and means of improving industrial practice of students in institutions of higher learning. First stage. Forms of organization of the practical training of students in institutions of higher learning in the year 2000—Fundamental problems," January-February 1982; the above-mentioned I-20 and I-24; I-29: "Problem-related and task-related organization of situations and systems of professional-industrial and learning thinking activity," September 1983). This was the most important secondary topic for four other games (I-4, I-13, I-16, and I-17).

6. Four games involved an orientation toward *the general education, training, and advanced training of cadres* (I-8: "Putting together a game team for the major game 'The city,'" April 1981; I-9: "Assuming the post of director of the nuclear power plant construction administration," May-June 1981; the above-listed I-19; I-13: "Educational work in an institution of higher learning," October-November 1981). This orientation established the model for work in another 13 games (I-1, I-2, I-4, I-5, I-16, I-17, I-19, I-21, I-22, I-23, I-24, I-25, and I-28).

7. Five games had an orientation toward *comparative analysis and study of different types of thinking activity* (I-3: "Design—drafting and design programming of systems—A comparative systematic thinking activity analysis," August 1980; I-4: "Determining means, methods, and techniques of inventive activity," November 1980; I-17: "Programming and organizational planning in different spheres of thinking activity," August 1982; and games I-10 and I-20, already mentioned). In another three games (I-12, I-13, and I-16) this was the most important secondary topic.

8. An orientation toward *the study of structures, processes, and mechanisms of thinking activity* characterized 19 games (the already mentioned I-1, I-2, I-3, I-4, I-9, I-11, I-12, I-14, I-15, I-17, I-19, I-20, I-21, I-24, I-25, I-28, and I-29, plus I-6: "Foundations, mechanisms, and processes of understanding of a complex scientific text in an interdisciplinary group," February 1981; and I-16: "Processes in problem definition in an organizational activity game," July 1982).

9. An orientation toward *study of the interactions and interrelations of individuals and groups in institutional and club structures* was extremely important for at least nine games (I-1, I-2, I-5, I-7, I-9, I-11, I-22, I-24, and I-28), but it was touched upon to some extent in all the other games as well—without exception.

In addition to the "major" games listed above, another series of somewhat smaller-scale games was performed on the basis of the

standards evolved: in Khar'kov, at the Khar'kov Research Institute for Public Works, by Yu. L. Vorob'ev and his colleagues, and at the Khar'kov Civil Engineering Institute, by A. P. Buryak and Yu. M. Mikheev; at Gor'kii, at the Gor'kii Civil Engineering Institute, by K. Ya. Bazina; at Kiev, at the Kiev State Institute for Physical Culture, by Yu. N. Tepper, and at another Kiev Research Institute, by V. L. Avksent'ev and A. P. Zinchenko; at Yaroslavl', by V. V. Dudchenko and coworkers; and at Voroshilovgrad, at the Academy of Sciences of the Ukrainian SSR, by A. S. Kazanovskii.

Hence, we can say that the first practical and sufficiently objectified experience in organizing and carrying out organizational activity games has now been accumulated, and the time has come for an analytical and critical discussion of this experience at different levels: organizational, educational, planning, research, etc. Of course, the range of questions that must be discussed is extraordinarily broad and varied, and the very subject of the discussion is extremely complicated because of its multilevel and systemic nature. Hence, in any attempt to explore organizational activity games, one can hope to distinguish and analyze only some isolated aspects initially, and this will inevitably give the reader an impression that the descriptions are one-sided and fragmentary, and thus unsatisfactory. At this point, however, we see no other way to proceed in our analysis, and we should like here to examine organizational activity games from the standpoint of the basic thinking activity schema.

Organizational activity games as thinking activity

Above we pointed out that from the very outset, we conceived of organizational activity games as a form of practical realization of the theoretical notions of systemic thinking, systemic activity, and systemic thinking activity methodology, i.e., as having a definite *object* and a definite *purpose*. What this means essentially is that these games were in many respects created *technically*, and hence are *technically organized practice*. From the standpoint of common sense, this is trivial and quite obvious; but it necessarily follows from this that organizational activity games must be recorded by their organizers as "objects of technical actions" and, consequently, as presupposing particular ontological schemata (see [10. Pp. 19–56; 3. Pp. 97–107 and 121–127]).

These schemata may be specific, establishing distinctive features of

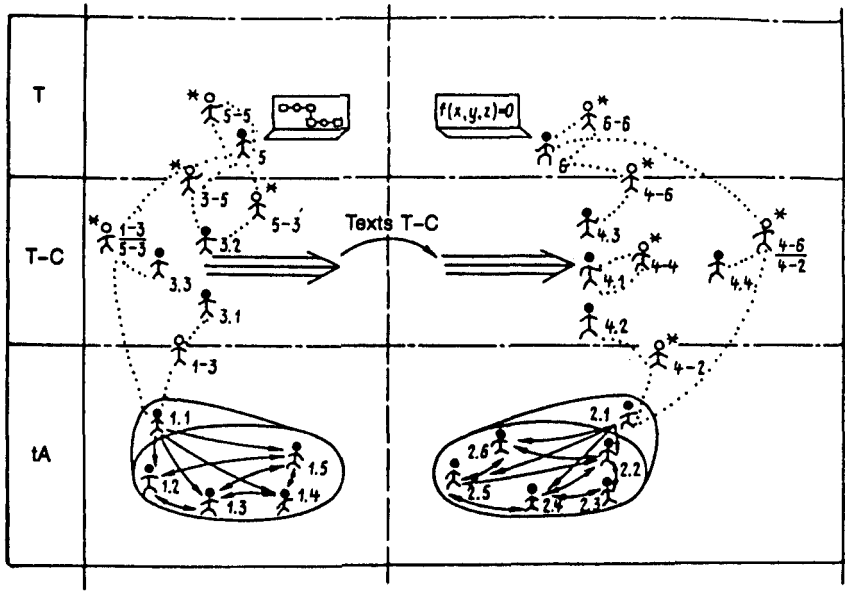

Figure 2. Basic schema for thinking activity.

games, organizational activity games in particular, or nonspecific, representing such games as, say, a system of thinking, or thinking activity. The functions of these schemata in the development of a methodology and of a theory of organizational activity games are, of course, not the same. What is important is that both the methodological and the theoretical aspects of these games are needed equally by game organizers for analysis, planning, and programming of the games. Moreover, nonspecific schemata may prove to be more important in practice if the working goal of the organizers is not the game as such, but certain processes of thinking and thinking activity in the game team. In this case, notions about thinking and thinking activity will predominate and be the center of attention of the organizers, whereas notions about the game will recede into the background, and perhaps be much less developed and detailed.

As we have observed, organizational activity games were constructed in light of this set of theoretical notions, and all the specific games have subsequently been organized and carried out using this set. This circumstance completely justifies the sequence in which we have introduced and discussed the ontological schemata: we began with general notions of organizational activity games as systems of thinking, activ-

ity, and thinking activity, and then gradually moved on to conceptions of an organizational activity game as a game of a particular type.

The basic ontological schemata of the systemic thinking and systemic activity approaches and the principles of their construction have been described a number of times in the literature (see [6,8,10,11–18,1], whereas the basic schemata of the systemic thinking activity approach have rarely been described, much less commented upon, despite the fact that their nucleus was formed in 1979. Hence, in establishing a general context for a methodological and theoretical analysis of organizational activity games, it is necessary, first, to introduce a basic schema for thinking activity (see Figure 2).

This schema contains three relatively autonomous *fields* of thinking activity arranged horizontally one above the other: (*1*) a field of socially organized collective *thinking actions* (designated tA); (*2*) a field of *thought communication*, which is expressed and reinforced primarily in verbal texts (designated T-C); and (*3*) a field of *pure thinking* emerging as nonverbal schemata, formulas, graphs, tables, charts, diagrams, etc. (designated T).

The central and key aspect of this three-field system is T-C; the other two may be regarded as lying on opposite sides of the T-C axis—an absolutely fundamental aspect with regard to determining the places and functions of pure thought in a thinking activity system: each of the above fields has its own *specific reality*, and the reality of pure thought (T), according to this schema, is the second boundary, lying, as it were, *opposite* the reality of tA, which develops directly on the basis of the material it encompasses. This circumstance corresponds accurately to what we have been able to determine at the phenomenal level: that the plane of the desk or paper on which we write is counterposed to the real world of tA if we regard it in relation to the T-C axis.

To simplify both the schema and the object used as an example in illustrating the basic principles of analysis, we may introduce a vertical axis of symmetry, distinguishing thus the simplest case of *dialogic organization* of T-C; to record and examine more complicated cases of *polylogical organization of T-C*, more complicated schemata must be introduced. Similarly, to simplify and shorten the procedures for idealization and explication, the entire two-sided dialogue is not presented in this schema, but only one act of T-C, the unilateral conveying of the text of a message, so that the functions of the participants in the dialogue are polarized.

For each field of thinking activity, a set of *positions** is introduced into the schema as vehicles for the corresponding thinking activity processes.

In the lower field, these were the thought action (tA) positions 1.1, 1.2, and 1.3, and on the right side, the positions 2.1, 2.2, 2.3, etc. The differentiation of tA situations in itself took place relative to the T-C process, on which, as we said, the schema was focused; this corresponded to how most organizational activity games were actually organized in practice. As a game evolves, tA situations may be combined into one (this is what takes place in general sessions of the entire group), and then T-C may be regarded relative to the framework and conditions of a single tA situation; or they may be treated separately, as happens during the work of individual groups, and then the T-C process becomes the only form binding together and organizing the overall thinking activity.

The forms and methods for determining tA processes are extremely complicated, especially because of their variety. First there will be *cultural norm-setting*, characteristic of all self-reproducing systems (see [11,13–15]), then *social organization* [15], and *target determination*, characteristic of all the steps in an action, and *T- (technological) determination according to the means, methods, and techniques of thinking activity, and determination by objective laws* [11], etc. In other words, all thought action systems are *heterogeneous, heterochronic, and heterarchic polysystems*, and will require corresponding multilateral and multilevel description, planning, and programming.

In the middle field, accordingly, there will be *communicating* positions: to the left of the schema, positions *expressing* thought in a verbal text, and to the right (depending on the conditions of simplification and idealization), positions *understanding* these texts and creating, in accordance with this conception, the *sense of the situation* (see [19]). Three abstract positions may be distinguished on the left side of the schema depending on what thinking activity fields connect with the T-C text during the course of its expression: 3.1 when the T-C text expresses some aspects and moments of the tA situation recorded during reflection on the situation; 3.2 when the T-C text expresses some aspects and moments of pure thinking; and 3.3 when aspects and moments of thought action and pure thinking are connected in the T-C text. Analogously, four understanding positions may also be distinguished for the right side of the schema: 4.1 when the T-C text is

*By "positions" the authors appear to mean a particular mode of interaction and associated knowledge characterizing a person in that position.—Ed.

understood and conceptualized in *communicative reality in the strict sense*; 4.2 when a text is understood by moving into tA; 4.3 when the text is understood by moving into pure thinking; and 4.4 when understanding of the T-C text takes place by comparing and separating the components of pure thinking (T) and tA.

This point indeed reveals a fundamentally important asymmetry of the positions of the person creating a T-C text and the person understanding it. Often what happens is that a text expressing some aspects and moments of a situation of thinking action (tA) is understood by moving from it into the pure thinking (T) field and, conversely, a text expressing the reality of pure thinking is understood by entering a tA field.

It should be pointed out, especially, that a T-C field is not, for all practical purposes, susceptible of a differentiation into correct and incorrect. It "lives" in conformity with polylogical principles (i.e., many logics), contradictions and conflicts. This is always a field of struggle and mutual negation, which gives T-C its special meaning and justifies its existence as a special thinking activity field.

The upper thinking activity field band contains the *thinking* positions. In the provisional form of the proposed schema, position 5 constructs his pure thinking on the basis of the *experience of his own tA and its expression in T-C texts*, whereas position 6 does so primarily on the basis of an *understanding* of alien texts (rooted in the experience of his own tA).

In contrast to all the other thinking activity fields, the thinking field has its rigorous *rules and laws*, which, moreover, are quite standardized. This is what Aristotle called "logos," the strictly logical rules of formation and transformation of symbolic forms, all mathematical operational systems, all formal and formalized fragments of scientific theories, all objective scientific "laws" and "regularities," all schemata of ideal objects determining the thought process, all categories, algorithms, and other schemata for operationalizing thinking processes.

All schemata, formulas, graphs, tables, etc., may be interpreted and used, depending on the methods of interpretation, in thinking processes either as *forms depicting* ideal objects and idealized thinking procedures or as *ideal objects themselves* on which our thought is based. As a rule, in these cases it is assumed that there is a direct correlation or "parallelism" between the form and the ideal content [6]. The rejection of this principle generates completely new structures for substan-

tive and methodologically organized thinking, evolving in accordance with the "plurality of knowledge" principle (see [22. P. 4]).

Each thinking activity field has its own *specific activity*, and relations of identity can never be established among these three types of reality: they can only create *congruent projections*, or representations, of one another through reflection and understanding, and each time this can be done only by the *reformulation of one into the other*. The *content* of each of these forms will appear as a result of a secondary reflexive fixation of what has already been represented. Hence, we shall call thinking (T), T-C, and tA *real* when they are regarded within ontologically interpretable systems of thinking activity as components or subsystems. Conversely, a thinking activity schema will be regarded and interpreted as "*actual*" when we postulate it in relation to, and within the system of, thinking (T) strictly defined; at present such thinking (T) is *methodological thought about thinking activity*.

All three fields of thinking activity evolve, in accordance with the original assumption, along horizontal lines; but they are also combined in one systemic whole, through both the above-mentioned processes of understanding and through processes of reflection. Processes of reflection pervade all tA, T-C, and thinking (T), and are represented on the diagram by vertical links, movements, and junctions (see [1. Pp. 131–43]). The vehicles of reflection are represented by the symbols of the positions with asterisks; and the combinations of figures attached to them—for example, 1–3, 3–5, 6–4, etc.—designate the functional place of the corresponding act of reflection. The first figure symbolizes the processes of thinking activity being reflected; the second, the process in which reflection finds a form in which to be expressed and recorded. For example, there may be reflexive positions of the type 1–1, 3–3, etc., indicating that the form for expressing and recording reflection is to be sought in the same process of thinking activity that was the object of reflection.

Each of the above-named thinking activity fields may be isolated from the others and function as a relatively autonomous and independent system. Thinking may be formalized and thus be wholly divorced from reflection of T-C and tA and become a special *intellectual activity* for developing pure forms of thinking, a special kind of *production of symbolic and epistemic forms*, with substance, but with no semantic connection to practical tA. In the same way, T-C can divest itself of its reflexive connections and relations with tA so that thinking develops only within the narrow confines of T-C reality, thus becoming ineffec-

tive and meaningless speech, empty conversation, neither organizing nor underpinning either thinking (T) or thought action (tA). Similarly, isolated tA, divorced from T-C and pure thinking, can come into being, thus becoming a reproduction devoid of any and all mechanisms of development. In each of these cases we shall have only a degenerate form of thinking activity. And no matter how refined and correct it might be from the standpoint of the existing norms of thinking (T), T-C, or tA, it will still remain lifeless and meaningless from the standpoint of the historical interests of thinking activity as a whole.

History has given us many examples of such a degeneration of thinking activity and, moreover, has demonstrated a number of special forms, means, and methods developed to retain the semantic integrity of thinking activity under conditions in which tA, T-C, and the T fields forming it have been separated from one another and have dissociated into independent forms of thinking activity that have lost both meaningfulness and liveliness (see [35]). In particular, what we call a "scientific discipline" or a "science" (created as a structure and organized entity in the first half of the 17th century and most clearly reflected in the works of Francis Bacon and Galileo) is nothing more than the form and means of joining together contemplative philosophical thinking and methodological thinking with real technical tA directed toward the things of the technological and natural world surrounding us (see [11. Pp. 109–11; 1. Pp. 117–125; 4. P. 213]). *Empirical facts* were taken from traditional tA, *ontological schemata and pictures* were taken from philosophical and theological thinking (T), and *problems, tasks, knowledge, and concepts* were taken from T-C; to all this were added new and specific structures, *models and experiments* establishing the relationship between traditional forms of T, T-C, and technical tA. And with the aid of *new schemata for reflexive iteration*, all this was tied and coordinated into new *symbolic-epistemic organizations* of thinking activity, which Galileo dubbed the "new sciences." This established the foundation for a new *form for organizing thinking activity*, by subject matter, that combines designing and routine practical T, using idealized processes and ideal objects, with a materially oriented understanding and technical tA within the framework of a single organizational unit. But the groundwork was also laid for the *professions* (in the modern sense of the term), *engineering*, as a hybrid linking science and art (see [4. P. 36]), and overarching connecting links among scientific subjects, technical tA, and philosophy—i.e., the "scientific disciplines" [2].

At present these forms for the coordinated organization of T, T-C, and tA into subjects and disciplines have once again come into contradiction with the prevailing forms of technical and organizational and managerial practice that require a composite intellectual effort embracing many disciplines and subjects. This has again put on the agenda the task of creating new, more complicated, and more flexible forms for the coordinated organization of T, T-C, and tA, forms that could facilitate swift dissolution of the subject-related straightjackets of the existing structures of thinking activity, keep their sense and content in non-subject-related (or suprasubject) symbolic forms, and reconstitute them into specific subjects in structures and organizational forms of T, T-C, and tA corresponding to the assembled complexes of thinking activity.

The development of a methodology for organizational activity games is one attempt to meet this demand. The most important of the forms created by it for the coordinated organization of T, T-C, and tA into integral units of thinking activity is organizational activity games. Hence, one cannot understand the functions and purpose or the intrinsic nature of such games without an expanded schema for thinking activity that would show the multitude of forms in which it exists, plus the processes, on the one hand, dividing thinking activity into different fields and, on the other hand, linking them together into a integral whole.

In assembling representatives of different professions and scientific disciplines in one working situation, we ensured beforehand a diversity of intellectual schemata, used by them in their common work, a low level of coordination, and often even complete incompatibility of statements and viewpoints and differences in tA models and plans. The result has been contradictions, conflicts, and interruptions in collective thinking activity. This forced those taking part in the common effort to assume reflective positions. A shift in the overall thinking activity of the collective along the "reflective verticals" set in at the same time as new reflective forms of T-C were created, oriented toward determining and recording the causes and sources of the contradictions, conflicts, and interruptions in thinking activity. At the T-C level all this work was formalized as *situational analysis, goal determination, and situational problem definition* for the work in progress.

A comparison of what is taking place "here and now," i.e., in a game situation, with what takes place in industrial and sociocultural situations external to the game enabled the game participants to define

themselves not only in the game but also in terms of the socium as a whole. The contradictions and conflicts in the game were perceived as manifestations and particular cases of generally significant contradictions within a given profession or discipline.

At the same time as all this was happening, a clarification of the cultural and social meaning of the positions and viewpoints of the opponents began to emerge. An interest in their methods of work developed, and attempts were made to analyze the general structure and the principal components of their thinking activity. But this did not yet move the group forward toward a solution of the initial assignments. Usually a group does not become aware of the need to coordinate organization of the work of everyone into a single whole, and the adaptation of the thinking and thinking activity of each to this whole usually took place at the end of the third day of work or, in the extreme case, at the beginning of the fourth day. But there were still no [standard] means and methods for doing this.

To begin consciously and deliberately to construct a new system of collective thinking activity and to reorganize its individual components on the basis of the interests of the whole, a *technical notion of thinking activity* must exist; and it was necessary to be clear about its structure, social and cultural organization, means and methods of work, etc., and to represent thinking activity as the *object of the organizational and technical action* of the collective. But this, in turn, could be done only in the *actuality of thinking, or thinking activity*. A new reflective shift began along the verticals of the overall thinking activity, this time from the T-C field to the field of pure thinking (T). The collective sought new schemata and new symbolic forms to represent a situation of collective thinking activity in an objectively oriented form. At first it was not very clear what kind of a situation this was, a game situation or a sociocultural situation: in the activity of thinking, the difference between them was initially blurred, and to grasp it, a special technique for understanding schemata and for working with them was necessary. As soon as the first schema appears for recording and representing situations, *situational analysis* becomes an *analysis of situation*.

But the possibility, characteristic of methodological thinking, of dual work with an *objective-ontological and organizational* schema emerged (see [3. Pp. 121–26]). A flat piece of paper or a desk was no longer sufficient for setting down and depicting this variety of methods of work with one schema in the actuality of thinking. A *multidimensional spatial form* had to be introduced to separate and organize the

different activities, in a coordinated manner, into one unified process of thinking and into the complex, polylogical T-C underpinning it.

Attempts at intellectual analysis and representation of the thinking activity of different participants in the common work, begun in the phase of conflicts and contradictions at the T-C level, induced us to introduce ever newer plans for representing thinking activity and to situate them in different planes of a spatially organized activity of thinking about thinking activity. Thus, the thinking activity schemata were given separate planes for *values, goals, means and methods, procedures and technologies, subject-related or objective-ontological content*, etc. Many of these planes were *at right angles* to one another, which enabled us to design and compose new, composite systems of thinking activity.

Thus, after having been engaged in thinking or thinking activity, the participants in the collective work begin to *project and program their future thinking activity*; they begin to change and transform both themselves as thinking, communicating, and practically thinking persons. As they move in the different planes of the spatially organized conceptions of thinking activity, they define various aspects and plans of their thinking activity and correlate them with one another, selecting permissible and effective combinations for the given conditions.

All this work takes place in *forms of thinking not confined to the terms of particular disciplines*, e.g., situational, tabular and typological, structural-functional, etc., and belongs no longer to the scientific sphere, but to the sphere of methodological thinking, which develops formally on the basis of objects, passing, as it were, through them [4]. At this stage, and in this process, the participants in the organizational activity game, on the one hand, assimilate already existing means, methods, and technology of methodological thinking and, on the other, create new means, methods, and technology or, in any case, demonstrate those gaps for which such means, methods, and technologies must be created as a bridge. Hence, methodologists invariably obtain in each such game their own empirical, practical, and experimental material in terms of the most modern, most developed forms of projective thinking. But that is not the end of the matter in an organizational activity game. All programs of thinking activity created in the zone of pure thinking not confined to particular disciplines, all newly projected structures of T-C and tA, must also be *realized*; the game participants, as it were, fit them into their collective work, "immerse themselves in them," and begin to create new practical experience of tA. As a result,

organizational projects and programs of new, complex systems of thinking activity receive empirical verification (in conditions of game simulation) for internal coordinatedness, effectiveness, reliability, and stability in different sociocultural environments. tA systems that have justified themselves are fixed in the form of models, and norms are set for them; those that have not justified themselves are either discarded or extracted from their disciplinary contexts and developed further in those same reflexive cycles in the next phases of work.

Thus, an organizational activity game is not simply one more special form for organizing pure methodological thinking or T-C, but a new form for organizing thinking activity as a whole, a special unit of a *practical system* of thinking activity, organically linking thinking, T-C, and thinking activity into structures of a type that ensures continuous development of thinking activity systems and, at the same time, the variation and transformation of all anthropological and sociocultural material encompassed by them.

Collective thinking activity, of many different natures and many levels of complexity, can be organized and realized in the form of organizational activity games. In other words, such a game is a form for organizing collective thinking activity in which varying content may be embodied (represented, formalized, simulated). Of course, it will then be only a content to be played out, weakly normed, plastic, and unstable. But this is precisely the reason why we turn to the game as a special type and special form for organizing thinking activity.

This capacity of the organizational activity game as a universal form for simulating different types and kinds of collective thinking activity has enabled us to use it for the most varied purposes and functions. The specific purposes and functions depend on the type and nature of the thinking activity systems that adopt an organizational activity game and strive to use it for their own purposes. If an external system user of an organizational activity game is, for example, an *industrial* user, the game will acquire an industrial practical purpose, and can serve as a means and method for resolving industrial problems and tasks. But if the external system user is *pedagogical*, the game may serve as a means and method for instructing and educating children in school or as a means and method for training and retraining engineering and managerial personnel. Within the context of an *innovational service*, an organizational activity game may be used as a means and method for introducing various tA and organizational innovations; and in a *development section*, it may be used as a means, method, and organizational form

for developing different structures and techniques of thinking activity (including techniques, means, and methods of pure thinking, T-C, understanding, reflection, and tA). Within the *sphere of culturotechnology*, organizational activity games may be used to obtain new examples, models, standards, and norms, and to develop systems of culture that integrate them; within the sphere of *sociotechnology*, they may be used to form consolidated groups and collectives; within the organizational and managerial sphere, they may be used to create new organizations and "machinery" for thinking activity; and within the *sphere of national research institutes*, they may be used to create new projects and new research programs, and to pose and resolve scientific problems and tasks.

Conclusion

The organizational activity games that have so far been completed and the entire system of theoretical and empirical practical investigations serving as their foundations have shown that such games may be used as a form of organization for collective thinking activity as a means and method for:

—analysis and description of situations of collective thinking activity;

—precise formulation of complex problems within the nation's economy;

—programming comprehensive research and development for translating these problems into sets of professional and disciplinary tasks within the competence of particular disciplines and professions, followed by resolution of these tasks in accordance with the conditions and requirements of the particular situation;

—introduction of a system of new structures (including mechanized and automated) into different spheres of social practice;

—ascertainment and formulation of the aims of artificial-technical development of different systems and organizations of thinking activity;

—artificial-technical development of different systems of thinking activity: production-technical, research and design, pedagogical, organizational and managerial, etc.;

—artificial-technical development of institutions, collectives, groups, and individuals;

—advanced training, training, and retraining of specialists and man-

agerial personnel in different branches of the economy;

—instruction and socialization of secondary-school and college students;

—comprehensive experimental investigations of different systems and organizations of thinking activity and the vital activities of people, including:

(*a*) a system of collective thinking activity of varying complexity;

(*b*) the behavior and actions of individuals under different organizational, social, and cultural conditions;

(*c*) processes of self-determination and self-organization of people under conditions that are new for them;

(*d*) interrelations and interactions among people in small and large groups (including conflict interactions and struggles);

(*e*) positional, role, status, personal, cooperative, and communicative structures of groups and collectives;

(*f*) processes and methods of problem solving, processes of goal definition, analysis of situations, problem definition, formulation of basic and applied tasks;

(*g*) situations, processes, and mechanisms of learning—teaching and education;

(*h*) processes and mechanisms of development of thinking activity, group structures, institutions, and individuals.

This outline of potential practical uses of organizational activity games opens up a wide area for work in the most varied areas.

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