THEORY OF LEARNING ORGANIZATIONS – SOME METHODOLOGICAL REMARKS

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Purpose: The transformation of political, social, business and many other organizations into learning organizations is very needed. Such a process should be supported by the theory of learning organizations. This theory, if it is to play more effectively its role, should continue to develop. According to opinion of the author of the present text, improving the conceptual basis of this theory and of its logical structure is one of the desired directions of this development. The purpose of the paper is to contribute to such a development.

Design/methodology/approach: This text has character of logical analysis of theoretical concepts and theorems.

Findings: The theory of learning organizations is an interdisciplinary theory including elements of such disciplines as epistemology, system theory, cognitive sciences, psychology (of learning), sociology (of organizations), theory of social communication and management sciences. One, common consistent theoretical language is a necessary (though: not sufficient) condition for transforming theory of learning organizations into a more coherent theoretical system.

Research limitations/implications: The analyses presented in this text are rather of preliminary character. They should be continued; especially, some formal (mathematical) methods should be applied.

Practical implications: Precising, clarifying and systematizing theorems – are important conditions for any social theory to influence effectively politics, governance and management.

Social implications: The better function various organizations, the better (sustainable, ecologically safe, socially just, etc.) – all other factors equal – society.

Originality/value: The paper undertakes important but little-studied aspects of the theory of learning organizations.

Keywords: learning organizations, meta-knowledge, self-knowledge, possible-worlds knowledge, cognitive virtues.

Category of the paper: Conceptual paper, viewpoint.

1. Introduction

The last 250 years or so have been a period that in many ways differed from the earlier epochs. A systematic characteristic of these differences could be the subject of a large paper (if not even a book). Therefore, it cannot be presented here. Yet, at least a partial characteristic seems to be desirable (or, perhaps, even necessary). To outline it, I am going to discuss briefly the following four concepts: acceleration, complexity, "revolutionary" changes and knowledge.

Let's commence with some words on acceleration. This concept (easily defined in elementary calculus, to invoke this well-known definition would be superfluous) can be applied to characterization of various processes: from physical, through biological to psychological and social (cultural, civilizational). It is evident that a great number of processes have since the end of 18th century considerably (and visibly!) accelerated: from the number of humans living on the Earth, through the amount of natural resources being consummated, to the number of international organizations and of scientific books and journals (Many of these processes accelerate very fast: exponentially or even still faster).

Among the accelerating processes is that of complexification: the tools and techniques, the legal systems, institutions and organizations, the interconnections between various elements of the global (socio-techno-eco-) system, etc. – they have been getting more and more complex. Many of the various (technological, political, cultural and other) changes that have taken place in the last two centuries have been "revolutionary": "profound", "essential", "systemic", "qualitative" (rather than "quantitative"). Each of these words may be separately discussed but I hope that taken together they suggest intuitions sufficient to grasp the meaning of the word "revolutionary" as it is used at this place. Additionally, one could remind here the notion of scientific revolution (e.g. the Copernican) – commonly used in philosophy, sociology and history of science.

And the last word: knowledge. Its meaning will be discussed in one of the next chapters. At his moment, I would to characterize the historical processes of which knowledge is the key element. First of all, the enormous development of science: from physics (thermodynamics, electro-magnetism, atom and elementary particles physics – to mention but a few its sub-disciplines), through chemistry, biology to psychology, sociology and even – history. Our image of the world is today much richer, subtle, empirically confirmed, logically precise than it was at the beginning of the 19th century. To a degree this development has been an effect of the growth of scientific production: of the number of scientists, of scientific institutions, of journals, congresses and conferences, great (at least: relatively, in the historical perspective) amounts of money invested into this branch of (intellectual) production. This last process has had, apart from many positive effects, also some negative ones: In particular, it has resulted in in the disintegration not only of our image of the Being (in the most general, philosophical

meaning of the term) but also – of our image (and understanding) of the eco-techno-socio-system of which we, humans, are a part (Lem, 1996).

Having outlined some aspects of the changes the humanity has both generated and faced, I am going now to formulate a few notes on the consequences these changes for the organizations, and for organizational and management theory.

Our societies (including global/world society) are societies of organizations (Perrow, 1991): there exist very numerous organizations, of great many types, of differentiated forms and power of impact on society, to mention but some their characteristics. In short, the role of organizations has been for the last two centuries or so considerably increasing. It is almost sure that – in the predictable future – our societies will remain societies of organizations. It does not exclude that some organizations will disappear and some other will arise. And not only individual organizations (this or that political party, this or that corporation, etc.) – this is almost obvious, but also – types ("species") of organizations.

Since our societies are societies of organizations, thus the effectiveness of solving (well known) problems they face depends largely on the quality of organizations they contain. In short: no "good" society without "goodness" of its organizations. I put the words "good" and "goodness" in quotation marks since I want to stress that their meaning would need a comprehensive discussion; anyway, these words refer to a group of both ethical and praxiological values.

A simple conclusion to the previous note may be formulated so: The improvement of the quality of organizations is not only in the interest of the individual organizations but also in the interest of the whole societies – including global/world society (Tuomela, 2007). To this general formulation a reservation should be made: speaking about organizations I am obviously thinking only about those organizations that contribute to the development of society and not about, say, criminal organizations. The Reader is asked to remember about this reservation that will not be repeated (I am grateful to an anonymous reviewer for drawing my attention to this point).

Thus, in particular, in the interest of the whole society is that its organizations are aware of the problems it faces and are able to adapt their activities to these challenges. Such organizations can be regarded as learning organizations. So, in other words put, it is in the interest of societies that the organizations they include are learning organizations.

Since it is rather likely that many currently existing organizations are not learning organization, consequently it is in the interest of whole societies that they will (be) transform(ed) into such organizations. – This remark, however in itself obvious, suggests a question for which there is no simple, obvious answer: how societies could help organizations in getting learning organizations (Hoe, 2020).

Transforming organizations into learning organizations may be achieved by the trial-and-error method. On the other hand, as the experiences from many other fields of human activity have been teaching us, (scientific) knowledge increases the chances of greater effectiveness of such a process.

Therefore, if you accept the previous considerations, you should also agree that the development of the theory of learning organizations is one of very important tasks facing theory of organization and management or – even broader – social sciences (Senge, 2006; Senge et al., 2001).

You can have, of course, different opinions on the strategies of development of this or that scientific theory.

My opinion on developing social-sciences theories is based on philosophical (epistemological) conviction about fundamental methodological unity of all sciences – from physics to psychology. To this very general declaration, I'd like to add a few more detailed remarks.

First: as regards construction theory, it is mathematics that offers us the best instances/patterns (language, axioms, derivative theorems, proofs, etc.).

Second: even theoretical physics is only approaching the standards satisfied by mathematical theories. Therefore, one should not be surprised that social-sciences theories are much more distant from these standards. But, on the other hand

third: social-sciences theories should be as close to these standards as possible (should approach these standards).

Fourth: the process of transforming social-sciences theories into theories more close to the mathematical standards should be continuous ("evolutionary") rather than "revolutionary" (In particular, one should avoid using "too early" mathematical instruments).

Having presented my methodological stance, I can formulate now the main goal I will try to achieve in this text: analysis of the conceptual and problem structure of the theory of learning organizations – in order to make one step or two in the direction described above.

2. On systems and organizations

2.1. On systems

Organizations, as the author of "Images of organizations" (Morgan, 2006) demonstrated – in my opinion: convincingly, can be viewed (interpreted) in various ways: as machines, organisms, brains, cultures, political systems. psychic prisons, fluxes and transformations, instruments of domination (Perhaps, this list is not exhaustive but seems to comprise the most important "organizational metaphors"). There is no doubt that machines, organisms, brains and

political systems are – systems (of this or that sort). It suggests that regarding organizations as systems is not only justified but also convenient.

To what has been said above, I would like to add a methodological remark: I think that one of the simple but important methodological rules can be pronounced as follows: formulating theoretical theses try to avoid alleged specificity (needless concreteness). This rule would deserve rather elaborate discussion for which there is no place here. So let me give only a very simple example: The sentence "Two apples plus two apples makes four apples" is an application (or instantiation) of a very simple arithmetic thesis; by no means it can be regarded as belonging to botany though it says something about fruits (a similar sentence about humans does not belong to sociology, and about words – to linguistics). To put it in somewhat different way: not all true sentences about apples belong to botany; many of them belong to geometry, physics, chemistry, and even – history of art.

The following elementary theses concerning material systems (of any sort) seem to be important for the further considerations:

1. Any system is composed of elements and relations between them (internal relations).
2. Some elements of the given system can be also regarded as systems (as its sub-systems).
3. Each system is surrounded by (its own) environment.
4. The set of relations between the given system and its environment (external relations) is an important part of its characteristic.
5. Three types of elements and relations (both internal and external) can be distinguished: material, energetic and informational.

These five theses I would like to supplement with an idea developed by (Ingarden, 1970). He introduced the notion of "relatively isolated system" and outlined a theory of such systems. According to this theory, such systems have inputs and outputs that regulate the material energetic, and informative relations with environment.

So much about the broadest concept of (material) system. Now, let us pass to social systems (Tuomela, 1995). At the very beginning, a note on the word "social" (and – "society"). These words happen to be referred also to some animals (e.g. ants). Discussing the analogies and differences between societies (social systems) of non-humans and humans could be interesting and instructive but a special text devoted to this issue would be needed. Therefore, the words "social" and "society" will further refer in this text only to systems composed of humans (members of the *Homo sapiens* species).

The notion of social system needs some additional comments.

First, let us note that humans (fundamental elements of social systems) are themselves extremely complex systems (think only about the human brain). – It seems to be rather evident that – all other factors equal – the more complex elements of a system the more complex is this system. Therefore, even relatively simple (from a point of view, e.g. composed of very small number of elements – humans) social systems turn out to be, from another point of view

(e.g. dynamically) turns out to be rather complex (Think, for instance, about a social system composed from wife and husband).

Second: though anatomy and physiology of *Homo sapiens* seems to be changing very slowly (the biological differences between us – living in the 21st century, and our ancestors who lived 30 000 years ago, are rather minimal), human mind – affected by its product: culture – has been getting more and more complex.

Third, many (perhaps even: all) social systems are composed not only out of humans but also – of various objects (in particular: instruments of human actions).

2.2. On organizations

Let us make now the next step: from the notion of social systems to that of organization. I do not think that at the present state of social theory it is possible to formulate a precise definition of organization. To achieve such a goal, it would be necessary to construct a classification of social systems. – A big and complex task, not to be performed here. So, I will limit myself to a working/temporary characteristic of this notion.

I would like to start from two complementary intuitions. On one side, I assume that not all social systems are organizations: Neither family nor nation, neither circle of friends nor a village/town community, neither the educational nor health system (of a country), etc. – are organizations.

On the other hand, I assume that very different social systems can/should be regarded as organizations. Among them: various churches (including one of the oldest still existing organizations – Roman Catholic Church), political parties, public institutions (state and local government offices), business corporations and many others (more and more numerous).

The "world of organizations" is very diverse and increasingly so (Kostera, 2003). To avail of an analogy with the "world of life", one might say that various "species" ("classes", "phyla" etc.) of organizations could be distinguished, that – in other words – a taxonomy of organizations would be desirable. Unfortunately, the history of biology has taught us that constructing taxonomy is very complex task – surely not to be undertaken in one paper. Thus, remembering about "organizational diversity", let us try to indicate some common traits of organizations (Interestingly, it seems that it is easier to indicate some attributes common to – say – bacteria, birds and humans, in short: to all living organism, than – to classify them).

Humans are basic elements of organizations: they are their members. Humans are also members of other social groups/systems (e.g. members of families). It seems that we can define two basic ways of becoming member of a social group/system: voluntary and involuntary. In other words: one joins a group (organization), or one is born (in the literally sense of this word) in a group (let's call it community). This classification should be developed so that situations in which persons join a group but not voluntarily (e.g. obligatory military service) are taken into account and their specificity – underscored.

The second classification is based upon the notion of goal (this term can be also used as collective term: a set of goals can be regarded as a goal of special sort, say – macro-goal: organizations have goals, while communities do not have goals (in a possibly strict sense of the word; if we accept the thesis that to survive is the goal then probably all social systems have a goal.)

3. On knowledge and learning of organizations

3.1. On the notions of knowledge and learning

Let us start from a general note on the concepts of knowledge (Woleński, 2004) and learning and a brief remark on the relations between them.

Both these concepts presuppose the notion of subject (respectively: of knowledge and of learning). In other, more intuitive formulation: speaking about knowledge and learning we should be able to answer to two questions: "Who knows X?" and "Who is learning X?" The comments on the possible denotations of X will be made in one of the further passages. And now, two very short remarks:

First, on subject. An individual human and a group of them, an artificial object (computer?) and a group (network) of them, an animal (which? all?) and a group of animals – all these systems are regarded as (potential) subjects of knowledge.

Second, on the relation between learning and knowledge. This relation can be defined in a simple way: Learning is a process which results in growth of knowledge of a subject (During future considerations, but not now, one could discuss whether it would be convenient to speak not only about learning in standard sense but also about "negative" learning, e.g. forgetting, or – more generally – reduction of knowledge).

And now, some reflections on the notion of knowledge. It is an issue (or rather complex set of interrelated issues) discussed for some twenty five centuries: Plato, Aristotle, St. Thomas, Descartes, Hume, Kant (to mention but the greatest thinkers) – these and many others contributed to the epistemological debates (Woleński, 2004). Happily, not all philosophically important and fascinating problems have to be debated in the context of the theory of learning organizations. On the contrary, we should, I think, to start from commonsensical perspective, modified by philosophical ideas as little as necessary.

Let's try to outline a very short summary of the commonsensical perspective:

1. Humans live in the world composed of many objects like animals, plants, artifacts, mountains, rivers etc.
2. Each object has a certain number of properties – shape, color, hardness etc.

3. The world contains also some man-created objects like languages, music, religions, scientific theories etc. These objects also have some properties, e.g. meaningfulness, incomprehensibility etc.

4. Some elements of the world interact – exert influences on themselves: modify (more or less) their properties.

The further discussion I am going to continue by discussing some classifications of knowledge; the philosophically fundamental question of the "essence" of knowledge will be passed over.

I will start from the very important distinction between "knowledge how" (also called practical, performative, procedural or imperative) and "knowledge that" (also: descriptive, propositional, declarative) (Ryle, 1949; Polanyi, 1958). It can be characterized as follows:

First. "Knowledge how" precedes in a few ways "knowledge that": evolutionary/ phylogenetically (many groups of animals dispose some "knowledge how" but not "knowledge that"), ontogenetically (human infant disposes some "knowledge how" but not "knowledge that"), historically ("knowledge that" evolves from humans "knowledge how").

Second. This distinction is strongly connected with language and its use. At the first sight, one might say that knowledge "how" (e.g. to ride bicycle) is not connected with language while the knowledge "that", for instance, Warsaw is the capital of Poland – presupposes knowledge of language. But just the last phrase ("knowledge of") suggests that some special types of knowledge are "weaves" of "knowledge how" and "knowledge that" (Further discussion of this problem would demand quite a few references to philosophy of language and psycholinguistics).

Third. Though the "knowledge how" is learned mainly by training but can be supported not only by examples (to be imitated) but also – by verbal instructions ("knowledge that"). This observation can be developed into a thesis that might be (sketchily) formulated as follows: The more complex are actions (to be learned) the more important is verbalized knowledge ("knowledge that"). For instance: one can learn how to swim, even without imitating, but it is impossible to learn how to pilot a jet without worded hints (Pfeffer, Sutton, 2000).

Fourth. Let's commence this remark with some words on mathematics. The knowledge how to solve an equation (say, $x^2 + 2x - 8 = 0$) is in fact a special case of knowledge "that" – the formula for the roots is well known. But the knowledge how to prove a mathematical theorem cannot be reduced to knowledge "that" (though it can be supported by such a knowledge). A simple though important conclusion: even in such abstract and language-based domain as mathematics knowledge "how" (to transform – e.g. by constructing proof of a theorem – knowledge "that") seems to be "more important" (quotation marks to stress that this phrase is used here very intuitively and would need precising) than knowledge "that".

So much about knowledge – "how" and "that". And now, another distinction: between knowledge and meta-knowledge. Let's begin from three notes on the last concept.

First. From intuitive point of view the meaning of this concept is rather simple: meta-knowledge can be defined as knowledge about knowledge. One could suppose that introduction of this term is motivated by economy of language. But it's not like that (though the shortness of the word is a convenient side-effect). The main reason is to suggest analogies with such intellectual domains as metamathematics, metalogic, meta-philosophy etc.

Second. The idea of metamathematics and metalogic, developed by David Hilbert, Alfred Tarski and many others, has for the last century played an important role in the evolution of mathematics and logic (Rasiowa, Sikorski, 1963). The reference to these two (distinguishable though interconnected) disciplines helps to remember about logical/methodological issues connected with the "meta-" studies.

Third, these ideas have for the last decades been also adapted in other fields and such subdisciplines like meta-psychology or meta-sociology have arisen.

Fourth, let's note that, from the purely logical point of view, this distinction can be iterated: we could speak about meta-meta-knowledge and so on. From the practical point of view this possibility seems rather unimportant.

However interesting might be further discussions on various "meta-" studies (their analogies and differences), I'm going to move on to issues more closely connected with the central subject of this paper.

I will start from brief considerations on the connections between the "knowledge" – "meta-knowledge" distinction on one side, and the "knowledge 'how' " – "knowledge 'that'" on the other. I suppose that these two distinctions are logically independent; thus, they can be crossed.

Let us begin from meta-knowledge concerning knowledge "how". It comprises, roughly speaking, practical abilities/skills to learn and theoretical knowledge about learning.

(Practical) learning skills that are necessary to perform a given type of activities need also some skills. Let's give but few examples: learning to drive a car or to ski (especially if one is not very talented in the given domain) needs a lot of patience; the ability to observe attentively good performers (e.g. drivers or skiers) is very useful. But hints given by an instructor (a form of knowledge "that") play also a role. Note that the ability (knowledge "how") to listen someone (e.g. instructor) attentively and with understanding is important factor determining effectiveness of acquisition of knowledge "that".

And now some notes on learning knowledge "that". A few aspects of processes of this sort can be distinguished. At the outset of such a process operate factors mentioned at the very end of the above passage (interest/attention, understanding). Next, we should speak about two processes: memorizing and remembering. It seems that just in the case of these processes, knowledge "that" – here: scientific knowledge drawn from psychology – can be particularly useful. And, last but not least, the ability to find "access path" (possibly effective/fast) to the demanded information (a piece of knowledge "that"). It seems that developing this very ability

requires particularly close and intensive interaction between practical training and theoretical knowledge.

So far, I have in fact discussed but one part of meta-knowledge: knowledge about learning (i.e. about creating/producing knowledge). This approach has omitted a fundamental problem: Nobody (except, perhaps, some philosophers or writers) is interested in "everything". The interests of virtually all subjects are limited. Especially – cognitive interests of those whose basic interests are much more mundane (money, power, prestige etc.), or even of those whose basic interests are more sublime and noble but not cognitive (salvation, contribution to the happiness of whole mankind or of one's nation) Here arises very important question: what knowledge – both the "how" and the "that" – is necessary, what – very useful, and what – completely non-useful (to mention but three "points" on a scale of usefulness). At the beginning, the question appears difficult and even paradoxical. But considerations based on experiences of various domains of human activity prove that this impression, though not without reason, is not fully justified: Let's think about medicine. The doctor should know what medical data about his/her patient's body (and mind) are necessary/useful for him/her. It could be even said that the ability to prescribe optimal set of medical tests is one of most important measures of his/her professional excellence. A similar remark can be made about engineering professions. On the other hand, it should be noted that the situation is different in various fields of human activity. Even if one confines one's attention to medicine, one may suppose that there is a considerable difference between, say, orthopedics and psychiatry. And when think about, say, politics, the situation will turn out still more vague and complex.

This part of my considerations let's conclude with a note on the significance of this part of meta-knowledge that has been discussed above: In the time of enormous growth of the amount of information/knowledge, increases the significance of their selecting (filtering). Meta-knowledge, as characterized in this paper, is to be conceived of as an important (perhaps the most important) instrument of this process of selection.

The whole chapter on knowledge and learning I want to end with discussion of one more classification of knowledge. To introduce it, let me invoke the simplest proposition (or, to be more precise, a scheme of propositions: it contains variables) characterizing epistemic relation:

S (subject) knows O (object). It can be said, particularly, that S knows S (some philosophical and logical subtleties arise here but I don't think that their discussion is necessary at this place). Thus, we can distinguish two kinds of knowledge: external and internal. It seems convenient to use the word "self-knowledge" as an equivalent to the phrase "internal knowledge".

Self-knowledge is a very complex phenomenon (Stoneham, 2004; Kozielecki, 1986). At present, I will limit myself to a brief discussion of its structure. Self-knowledge partially overlaps meta-knowledge: it contains one's knowledge about one's knowledge (both "how" and "that"). Two remarks: First: one may both underestimate and overestimate one's knowledge. And second: one may or may not identify the lacunae in one's knowledge (Kinnon, 2007).

Self-knowledge contains also knowledge about many other aspects of the given subject (Luhman, 1984). Let's start from an area on which self-knowledge (internal knowledge) overlaps external knowledge:

Each subject exerts some influences on some elements of its environment and at the same time is influenced by (these or other) elements of its environment. The knowledge about one's relations with one's environment is undoubtedly important ingredient of one's self-knowledge.

The short discussion of still another part of self-knowledge I will commence from a note on learning. Schematically put, it can be either unconscious (a side effect of other activities) or – conscious (getting knowledge is an objective of some activities). Let's somewhat generalize the concept of conscious learning. It can be regarded as a special case of one's activities oriented at it (e.g. a person wants to be more patient or more kind to his neighbors or "better organized", etc.). Undertaking such activities is based on self-knowledge: on knowledge (and evaluation) of some one's traits, on some convictions about transformability of one's traits and about techniques of these transformations.

The last classification of knowledge I'm going to discus here is based on the distinction: "actual world" – "possible world" (A conceptual note is necessary here: For logical reasons, the actual world should be viewed as one, though particular, possible world. For convenience, I will use the adjective "possible" as an abbreviation for the longer phrase "possible but not actual"). The concept of possible worlds has been a subject of great many books and papers. Many controversial opinions have been formulated. Even their concise summary cannot be offered here. I will limit myself to present the way in which I'm going to use this concept and the reason for its introduction in this text (Takeuchi, 2004).

I think that two concepts – "future" and "innovation" – can help in both understanding the meaning of "possible world" and accounting its use.

Speaking about future, I'd like to focus on two its aspects. First: it is (practically) quite sure that the world "of tomorrow" will be very different from the world "of today". Both individuals and collectives should prepare themselves for the coming changes of the world we live in. And second: what the "tomorrow" world might look like if we do "this", and what – if we do "that". To say it in somewhat different way: both individuals and collectives should know what changes in the world are possible – both these coming to the subject from its environment and those brought to the environment by the subject.

The word "innovation" adds to that of change the idea of intention and that of positive character of change (Ober, 2022).

The ability to predict future (possible) changes and to design (possible) objects seem to be based on one very important attribute of men (and, perhaps, some other systems) – on imagination: knowledge of what does not exist but the existence of what is possible (Morgan, 1993).

And still the final comment on the phrase "possible world". As stressed in the introductory chapter, we have been living in more and more complex world (global. eco-techno-socio-

system). Thus, both the individual fate and the future of collectives depends less and less on local, individual processes, and – more and more – on global "weaves" of processes. The term "possible world" (here emphasis is on the noun) is to underline this fact (Takeuchi, Nonaka, 2004).

3.2. On learning organizations

In the previous sub-chapter, the general notions of knowledge and of learning were discussed. Let's stress the no special assumptions as to learning systems (and subjects of knowledge) were accepted: human individuals and collectives, individual animals and their collectives, some artifacts (Artificial Intelligence) – all these systems can be regarded as characterized by this notion (Cichosz, 2009; Steinbuch, 1971). On the other hand, it is obvious that various types of learning systems have their peculiar traits. Discussion of this problem goes far beyond area of analyses intended in this text. Since now it will be assumed that, by learning systems, we understand learning social systems/organizations.

As defined previously, social organizations are social systems satisfying some additional conditions. For this reason, I will commence from considerations on social systems in general, and in the second part I will take under considerations these issues that arise from the specificity of social organizations.

Social systems are composed from humans (elements), internal interpersonal (and other, e.g. between men and tools) relations and from the external social (and other, e.g. between organization and natural environment) relations.

It seems to be obvious that at least some members of a learning system are able and willing to learn. If we take into account that both parameters (ability and willingness) are evidently not dichotomic values but, at least, ordinal – we can speak about degree of ability/willingness to learn and about the statistical distribution of the values of these parameters in a given social system. This distribution can be regarded as one of the fundamental characteristics of learning systems.

Now let's move on to the internal relations. Their sheer number, not even speaking about the variety of their types, is most often great. From the perspective determined by the subject of this paper, the most important are the relations constituting the given system's communication network (Zollman, 2011). Here arises the question how to define a parameter (a complex of parameters?) characterizing the quality of this network. No precise answer can be given here but one point seems rather evident: neither radical minimalization nor radical maximalization of the amount of information flowing through this network is desirable.

Similar remarks can be made as to the external relations: the quality of the structure of the communication network connecting the given system with this system's environment. One issue deserves, perhaps, special attention: the reach of the environment. From a point view, the global world-system (eco-, techno-, socio-) could be regarded as environment of – literally – each social system. But such a way of defining system's environment would be – for majority

of social systems – not desirable and, in some cases, even disastrous (Zemanek, 1959). On the other hand, too narrow a definition of system's environment could have also some negative consequences for this system. At this point could be used the concepts of meta-knowledge, of self-knowledge and of knowledge "that" and "how": the given system should know "that" (self-knowledge "that") it is surrounded by environment and it should know "how" to delimit it.

So much about the learning social systems. And now some notes on the consequences of introducing the criteria allowing to distinguish social organizations from all social systems.

Organizations are, according to the definition proposed above, social systems whose members (individually and freely) joined these systems (and were as such accepted). If so, social organizations can be characterized as learning organizations (and not only learning systems) if they satisfy additionally the following two conditions: (1) organization knows "that" it needs members having such and such traits (meta-knowledge), (2) the organization knows "how" to choose/accept its members.

Organizations are also defined as systems having specified goals (Pettit, 2011). If so, social organizations can be also characterized as learning organization if they satisfy (to a significant degree) the following conditions: (1) organization knows "that" the given goal is its actual goal (self-knowledge), (2) organization knows "how" to "translate" its principal goal into sub-goals etc., (3) organization knows "how" to evaluate the relations between its goal and real effects of its activity, (4) organization know "how" to modify its goals (List, 2011).

4. On development of learning organizations

In the previous chapter I have sketched an outline of a "structural" (or "descriptive") part of theory of learning organizations. In other words, I have tried to present some elements of answer to the both basic and simple question: What is a learning organization? Or: What criteria an organization should satisfy to be evaluated as learning organization (Bui, 2020).

To continue these considerations, it will be convenient to introduce (for linguistic/stylistic reason and to suggest some possible connections with psychological theory of intelligence) the term "intelligent" as synonym for the adjective "learning".

Now, I would like to formulate an important factual thesis: Each organization is – at least to a degree, perhaps very small one – an intelligent organization. Therefore, the previous question (What is…?) should be reformulated or complemented with the following one: On which factors depends the degree of intelligence of an organization (organization's intelligence quotient – OIQ)? Or, alternatively: On which factors depends the evolution/development of learning (intelligent) organizations (Chia, 2020) Let me add and emphasize at once: At the present stage of these considerations, I'm only able to present a list

of such factors and make some comments about them. But now, I cannot discuss the issue (otherwise very important) of their relative importance.

And still a comment on determining factors. I assume that we might speak about two classes of factors determining a parameter (in our case: OIQ): directly determining and indirectly determining. The second class contains factors determining the directly determining factors and the factors determining factors determining the directly determining factors, and so on. The "tree" of factors is perhaps infinite. It is obvious that not only all the branches of the "tree" cannot be taken into account, but even finite but (very) long intervals of the "branches" cannot be studied. We have to confine our attention to the first, relatively short, intervals. How short (or relatively long) they should be – it cannot be decided in a general way; this question needs to be solved for each research problem individually.

There is no doubt that the OIQ of an organization depends, among others, on the ability and willingness of its members to learn. This thesis requires a few comments.

First, I'd like to stress that using these two nouns – "ability" and "willingness" – is of theoretical importance. They denote two traits of humans that are logically/theoretically (and often: statistically) independent (Incidentally, some European languages reflect this independence in sayings such as "he is brilliant but lazy"). The factors determining ability (individual intelligence) and those determining willingness (motivation) are rather different.

Second: Even small organizations (and still more the lager) are "governed" by statistical rules: It is of very little probability that all members of an organizations are (practically) identical as to their various traits, in particular – as to their ability and willingness to learn.

Third: It is highly improbable that all organizations (of the given type: say banks or political parties) have the same (or "very similar") distribution of members with various degrees of ability and willingness to learn.

Fourth: Each member of an organization is (at a fixed moment of time) located a node of the network of influence (determined by formal and informal positions) of influences (Fricker, 2011). Some nodes are more, some other – less, important. At some organizations and at some points of their histories, the central (most important) nodes are occupied by members able and willing to learn (Gilbert, Pilchman, 2014) and some other organization and/or at some other moments of their histories at these nodes are located members of very limited ability and/or very small willingness to learn. I think that at least one step further should be made: Firstly, these networks can be rather "symmetrical" (all nodes are of similar "force"), some others – "strongly asymmetric" (some nodes are much more "stronger" than others). Secondly, various factors determine the ways in which the nodes (especially in "asymmetric" networks) are being taken by one or other type of members of organization.

It is noteworthy that some traits of members of various organizations, influencing the quality of organizations, depend – to a degree – on some general social factors (Hofstede, G., Hofstede, J.G., 2005). Among them, one can include such factors as quality of education

(from elementary to academic) or research policy supporting studies on social learning/intelligence (Goldman, 2011b).

Put in other words: if society wants that its organizations are of high quality, it should exert impact on factors on which quality of organizations depends (Przybylska-Czajkowska, 2021; Freeman, 1984; Schneper, 2020).

A few words should be said on the factors determining the quality of communication – ability and willingness to communicate (Nęcki, 2000; Johnson, Lepore, 2004; Zagzebski, DePaul, 2007).

As regards ability, we should return to the educational and mass media policy. As regards willingness to communicate (pass on knowledge), we should mention the whole group factors operating on various levels of society: from organizational to national and global. This group contains two fundamental factors (here, at least one or two further steps should be made along this branch): trust (Ciulla, 2002). Fukuyama (1995) and – culture of cooperation – as contrasted with that of rivalry (Tomasello, 2022, 2009; List, Pettit, 2011). The concept of culture of cooperation should be in the future analyses connected with that of open innovations (Cherburger, 2020; Kuzior, Sira, Brożek, 2023).

5. Final remarks

I hope that arguments formulated in the introduction to this paper are at least partly convincing. Summarizing them into one sentence, we could say that theory of learning organizations is urgently needed (Kuzior, Czajkowski, 2021).

As both philosophical analyzes and intellectual history demonstrate, there is no one strategy guaranteeing research success. Particularly, both "bottom-up" and "top-down" strategies seem *a priori* equally promising (or, perhaps, should be viewed as complementary). I have chosen the second strategy trying to outline a possible "anatomy" (logical structure) of the expected theory rather than offer some detailed contributions.

The image I have presented in my text demonstrates, it seems to me – convincingly, that theory of learning organizations has to be strongly interdisciplinary: from philosophy (epistemology, philosophy of mind) (Kuzior, Czajkowski, 2022), through cognitive and computer sciences (Russell, Norvig, 2010; Szuba, 2001; Kasperska, 2009), psychology (Kelly, 2004), sociology (Goldman, 2011a) to theory of social communication (Griffin, 2001) and management science (Griseri, 2013; Begeron, 2003; Nonaka, Takeuchi, 2004).

Listening these disciplines, I haven't mentioned mathematics and formal sciences. Not incidentally: Though I believe that all sciences should be – later or earlier – mathematized, I also think that to any theory mathematical methods should not be applied "too earlier"; roughly speaking, before interesting, profound theses have been formulated and systematized.

The strong interdisciplinarity of the theory of learning organizations offers also an argument supporting my choice of theory construction-strategy: in each of the mentioned above disciplines great many texts (that might be of some importance for the theory of learning organizations) are published every year. Even flipping through the pages of these texts would be physically impossible. Therefore, one should know in advance what texts one is looking for. And to know it, one should possess an idea what is supposed to be the theory in the construction of which one intends to participate.

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