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Cognitive aspects of participation: Evidence from two studies

Abstract: *The trouble of proving the effects of participation lies in the mismatch between three aspects of ownership: physical (possession), legal (ownership proper) and psychological (participation). In our interdisciplinary systemic model of ownership, we propose 10 relationships related to ownership/participation from: „A is a part of B” - greatest involvement to „A does not know about B” - the least involvement. „A” and „B” may take different values of: a person, an institution, a community, a group, an object (material, energetic, informational, purchasing). Once formalized we can view the studies in participation from one, system theory point of view, and formulate hypotheses related to many aspects of ownership. A multilevel analysis with multiple measures of both participation and effectiveness from two data sets has supported the proposed model.*

Key words: *ownership, participation, systems theory, psychological ownership, possession, cognition*

Ownership and participation are often considered two aspects of management practice and only when coupled together give a way to effectiveness (Perotin & Robinson, 2003; Summers & Hyman, 2005). By “effectiveness” we shall understand the individual or common good “produced” by the use of available resources. Though from legal and economic point of view such distinction makes sense, from cognitive point of view the two aspects are not so distinct. As demonstrated by a Polish historian of economic history Kwiatkowski (1947) we should seriously consider cognitive aspects of ownership. Kwiatkowski has proven that the greater percentage of a society understands rules of economy, the greater the chances of economic development (for two examples from Kwiatkowski see Stocki, submitted). The literate communities in the history had the greatest chances to prosper economically. One of such communities, with 100% literacy rate, were Paraguay Reductions which prospered for over 150 years (Lugon, 1971). To own something and to be aware of ownership seem to be two different things. Though this general truth seems so obvious, it is not quite clear how, in detail, the

mental ownership influences effectiveness. Why, when I am an owner, I care more if someone else is an owner? Is there a limit of this rule? We propose the thesis that ownership gives time, space and motivation to acquire knowledge of an object. The effectiveness is rooted in the principle of subsidiarity, which assumes that “problems are best solved in the subsystem where they arise” (Web Dictionary of Cybernetics and Systems, 2006). This is true because in that very system there is sufficient knowledge to respond adequately to the problems. Knowledge is simply a cognitive representation of the system in the minds and/or other means of the system. The more complex the system, the more knowledge it requires. In complex systems, of interrelated components, where it is not a triviality to delineate subsystems the knowledge should ideally encompass the whole complex system.

In the next part of the paper we shall present a review of psychological research regarding cognitive aspects of ownership. Our aim is to show how close ownership and participation are. Then we shall present the formal model

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of ownership-participation spectrum, and finally present our research results, showing the relationship between psychological participation and effectiveness.

Psychological ownership

Recently the concept of psychological ownership has best been studied by Pierce and his colleagues (see Pierce, Kostova and Dirks, 2003 for an overview of the studies). They view ownership in all of its psychological aspects and define psychological ownership "as the state in which individuals feel as though the target of ownership or a piece of that target is "theirs" (Pierce, Kostova and Dirks, 2003, p. 86). "We appreciate all the effort of the researchers to explain the phenomenon, particularly the three roots of psychological ownership: (a) efficacy and effectiveness, (b) self-identity, and (c) having a place are good starting points for our analysis. The authors admit that the three roots are complementary and additive in nature. We claim that the common denominator of ownership is finding security through cognitive control of the environment. So in a sense we try to build a model which is parallel to that of Pierce et al. (2003). We propose to start the journey of security finding from the studies of infants.

Developmental studies

Let us start with the differentiation between ownership and possession. Possession is more related to the actual physical control of the object, while ownership is related to the legal aspect. In other words I may possess (have) something which is not mine. Polish economist living in Belgium - Leon Litwiński (after Górnik-Durose & Zaleski, 2004) formulated the "ownership paradox" according to him, the more we own in the legal sense, the less we possess (meaning control). From cognitive point of view there is no paradox. The more we own, the more we have to know and understand, and attend to, taking into account the psychological limitations of our cognitive system, there is no wonder that the more we own the less we can control it. In extreme cases the owners of great wealth may completely neglect the objects they have right to. The slow emergence of the paradox in our lifespan can easily be explained by developmental studies.

The ownership relationship is noticed in children who, according to the studies of Newson and Newson (1968, 1976) at the age of four have strongly developed feeling of ownership and collect different objects. This preoccupation with ownership and quarrels about who owns what may be, according to Lea, Tarpy and Webley (1987) attributed to fundamental basis of power, resulting from the cognitive control of the environment. Some researchers (Marshall & Margruder, 1960; Webley, Levin & Lewis, 1993) found out that children who save, have more knowledge about money. Berti, Bombi and Lis (1982) have identified several levels of development of ownership concept. At level

1 - the youngest children identify the owner as someone in spatial contact with an object, at level 2, the owner is someone who exercises direct control of the object, at level 3 the owner is the person who uses production means and controls their use by others, so the owner is the boss and those who produce it, in level 4 only the boss who controls the production is the owner, while the employees are recognized as no owners, only in level 5 children are capable of differentiating legal ownership from possessing (controlling) an object. In an unpublished study Stocki (1992) found out that children generated more ideas about what they could sell in a shop if they imagined it was theirs than when they were told it belonged to someone else. The process of visualizing the object and its context was more accessible when the subject was the imagined owner. She could generate more concrete ideas. As in other studies, accessibility turned out an important aspect of the object to be cognitively processed. The difference would be lesser and lesser the older the subjects are. The theoretical explanation given by Sigel and Cocking (1970) is that cognitive development enables distancing to the object. The object in a way becomes depersonalized. Lea, Tarpy and Webley (1987, p. 379) comment this trend in the following way: "literacy encourages a person to attend to the non present; therefore it is a form of distancing. Since it externalizes the thought process, the use of literacy enables the individual to transcend the limitations of personal experience and of cognitive storage capacity." Visualizing would work opposite to this trend and make the experience more concrete. It seems that developmental studies give good evidence of associating ownership with cognitive control, but they also show that participation as physical involvement is in the early development associated with ownership. Only later through literacy there appears a gap between the two. It means that literacy, as a way of distancing and abstracting, makes possible separation of ownership and participation. As it will be shown by studies quoted later this separation is not complete. What happens in adulthood is shown in the studies of self-concept.

The Self-concept studies

Belk (1988, 1991) following James (1982/2002) introduces the idea of broadened self. Our possessions, in psychological sense, are an important part of "material self" They may become so important that it is difficult to delineate between me (self) and mine (what I possess). The time and effort sacrificed to objects are proportionate to the extent in which an object is part of the broadened self. According to Belk various objects are placed at various distances from self. This relationship is exercised by three intentional processes of incorporation or to put it in Piagetan terms - assimilation: control, creation, and cognition, particularly enriched with emotions. Self may also be broadened by unintentional and passive process of contamination or by intrusive or symbolic invasion of self. According to

Belk this broadened self allows a person to have the feeling of competency, mastery, individuation, relationship with other people, as well as relationship with the future and the past (Belk, 1991). This material broadening may be risky for self in case of loss of the objects. The same process may be viewed from the social constructionist perspective (Semin & Gergen, 1990) if the objects are defined as social objects, they may be perceived as self - being owned, or possessed by an object, because individual identity is intertwined with the social context. Participation assumes an outside object an individual becomes "part of". When we have broadened self the objects become parts of self. This extreme kind of participation may be juxtaposed to ownership. They are on two opposite sides of the same ownership scale. This is even more evident in the materialism studies.

Character and instrumental materialism

The attitude of an individual to the material property may be viewed on a scale of materialism. But many authors (Fournier & Richins, 1991; Friedman, 2000; Csikszentmihalyi & Rochberg-Halton, 1981; Fromm, 1995) differentiate character materialism - with material objects in the center of one's life and at the core of self, and instrumental materialism where objects are treated as means (instruments) to other goals. Górnik-Dorose (2002) proposes three layer model of materialism with a third level between the instrumental and character materialism. On this intermediary level possession is treated as a value. As regards relationship between participation and ownership, character materialism makes participation impossible, but both value and instrumental materialism make it possible, though we may expect different consequences.

If we consider happiness as a good, we may view different kinds of materialism according to their effect in realizing the good. If the available resources were the possessed objects and happiness were to be the good, there are many studies relating materialism to well-being and feeling of happiness. Many authors (Dittmar, 1992; Kasser & Ryan, 1993; Richard & Dawson, 1990, 1992) agree that possession brings happiness only to relatively poor people. When people become rich money is less and less important. So the relationship between possession and the feeling of happiness is curvilinear.

If we broaden the concept of the object onto the immaterial phenomena like love, happiness, etc. the extensive possession does not translate into effectiveness. The results of research show that it is even worse because materialists, who assimilate the object they own into their self, are never happy (Kasser & Ryan, 1993; Richins & Dawson, 1990, 1992; after Górnik-Durose, 2002). From our perspective, the materialists are not effective, as they do not control the immaterial objects (values). These results show that neither having too much nor having nothing make people happy. When they are poor they long to possess more to be happy, when they are so rich that the possession consumes their

self they are not effective in their lives. When they share the possession with others, they are ready to participate. The studies described below support these conclusions on a different level of analysis.

Cognitive conclusions from other studies

The studies enumerated above relate mainly to individuals and their private lives. Yet, there is a research tradition in management relating different forms of ownership with the economic or social effectiveness of enterprises. One of the most spectacular examples is the study by Erdal (1999) who compared three small Italian cities near Bologna. Imola with many co-operatives and two other towns with more investor owned companies. The town with every 4th person employed in a co-operative had (1) better mental and physical health, and longer lives, with much less cardiovascular disease, (2) better education - staying longer at school after the legal leaving age, playing less truant, getting better training after leaving school etc., (3) less crime, including less domestic violence, (4) higher social participation (joining clubs and charities; giving blood; voting), (5) and perceiving their social environment as more attractive. Although the weakness of the study was lack of control of employment rate, but even if it were the direct reason for differences, still co-operatives would be responsible for higher employment rate. In communities of this kind when members need help their personal networks are more supportive; they see the political authorities as more on their side; and they see less difference between the rich and the poor in their town. The main reason is probably again in executing the cognitive control of the environment. The unknown causes anxiety, which causes further pathological behaviors.

Perotin and Robinson (2003) in their report for the European Commission state that the growing body of evidence suggests that profit sharing and employee share ownership have greater productivity effects when employees are well informed of the affairs of the firm, there is a good communication with management, and employees participate in governance and decisions. Coupling employee ownership with managerial literacy, participation in decisions and profit sharing is sometimes called "open book management" or "total participation management" this coupling of ownership with management style has been found extremely effective in many studies and analyses (Stack & Burlingham, 2003; Case, 1998; Maaloe, 1998; Blasi, Kruse, & Bernstein, 2003; Stocki, Prokopowicz & Zmuda, 2008, 2012). We should not forget the cognitive aspect of the results. The intermediary role played by understanding the processes for distancing to the object of ownership and possession.

The evidence concerning the individual and collective effectiveness of cognitive ownership (i. e. psychological participation) makes us look for a systematic explanation

of the phenomena and constructing such a model of participation which would not only explain the existing data, but also allow to predict effectiveness results when different parameters related to the company are known.

General model of ownership

By creating this model we want to offer a convenient mechanism for formulating and testing hypotheses related to ownership and participation in their psychological aspects. Only a very clear and testable model may be convincing to decision makers and reveal real value of participation in its different aspects. The studies quoted above give us the answer why we care more for what we own. By this care we care for ourselves as the possessions are either sources of our security and quality of life, or even are elements of our self (though in this instance we are not happy).

Ownership relationship

We view ownership from the personal point of view. In this sense ownership may be defined as a relationship between a person A and an object B. The object B may take different ontological statuses. It may be: (1) a person (including A or A's body, as we may certainly speak of being owners of ourselves or not); (2) an institution, a group of people, community; (3) object: material, energetic, purchasing. In legal ownership A may also be an institution or a company.

The object of ownership is an important variable of the model. If it is a simple small object like palmtop, the ownership has nature different from that when the object is an international corporation. Sharing the ownership with others is also significant. We would speak of co-ownership. A co-operative company is a very good example of limitation of ownership by the ownership of others. But it should be noted that we may define the specificity of such situations without referring to the context parameters, but to mere features of the object.

Two main aspects of ownership relationship

The ownership relation may have three aspects. The first aspect is physical – which reflects the real physical possession and physical control of the object, the second legal aspect reflects the legal right to an object (ownership recognized by society). We may say that the first two aspects have objective character, as they may be objectively tested and observed). The cognitive aspect is the third one and it is subjective as we can investigate it only indirectly, e. g. through introspection (see Pierce et al, 2003 definition). For the purposes of this paper we shall simplify the legal and physical aspects into one – objective ownership. So we have objective ownership and psychological ownership. These two aspects give us in the most simple form four possibilities. The first, when I am really not an owner and I do not think I am. The second when I am not an owner, but I think I am – very frequent situation in so called homeopathic

participation (Prokopowicz, 2011) when employees are given only small superficial signs of ownership. It appears in processes of nationalization, in deceived contracts, and in inheritance, when the whole family learns from the last will of their relative that they were disinherited. The third situation is when a person is an owner legally, but does not consider him/herself an owner. This was the case in the processes of privatization of Polish companies through so called employees' leasing. Although the employees legally were owners, they were easily giving their property to others (e. g. managers or outsiders) as they did not feel as real owners. Probably in many companies which have the Employee Stock Ownership Plan – ESOP the situation is similar, because the employees are owners of a fund which owns some of the company stock. The fourth situation when both legally and cognitively someone is an owner is most frequent one, and does not require explanation. For the purposes of simplification, I do not differentiate the situation when someone is legally and mentally an owner, but cannot physically execute its ownership rights. Such situation appears when employees go on strike. This however is a marginal to our main theme here.

Participation scale

Although for the matter of simplification, we call it ownership scale, "ownership" is only one level on this scale. The scale was inspired by the psychological studies of ownership mentioned above. It is based on the psychological logic of being in greater or lesser distance from an object (Belk, 1991). It is based merely on the psychological ownership – not legal or physical.

Level 1. A is B. An extreme clinically pathological situation when a person identifies fully with the object of its possession. If it is a physical object we may deal with an instance of schizophrenia.

Level 2. A has B as its part. Similarly pathological instances of character materialism or broadened self with no distancing to the object. An extreme case of a physical object that may be considered part of ourselves is an implanted heart stimulator. This level plays much greater role in possessions that are considered parts of the self. It was described in more detail in the previous part. To put it shortly the situation may be described as "I am what I owe." In management this might be the case with companies. Historically Henry Ford was known to treat the company as a part of himself.

Level 3. A and B make a whole together. At this level there appears some kind of equilibrating between the A and B (e. g. Company A and company B make a joint-venture). Perhaps the level of possessing values introduced by Górnik-Durose (2002) may be a good example of this level. In management. if A and B are persons, this relation

will be possible only at the moment when a company is being created, later A is part of B.

Level 4. A is a part of B. In other words B is made of such elements as A. What is important A does not differ significantly from other elements making B. In everyday language we say that the object has A. This is then an extreme case of ownership relationship scale. If we use the participation concept we may say that A is part of B, so A participates in B. This level of participation can be practically present in so called total participation companies (Graham&Titus,1979;Stocki, Prokopowicz&Zmuda,2008). Total cognitive engagement is present in such cases.

Level 5. A owns B. This situation appears when the object of ownership is outside our self. It is an object outside, which is treated instrumentally. I, with whatever constitutes me, have an object, an institution, etc. Similarly to one I may be not the only owner, than I would own only a part of a larger object. Between Level 3 and 4 there is the important border of change of object to a subject. Employee ownership in the variety of its forms would fall under this level.

Level 6. A does not own B, but uses B. Here physical usage of an object is not associated with the legal ownership. A bus driver uses the vehicle, and may even say "This is my bus", but the bus belongs to the company, or even to a leasing company. Any employee who uses production tools is in this situation. The legal owner of the tools may not even know how to operate them.

If at the same time B does not own, but uses A, we may say that A and B cooperate. Using something or someone and cooperating with something or someone are two distinct situations. This relation in many cases may describe the attitude of managers or union leaders to their companies. When B is a person, the relationship may easily become pathological one and a person may be reduced to a resource or a tool or to use Marxist term – alienated.

Level 7. A influences B. When someone cooperates with someone or something else there is higher control over the object. Here we shall have all the instances of participative management systems, where real part-taking does not take place. When the control is significantly lower, we may speak rather about influence than cooperation or using. In the case of influence the control is limited not only in time, but also in its extent. The extent of influence may be very limited, e. g. when a voter influences the government in the election process. Less and less frequently will we hear voters saying "this is my government".

Level 8. A is interested in B. Influencing is preceded by mere interest in the object. From cognitive point of view an interest in an object has fundamental significance for

all other relations to be initiated. It should also be noted that people often mistake the sphere of influence with the sphere of interest and they spend a lot of time on the sphere of interest and much less on the sphere of competence.

Level 9. A notices B, but perceives it as indifferent to oneself. This relation will probably be quite frequent but as the weakest form of "ownership" scale has important role to play, particularly with ownership skeptics.

Level 10. A does not know about the existence of B. Of course from the meta level we know that the object is important and relevant, yet the person does not know about its existence. At this point most of business literacy projects start.

It should be remembered that the levels although they form a theoretical continuum, do not form an interval or ratio scale as there is not the same interval between the consecutive levels. It should also be born in mind that an ownership relation may consists of many different "ownerships". If one "owns a house", it usually means to own the lot, the limited access to the electricity, gas, water, but not the right to rebuild it as one wishes, etc. With the ownership of the company the limitations are even greater. Many regulations limit what we can do with our own property. There is no unlimited ownership. Of course once you own something, you influence, you are interested etc. so the upper level may include some of the lower levels.

For the dynamic character of the ownership model, we might also name some processes that enable us to become owners. On the lower levels these are elementary processes of perception and attention, then on higher levels they are more and more complex until the processes of self identity formation. On economic (physical) level we become owners by taking, buying, stealing, earning by work, speculating, conquering, etc... The model should also take into account creation and destruction of the object of the relation, all these development of the model are not relevant to what we plan to hypothesize.

Research

The main purpose of constructing the model was testing the cognitive aspects of ownership. We assumed that the distance from the object of ownership and level of participation would influence effectiveness. To test this we have used data from two studies.

Study 1. Production company comparison

Subjects

The data for this study were gathered during a company competition for most socially responsible company (two

companies) and from one consulting assignment. We have chosen three mass production companies two in home equipment and one in food industry with three different levels of ownership relationship. Company A of 150 employees out of which 136 took part in the research. It was a private Polish company which was on the stage of entrepreneurship with no developed systems for managing people. The employees did not engage in the company's activities, and many of them were openly hostile towards it. According to our model we could say the employees "noticed the company", which would place them on level 9 of the participation scale. Judging from the literature overview they would not probably be cognitively engaged in what the company was doing. The company was effective and was growing rapidly for last 5 years.

Company B could be placed as company on level 6. This was a Polish subsidiary of a German company. The company both in Poland and Germany had developed so called human resource management systems, so we assumed that A (employees) are used by B (company). The company had 60 employees out of which 57 participated in the research. Company C was an exceptional company which was privatized by employee buy-out with the help of employee leasing. It employed 646 employees out of which 243 took part in the research. Two thirds of the employees were shareholders, and were interested in what the company was doing. However they did not understand the business, were not informed regularly about the business results, but for seven years voted to invest all profits in the company development, they were satisfied with their work and encouraged their children to work for the same company. This is why the company was on level 7 of participation. The employees influenced the company. Again their cognitive engagement was quite high. In the hypotheses below we do not take into consideration the level 1, 2 and 9, 10 as extreme cases. If so level 3 seems the optimal total participation level and level 8 the lowest level. The most controversial is level 6 where either a company may use employees of employees may use the company. Although the two situations are politically or legally different they are psychologically similar. We should also remember that the relationships may go into two directions at the same time.

Hypotheses

On the basis of the presented psychological research we postulate the following hypotheses:

H1. The lower the level of participation the less secure and happy people feel.

H2. Higher level company outperforms lower participation level companies in important aspects of its functioning.

Measurement techniques - OpenIndex 2005 Questionnaire

Hypotheses H1 was tested on the data gathered from three production companies. And hypothesis H2 on two

of them as there was no data available about other aspects of functioning of the company. The employees of the companies filled the OpenIndex questionnaire which tested a variety of management aspects of the companies seen from the point of view of the employees. Additionally the companies were asked to send other information regarding their effectiveness and social responsibility. These aspects were tested in two of the companies of various sizes. The employees filled the OpenIndex 2005 questionnaire.

The questionnaire consisted of 85 questions. Each of the questions was a reflection of the situation of the company from different points of view. So the employee was asked to view the situation as someone who was the object of the question, e. g. *Do you have a good day today?* Or from the perspective of others – generalized view of the firm, e. g. *Do managers communicate with their subordinates with the respect of their dignity as persons?* There are also some questions formulated as general statements such as: *Does job satisfaction influence work quality of the employees?*

The questionnaire was a diagnostic tool which tested how employees perceive their companies and themselves in them. Apart from 12 aspects of the organization, there were also two questions about well being of the employees and 11 questions about private theories of the firm, its systems and participation. A short description of the dimensions of the questionnaire follows.

Well being. Work and management conditions are not the only factors that influence one's life. Security, family life, health and many other elements influence this aspect. Yet we decided to calculate job and life satisfaction as a crucial factor and the dependent variable which should be correlated with all others. Employee dissatisfaction may be the first aspect that may make employees to change their life. This may have important consequences for the performance on the job. Together with other aspects it may give concrete guidelines regarding the development of employees and changing work conditions. **Et qpdcej au alpha for this sub-test equaled .56*

Superiors This aspect refers particularly to relationships with superiors, how much employees are satisfied with how they treat them. All the leadership studies tradition points to the leaders on all levels of management as the key to building the climate for great achievements. If something is wrong in this aspect immediate action regarding the managers' competency is required (*alpha = .84*).

Work environment. When we analyze different aspects of an organization we should not forget about different conditions people work in, not only in different companies but also within the same company. Some other answers may be better understood and interpreted then. Work environment is usually the aspect of any organization that can be most easily changed. As the companies differed in

this respects, not surprisingly $\alpha=.48$. It means that it should be calculated separately for each company, as probably the companies were not from the same population in this respect.

Information received. The flow of information is one of the crucial aspects of organization functioning. This is why several aspects directly or indirectly refer to it. What employee knows is the starting point. We assume that everyone should receive every information required to perform properly one's job. Many a time the whole process may be improved if everyone receives information ($\alpha=.72$).

Compensation. Compensation system is a key source of feedback for any employee. If an employee does not know how value is created in the company, and how compensation is a cost, he or she will never be aware how to improve and work better. Very often this aspect is referred to as motivational one. We think human beings are reasonable enough that when they receive informative feedback are more than happy to change their behavior ($\alpha=.80$).

Customer relationship management. This aspect shows how important are customers in the company. It is natural that those who have direct contact with customers should be particularly interested whether they are satisfied or not. We assume more. To be prosperous nowadays any company has to be driven by customer needs. This aspect checks if this is the case in the company ($\alpha=.55$).

Feedback. Feedback is the key to a motivated and flexible workforce. Feedback of what employees should change is necessary to prepare development processes. Giving feedback is the main tool of successful leaders. So this aspect reflects an important feature of the organization ($\alpha=.75$).

Information provided. Every employee is not only a receiver of information, but also one who generates it. Again if an employee who sees unnecessary losses does not report it for some reasons, it may influence competitiveness and financial prosperity of the company. The information should also refer to the work of other persons. Research shows that employees often hide information about activities harmful not only to the company but to themselves personally ($\alpha=.57$).

Development. The more knowledge is a competitive factor for a company, the more important is planned development of the employees. This aspect checks how employees perceive competences and development of themselves, their colleagues and managers. The level of required development depends highly on the strategy of

the company. What the company considers its key success factor ($\alpha=.70$).

Change management. Business environment in most industries changes so dynamically that there is little chance that a company may remain the same for many years. Not all employees are aware of it. Many a time they are frustrated by continuous change. This aspect checks their readiness for change ($\alpha=.53$).

Strategic dialog. If a strategy is to be executed by all employees, they all should have a say in its content. Any strategy or at least some parts of it should be consulted with the employees. Then they are more willing to realize the strategy and be involved in implementing it. For the dialog the employees should be equipped not only with relevant information but also have a say in the creation of strategy ($\alpha=.60$).

Level of participation. This aspect shows how employees perceive their company as regards practice of participative management. The questions refer to the participation levels described in section about the study model. Feeling to be a member of the company as a member of family would be characteristic for level 5. Through the feeling of working on his/her own (Level 6). Being proud of the company's achievements and having good relationships with the people in the company (Level 7) ($\alpha=.75$).

Apart from these aspects the questionnaire has two sets of general questions regarding the *Theory of company* (Questions about what are companies for) and *Theory of participation* (Questions about who and how should participate in the company activities) the employees have. Only the subset regarding theory of participation had $\alpha=.50$.

The appropriate number of the questionnaire copies were to companies with an instruction how to conduct the research. The organizers were to select a random group of employees on the basis of payroll list. Then in each company there was to be separated a room where the selected employee would come mark his or her name on the list and fill in the questionnaire and put it to a closed box. The procedure was very similar and probably evoked the script of election voting. The organizer of the study was asked to send the box without opening it. During a later visit to the company several employees were asked whether the procedure was followed. The items of the questionnaire translated to English are enclosed in Appendix 1.

Results

The first relationship, that we were interested in is the validity of the formal status of the company (A - private investor owned. B – subsidiary of a larger investor owned corporation, and C – employee owned) as reflecting the

levels of participation measurement. Do the perceptions of the employees agree with the formal status and later supported by interviews. The employee owned company which was classified as level 7 had 69% of positive answers related to levels of participation. The company classified as level 9 company had 57% of positive answers there, while company classified as level 10 had 51% of positive answers in this set of questions. In other words within our operationalization the practices resulting from the legal status were quite well reflected in the cognitive structures of the employees.

In this study we verified positively the hypothesis H1 that in Level 7 - employee owned company people feel most satisfied with their life and job, less satisfied in Level 9 - participative but better organized German subsidiary and the least satisfied in a Level 10 Polish medium sized company which is neither well organized nor participative. To test the hypothesis we conducted simple ANOVA analysis. Figure 1 shows the difference between companies selected for comparison.

As can be seen the participation level correlated with the satisfaction of the employees. This might seem obvious, but let us also see other more objective measures of the company performance.

To test the hypothesis 2 that Level 7 - employee owned company has better achievements in other fields, we compared two of the companies on criteria such as: finance, strategic management, operations management, innovation, CRM, etc. All the main results are enumerated in Table 1.

The detailed benchmarking table is in Appendix 2. The data concerning the Polish company were not available, as the company refused to participate in this part of the study. Below is the simplified table of points for the companies.

Out of 10 different criteria such as: financial results, operations management, innovation, strategy/mission/vision, corporate responsibility, environmental protection, local community, customer relations, relationship with

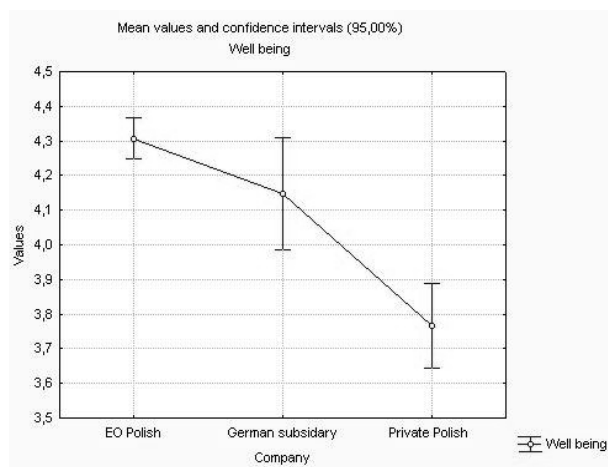


Figure 1. Well being and form of ownership of a company. Simple ANOVA (df=2, F=38.47, p<0,000)

Table 1 Comparison of two different participation level companies in various aspects of management

Criteria	Maximum	Employee owned	German subsidy
1. Financial results	100	72	57
2. Operations management	80	71	58
3. Innovation	20	12	13
4. Strategy/Mission/Vision	100	75	65
5. Corporate Responsibility	50	30	18
6. Environmental protection	50	40	33
7. Local community	50	38	22
8. Customer relations	100	68	67
9. Relationship with suppliers	50	35	40
10. Employee perception	200	164	158
Total	800	605	531

suppliers, and employee perception only relationship with suppliers was better in the German subsidiary. It might be due to the fact that the company suppliers were all in Germany, while the Polish company suppliers were in Poland the two companies belonged to two different industries the Polish one to food industry, while the German one produced construction components. The superiority of the Polish company is quite a surprise as the German company had access to knowledge, production and management systems and support of the German headquarters. The drawback of the study was limited number of companies and the fact that the companies were from two different industries. To some extent we tried to overcome these drawbacks in the next study.

Study 2. OpenIndex 2005 questionnaires in 11 Polish companies.

The main assumptions of our theoretical model associated participation with better cognition of the system. This was the reason why we assumed that the more participative companies are more effective. To further test this assumption we formulated 4 more hypotheses H3, H4, H5 and H6 and tested them on a group of 1428 employees from 11 Polish companies by means of OpenIndex 2005 Questionnaire described above.

H3. The higher the level of participation, the greater reflectiveness in answering the questionnaires.

H4. The higher the level of participation the more developed internal information systems and other participation practices of the company.

H5. We assumed that similarly to H1 well being would be the function of level of participation.

As tenure in the company is associated with cognitive control and some form of participation, we also proposed H6.

H6. The employees with longer tenure feel more secure in their companies.

Subjects

1430 employees from 12 companies participated in this part of the questionnaire studies. As they might be afraid that their personal data are revealed they were given the choice "I'd prefer not to tell" The companies were the so called SMEs from various industries: 3 production companies, 4 service companies and 4 trading companies. They employed from 50 to 400 employees.

Results

To test hypotheses 3, 4, 5 and 6 we have correlated the interesting measures of the OpenIndex 2005 Questionnaire. We were particularly interested in all measures related to participation, i. e.: Well being, Input information, Business as a game, Strategic dialogue and Ownership. We have also created a dummy variable which was calculated as a sum of all missing data. Table 4 presents the correlation results.

Table 2. Correlation coefficients of missing data variable and some VoxPopuli subscales related to participation.

Variables	2	3	4	5	6
1. Missing data	-0.12***	-0.08**	-0.16***	-0.06	-0.21***
2. Well being	x	0,39**	0,42**	0,38**	0,51**
3. Input information		x	0,71**	0,57**	0,68**
4. Business game			x	0,59**	0,70**
5. Strategic dialog				x	0,62**
6. Participation level					x

All correlations in boldface were statistically significant

*** - $p < 0.001$, ** - $p < 0.01$

The hypothesis that the higher level of participation should be associated with greater reflectiveness (operationalized as missing data) in answering the questionnaire was not supported by our data. The missing data are rather related to lower participation level, yet the correlations are not very high.

The hypotheses that the higher level of participation is associated with informing and other participative management practices of the company and the one that well being is associated with higher level of participation both have strong support in the results. The correlations

are quite high. Input information, understanding business game and strategic dialog all correlate highly with the level of participation.

Finally the last hypothesis that the employees with longer tenure feel more secure in their companies and observe higher level of participation was tested by ANOVA with the tenure as a grouping variable. The ANOVA statistics are presented in Table 3. The results are shown in Figure 2.

Table 3. Simple ANOVA for Well being and Ownership x Tenure.

Variable	SS	df	MS	SS	df	MS	F
Well being	9.85	3	3.28	334.07	1069	0.31	10.51
Level of participation (Ownership)	349	3	1.16	144.22	747	0.19	6.02

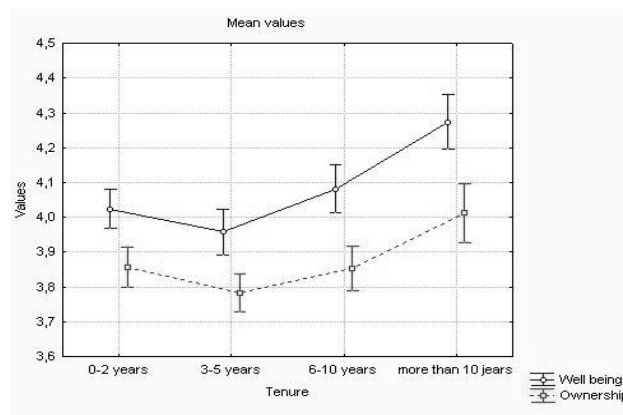


Figure 2. Tenure and well being and level of participation.

The hypothesis 6 was not supported by the results. It is interesting that the dynamics of changes in "well being" and "level of participation" is similar, but curvilinear. The employees working for the first years have some starting level then there is a drop in both aspects, and a small rise from the 5th year. These results are usually explained by the life situation of the younger employees. We propose more cognitive explanation in the discussion that follows.

Discussion

In this paper, we tried to solve the mystery of psychological ownership in organizational context. Although great evidence of literature shows that when we own shares in our companies and we participate in decision making we are better employees, yet in spite of this knowledge em-

employee ownership does not play the role it should. After Kwiatkowski a Polish economist we claimed that there is a cognitive aspect of ownership. We built a model of 10 stages and defined psychological ownership by means of cognition related to the distance from an object and called the different stages - levels of participation. We also proposed two studies which were meant to test this model of participation. In the first study we operationalized the level of participation by means of formal legal status (a private company, a subsidiary, an employee owned company) and supported it by interviews with representatives of the companies. We then used introspective measures and compared three companies on the perceived level of participation. The formal aspects agreed with the cognitive aspects this time. We should remember, however, that this may not always be the same. This particular employee-owned company was "walking the talking" the employees were really treated as owners. In many Polish companies this might not be the case. This is why for the future we should have a better selection of non-introspective tools, which would replace our informal interviews and enable the triangulation of the data for better validity. Besides questionnaires and analysis of documents we should also calculate measures based on observation and even experimental data.

Another drawback of our operationalization was calculating one general value for all levels of participation. Ideally we should operationalize each level and have sub scale of the questionnaire for each level. Also face validity of some questions in the sets look dubious. The questions should be allocated to more refined sets based on a theoretical model of the content of participation. In our studies we put decision making, processes and organizational climate all in one basket. What if in a company the participation in production processes are on level 7, employees feel the part of the processes and participation in investment decisions is on level 10, employees only know of their existence. The question is what is the domain for the cognitive processes we talk about. Is it a company as a whole or is it the department or function a person is employed in. It is quite possible that different groups within the same company are on different levels of participation. Perhaps we could even cluster employees into participation level classes and analyze characteristics of each class including such variables as tenure, gender, age, expertise, management level, etc.

The fact that one company declined to give their data regarding other aspect of management was probably due to too complex and time consuming data collection for measuring other aspects of company functioning. To be evaluated on other aspects of functioning, the companies had to fill out ca 100 pages of surveys regarding several aspects of the company functioning. The bigger the company the more people can be dedicated to answering the specialized questions, in smaller companies all these questionnaires fall on one or two desks, and protrude conducting the study. We should look for simplifying those measures in future

research. However we should not give up measuring other aspects of company functioning as they may turn out crucial for understanding the participation effectiveness.

Neither foreign subsidiary nor Polish private capital turned out so effective as employee-owned company. In 9 out of 10 effectiveness groups EO company was better than the benchmarked company. Of course these were just selected examples. We should check the results with other kind of companies, not only production companies. In trading or service companies where employees are spread in many locations the ownership feeling may not be so important.

In the second study we first analyzed questionnaire results from 11 companies. The participation practices highly correlate with feeling of well being and participation level. What supports our model of cognitive nature of ownership/participation the tenure turns out an important factor in building the feeling of well-being. The recently practiced flexibility of work force may not turn out to be good for effectiveness of companies.

Although this research had many limitations, it shows a certain theoretical path in further studies of participation. Distinguishing between physical, legal and psychological ownership, manifold operationalization of the psychological ownership and further refinement of the theoretical model both in the management content and levels of participation are positive outcomes of this research which should be continued in future research.

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Appendix 1. OpenIndex 2005 Questionnaire Measures

Well being – alpha 0.56

- 37 *Is your company a good enterprise?*
 8 *Are you generally satisfied with life?*
 64 *Are you generally satisfied with the work in this company?*

Superiors – alpha 0.83

- 25 *Are you satisfied with the way you are treated by your immediate superior?*
 36 *Does the immediate superior respect you as a human?*
 54 *Do superiors in your firm remember about employees' dignity when speaking to them?*
 65 *Do you trust your immediate superior?*
 70 *Were it possible, would you change your place of work?*

Work environment – alpha 0.48

- 33 *Does the firm try to secure safe and healthy work conditions?*
 50 *Is your work particularly arduous?*
 67 *Are you satisfied with the working conditions granted by the company?*
 68 *Is the participation in the present survey a big nuisance for you?*
 76 *Does the work in the company negatively influence your frame of mind and health?*

Information received – alpha 0.72

- 20 *Are you satisfied with the quality of information needed for proper performance of your tasks?*
 29 *Are you satisfied with the means of supplying you with the feedback information regarding the quality of your work?*
 44 *Do you know where to gather information indispensable for achieving professional goals and where to transfer it?*
 49 *Do you know the cost and profits of your work place for the firm?*
 53 *Do you respect all people working in your company equally high?*
 56 *Is the management courageous to tell the difficult truth, which may not be accepted?*
 59 *Do all employees receive required information on time?*
 60 *Do you know what you should do for the firm to execute the plan for the next couple of years?*

Compensation – alpha 0.80

- 19 *Is compensation fairly calculated?*
 40 *Does your compensation reflect the competence, arduousness, and responsibility, your job requires?*
 57 *Are you satisfied with the way your compensation is calculated?*
 82 *Is the pay high enough to cover the everyday needs and save or buy on installments?*

Customer relationship management – alpha 0.55

- 24 *Does the firm do its best to recognize the needs of its customers?*
 34 *Are you regularly informed about the influence of your work on customer satisfaction?*
 52 *Are you satisfied with the quality of products and services offered to the customers?*
 77 *Would you recommend your firm's products or services to your friend?*

Individual feedback – 0.75

- 16 *Are outstanding employees duly appreciated (promotions, rewards, incentives)?*
 32 *Are you satisfied with your performance evaluation?*
 39 *Are you reliably informed about the quality of your work?*
 61 *Is the effort of particular persons honestly appraised?*

Information sent – 0.57

- 6 *Are willing to tell others what they do well and what not too well?*
 13 *Do you manage to transfer quickly the information only you have access to?*
 17 *Do you willingly participate in the work evaluation of your colleagues?*
 27 *Are you satisfied with the way your ideas are treated in the company?*

- 38 *Do you come out with innovations in your job?*
 55 *Do all employees have an opportunity to express their opinions about what is happening in the company?*
 72 *Do you willingly share your knowledge and experience with others in the firm?*

Development – alpha 0.70

- 23 *Does the company support employees in education?*
 26 *Is management in your firm sufficiently prepared to fulfill their tasks?*
 41 *Are you satisfied with professional competences of your immediate superior?*
 45 *Do you know what qualifications you should possess to secure further employment?*
 63 *Are you satisfied with your professional development in the company?*
 84 *Are constant learning and professional development fundamental obligations in your work?*

Change management – alpha 0.53

- 21 *Are there many changes introduced recently?*
 48 *Are you willing to make changes to your work routine?*
 62 *Are you satisfied with the changes which have recently come about in your work?*
 80 *Do changes in the company refer to your job as well?*

Strategic dialog – alpha 0.60

- 18 *Was the future of the company discussed by the management and the employees representatives?*
 22 *Do you know what are the firm's development plans for the next couple of years?*
 28 *Are you satisfied with the firm's development plans?*
 66 *In comparison to other firms, does your firm have a strong market position?*

Level of participation – alpha 0.75

- 2 *Are you satisfied with how you treat others in the firm?*
 4 *Is the work community the second family?*
 5 *Do you feel as if the company were your property?*
 7 *Is the firm's competitiveness important for you?*
 30 *Are you satisfied with the scope of independence in your job?*
 35 *Are you satisfied with the market position of your company?*
 42 *Are you proud to work in this company?*
 43 *Does your superior consult you about the task entrusted to you?*
 46 *Does the exterior of the work place positively influence your effectiveness?*
 47 *Do you regularly achieve feedback about what you should improve?*
 51 *Do you feel well in your job?*
 69 *Do you like your colleagues?*
 79 *When dismissed, would you find a job in your profession?*

Private theories of the firm – alpha 0.26

- 1 *Does the employee satisfaction influence the work quality?*
 3 *Can companies manage their employees' knowledge?*
 9 *Should the compensation depend on the situation on labor market?*
 12 *Is customer satisfaction the fundamental goal of any enterprise?*
 15 *Are working conditions the easiest place to save money on?*
 31 *Should companies introduce less changes?*
 71 *Are employees merely an instrument of production for contemporary firms?*
 83 *Is profit the fundamental goal of any enterprise?*

Private participation theories – alpha 0.50

- 10 *Should employees participate in forming their personal development plans?*
 14 *Should all employees, regardless their position, pronounce on the future of their firms?*
 73 *Is it important for the employees to take partial responsibility for the company similarly to the owners and management?*
 74 *Should companies prepare employees to understand the business they are in?*
 75 *Should only the managers take the decisions, while the employees should merely implement them?*
 78 *Should every company have a reliable performance evaluation system?*
 81 *Is information system a basis for firm's competitive position?*

Appendix 2 The comparison of 10 aspects of the company functioning (detailed).

Criteria	Ideal	Employee owned	German subsidy
1. Financial results	100	72	57
Financial stability	30	25	18
Capital activity	40	32	25
Productivity	30	15	14
2. Operations management	80	71	58
Resources assurance	25	21	18
Production management	15	13	12
Quality assurance		14	9
Cost management	15	13	9
Operational strategies	15	10	10
3. Innovation	20	12	13
Definite style or policy	5	2	3
Managing innovation	5	2	2
Results	10	8	8
4. Strategy/Mission/Vision	100	75	65
Development strategy	25	17	17
Mission, values, org. Culture	25	22	17
Strategic process	25	17	15
Environment recognition	25	19	16
5. Corporate Responsibility	50	30	18
Policy	15	5	3
Transparency	15	10	5
Practice	20	15	10
6. Environmental protection	50	40	33
Policy	10	10	5
Implementation	20	15	15
Measurement	10	10	8
Communication	10	5	5
7. Local community	50	38	22
Policy	10	8	5
Implementation	20	17	12
Measurement	10	5	0
Communication	10	8	5
8. Customer relations	100	68	67
Customer Satisfaction	50	33	32
Audit results	45	30	30
Quality-cost-supply	5	5	5
9. Relationship with suppliers	50	35	40
10. Employee perception	200	164	158
Dignity	40	24	32
General picture	40	38	34
Level of participation	40	36	32
Employee satisfaction	40	36	32
Management systems	40	30	28
Total	800	605	531