BUILDING ON INDIVIDUAL TACIT KNOWLEDGE THROUGH TACIT MANAGEMENT OF INFORMAL CONVERSATIONS IN A REGIONAL HIGHER EDUCATION INSTITUTION IN LATVIA

Ieva Vizule¹, Juris Roberts Kalniņš²

¹Ventspils University College, Latvia, ieva.vizule@venta.lv

²Ventspils University College, Latvia, simts@latnet.lv

crossref http://dx.doi.org/10.5755/j01.em.17.2.2212

Abstract

The broader problem addressed by the present paper is the insufficient attention paid to and ineffective use of the tacit knowledge surfaced during informal conversations in the organisation. This tacit and transformative potential, in the present paper, is looked at from the point of view of informal conversation management. We argue that the ability to capitalize on this potential depends on the attitude organisation members, and management in particular, have to informal conversations, which reflects on how such conversations are managed - a move from explicitly managed conversations to their tacit management proved necessary to be able to create a more favourable platform for building on tacit knowledge and by this contributing to sustainable changes. Such conversations and their management was the object of a research within the action research paradigm, and they are reflected upon through the dimension of the three centres of tacit knowing introduced by Polanyi, which was adapted for the present research.

Keywords: three centres of tacit knowing, tacit cognitive knowledge, tacit management, informal conversations, sustainable change.

JEL Classification: D23.

Introduction

In knowledge management and organizational learning theories and practice, it has been widely argued and proved that conversations - informal in particular - are some of the most effective tools for extracting and sharing individual tacit knowledge, as well as for creating new. However, within an organisation, the creative capacity of individual tacit knowledge and transformational capacity of informal conversations tend to be underused, despite the relatively good general understanding people in management have of the crucial role of informal communication in various decision-making processes. This is very likely to undermine both individual and organizational performance, and eventually their competitiveness, as it is organizational tacit knowledge that makes it acutely sensitive and observant – it helps to *see* changes in internal and external contexts and timely respond to them in unusual and creative ways. Looking for ways to enhance this ability of the organisation, or its parts, and continuous building on individual and group tacit knowledge that is shared and created during informal conversations is the broader goal of an on-going study.

The whole study rests on several theories: first, on the tacit knowing theory developed by Polanyi (Polanyi and Prosch 1975, Polanyi 1974, Mitchel 2006); next, on the knowledge creation theory (Nonaka 1998, Nonaka *et al* 2001, von Krogh *et al* 2000, Tsoukas 2006) and its constructionist perspective on knowledge - that "knowledge is socially constructed rather than a concrete representation of reality" (von Krogh *et al* 2000: 103); and also on the theory of complex responsive processes in organisations, which places informal conversations at the heart of change that is sustainable (Stacey 2000, Shaw 2001). Some aspects of this study have been looked at by earlier articles, namely, informal conversations as a part of learning and training activities in the organisation under study, including managerial education (Kalniņš and Vizule 2007, 2011, Vizule and Kalniņš 2007). The goal of this paper is to reveal the understanding we have acquired of the transformative nature of informal conversations in the organisation under study and link it with the attempts to enhance this potential through improving on informal conversation management, which is done by applying the tacit knowing theory.

Polanyi's tacit knowing theory, developed in the middle of the 20th century, and its three centres, namely, the focal target, the subsidiary particulars, and the knower, who links the first two by addressing the focal target within and from the subsidiary particulars (Polanyi and Prosch 1975: 38) is adapted and suggested as a research, and also change, instrument. Another instrument is borrowed - Stacey's proposed description of everyday conversations that have a capacity for transformation (2001: 181); its use is combined with the differentiation among four levels of the quality of group tacit knowledge developed by Erden, von Krogh and Nonaka (2008: 11). Applying these instruments, the article reflects on an action research that attempted to evaluate informal conversations from the point of view of their management and

sought to justify the move from initially explicitly managed conversations to their *tacit management*, by which we mean management that is indirect, tentative and intuitive, more about observing and listening than speaking. We see its main task in providing maximum favourable conditions, and more importantly – removal of obstacles, for the release and capture of tacit knowledge.

The research field is a 15-year old and relatively small regional higher education institution (about 850 students and 70 academic staff members). Selection of the sample – people engaged in conversations - was task-dependent in each action research cycle: initially, that was a maximum variation sample, which would typically range between 20 and 35, with the aim to gradually reach the widely dispersed tacit knowledge in the organizational knowledge system by engaging all basic groups of the population – representatives of the academic and administrative staff, students, all with different backgrounds, then graduates and local community members - businesses and municipality. But it should be noted that the nature of the research dictated a voluntary participation and hence the sample was also relatively changeable. As for the tacitly managed conversations, the sample is homogeneous – academic staff of one department, a focus group of 10 - 15 people, the researcher among them.

Being an insider (including temporary middle-management positions) in the research field made it possible to implement these series of conversation-based activities in the form of action research cycles, in each successive one making an attempt to introduce a novel aspect. Data gathering methods include open observation and notes on its results, written feedbacks after each conversation-based activity from its participants, audio recordings (of some conversations), note-taking during and after informal conversations, and a survey of the focus group. Content analysis was applied for data processing with a particular emphasis on the lexical units revealing tacit cognitive knowledge of individuals, i.e., their values, commitment, attitudes, understanding, ontological assumptions, and beliefs concerning the informal conversations they participated in and their management, their contribution to a possible positive change, either individual, departmental, or organizational.

The findings show that management of informal conversations is a precondition for the organisation to be able to capitalise on the tacit knowledge possessed by its individuals. They also show that explicit management of informal conversations can ensure sufficient engagement of different internal and external stakeholders in conversations, and that it is conducive to tacit knowledge sharing, also creating new. But they also suggest a need for a less visible approach to managing informal conversations, which is necessary to be able to create more favourable conditions for, first, unlashing the tacit potential hidden in the organizational community and, second, building on it on a more regular and continuous basis. Because this tacit and transformational potential of informal conversations in organisations tends to be underused due to their inappropriate management or its absence, organisations may choose to apply tacit knowing theory and its three centres as an instrument for reflecting on and questioning the existing managerial practices aimed at raising the ability to both identify conversations that possess this transformational capacity and then capitalise on it.

The next chapter unfolds how three centres of the theory of tacit knowing were adapted for the research purposes. Then the following one substantiates the approach used in the research to identify conversations that can lead to positive and continuous changes and links it with the quality of group tacit knowledge. The final chapter reflects on some action research cycles and discusses the research findings.

Polanyi's three centres of tacit knowing as a research instrument

The life of an organisation in a competitive environment depends on how effectively we are able to build on and create new knowledge that is hard to imitate, which explicit knowledge is not – it can be copied, reproduced, patented, or easily imitated in any other way (Ichijo 2007: 127). The will to *do* it 'dwells' in the cognitive dimension of tacit knowledge. This way tacit cognitive - seemingly insignificant, probably because of its very intangible nature – dimension of the knowledge structure is both a source and a means for huge creative and driving power in the organisation; moreover, it chooses the direction and field of operation: whether at the lower level, as Polanyi puts it – that "of power and profit, [or at] a higher level of moral obligation (..); when one is operating at the moral level, [he/she] is "carried away" by it (Polanyi & Prosch 1975: 208). In other words, the quality of any act of behaviour depends on the quality of tacit knowledge residing in both technical and cognitive dimension, particularly the latter.

Ability to tell or measure the quality of this knowledge is doubtful because of its relative and intangible character. At the same time it reflects itself in the focal target, one of the three centres of tacit knowing. For example, if a longer lexical utterance – a sentence - is the focal target, then what semantic

meaning that utterance conveys comes from or is affected by the knower or the speaker, as well as by the subsidiary particulars. Polanyi suggests these three centres of tacit knowing can be placed in the three corners of a triangle (op.cit.: 38), by this, at least visually, allocating equal importance to each of them. We propose a different depiction of this triad (see Figure 1), with the focal target forming the visible top of the iceberg; the subsidiary particulars - the very basis deep under the water; and the knower – the middle part, since he is the one who links the first two. Besides, we also differentiate between the subsidiaries relating to broader contexts, and those of the knower. The subsidiary particulars of the knower stand for his tacit knowledge, both technical and cognitive. Broader subsidiaries seep into the individual ones and can be either recognised or ignored by the knower, subconsciously – at the tacit level. Another triangle could be drawn with the listener as the knower in the middle; the focal target then would be comprehension, the quality of which depends on the knower's tacit knowledge, and on the subsidiary particulars of his broader context.

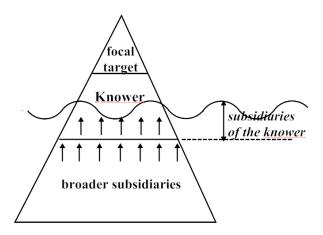


Figure 1. Polanyi's three centres of tacit knowing and how tacit cognitive knowledge affects the visible focal target

We apply this triad to reflect on the conversation management and look at it as the knower's ability to see the need for a shift of the focal target to one of the subsidiaries, either that of the knower or that of a broader context, as a way to improve on the quality of conversation management. Polanyi argues that such a shift can 'dissolve' the triad (ibid), but at the same time it creates a new one – the identified problem or shortcoming is being addressed and becomes the new focal target until it is improved and internalised. Failure to do this may lead to repetition of poor practices, including managerial, or to certain stagnation. This situation can be prevented by an occasional removal of emphasis from the focal target – the task to be completed – to its subsidiaries, i.e., how this task is done, what assumptions and understanding underpin these practices, whether they are in line with the changes in the broader contexts, etc. We see such continuous questioning of the quality of the subsidiary particulars at the basis of individual or group evolvement that is sustainable and would not necessarily require use of power management tools. Such questioning can be individual, but more effective in informal conversations. However, not all informal conversations have a potential to initiate such a change.

How to identify informal conversations that trigger change

Informal conversations – in the present paper are understood as the opposite to the standard formal and structured meetings and conversations run from the power position, frequently in a reserved, possibly even aggressive manner. We are looking at a conversation as a ba, a Japanese concept with the original meaning 'a place' but later developed to imply broader "conditions required for knowledge creation" (von Krogh et al 2000: 49), and hence also a platform for a continuous and deep change. It is important to understand that such a change cannot be imposed by managers from above. At the same time, reversing the flow of information has proved to initiate such changes: "Research tells us that people are more likely to change when (..) [they] are not talked at, but when they themselves have a chance to talk" (Farson 1997:62).

Some may argue that traditional meetings and conversations provide ample opportunities for talking, and they probably are right if the goal is just to deliver some data or messages, or voice some attitudes, concerns, ideas. However, the view of organisation as a living body (not a machine) sees the organisation as

a complex and dynamic, also unpredictable, organism transforming and developing itself through "an ongoing flow of individual interactions" (Stacey 2001: 198). Stacey (2001) and Shaw (2002) look at conversations from the perspective of complex responsive processes; they refer to such conversations as 'ordinary', 'everyday' and stress that "the future of an organization is perpetually constructed in the conversational exchanges of its members as they carry out their tasks" (Stasey 2001: 181).

Also practitioners in the management field (Farson 1997, de Geus 2001, Kahane 2004, etc.) recognise the power of conversations. Apart from reducing fear, a major obstacle to change, as Zeldin explains, conversations are capable of what 'laws and guns' fail to do – of changing mentalities. He adds that "change is superficial if mentalities are not altered, [and stresses] that change cannot be achieved by any old conversation", which would be more about impressing others by individual eloquence and less about revealing the individual self (Zeldin 1999: 1633). Revealing the individual self – conscious or subconscious – is necessary, firstly, to be able to open the self up to others and to new insights; secondly, to stop – in the living and working - and question the understanding, beliefs and assumptions the individual lives and works by., i.e., question the quality of tacit cognitive knowledge.

It should be noted though that not any informal conversation can lead to the desired quality changes in tacit cognitive knowledge; drawing on Stacey's differentiation among different types of conversational processes on the basis of their capacity for transformation, a continuum can be imagined, where stability is at one end, and chaos at the other. Conversations that are dynamically stable – 'habitual', 'repetitive', 'little variation', "lifeless, depressing, even obsessive, compulsive" - are believed by him to have no or little potential for transformation or change; contrary to those at the edge of chaos, which are described to contain such features as 'confusion', 'distress', 'liveliness', fluidity', energy', 'excitement', 'tension', anxiety', "grasping for meaning and coherence", and "continuity and spontaneity at the same time" (2001: 181). This suggests that informal conversations that take us beyond our comfort zone - in terms of our knowledge and practices, and also emotionally, might be the most transformative and hence most valuable. In the current study, this conversation classification and description offered by Stacey serves as a measure for identifying informal conversations that have the capacity for transformation.

Ability to change can be looked at from the point of view of the quality of group tacit knowledge, a concept recently introduced by Erden, von Krogh and Nonaka (2008: 11), who differentiate among four levels of such knowledge (see Figure 2).

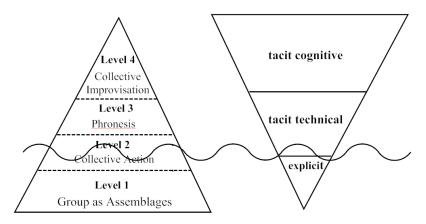


Figure 2. Levels in the quality of group tacit knowledge (on the basis of Erden *et al* 2008: 10) and an inverted knowledge iceberg

Next to the reproduction of the original image, which is on the left, we place an inverted iceberg of knowledge. The wavy line is an approximate border indicating the part of the individual's knowledge that is above water (explicit knowledge) or below it (tacit knowledge). The lowest quality knowledge - Level 1 on the left - which brings together people who are 'foreigners' and have weak group ties - in our understanding, broadly equals with explicit knowledge. Level 3 – that of 'prudence' or 'practical wisdom' is basically about tacit technical knowledge (even though 'common goodness' requires attitude and commitment, and they are qualities of the cognitive dimension); while tacit cognitive knowledge is the only knowledge that can lead to Level 4, which is "the highest level of tacit knowledge quality a group can achieve in an effort to understand how firms and groups can respond to fast environmental changes, unpredictable events, and the need for

continuous innovation" (von Krogh 2002 in Erden et al 2008: 12). This means that informal conversations that reach Level 4 possess the highest transformational capacity. The ability to capitalise on this resource largely depends on conversation management. Besides, we see it also as an indicator for good and appropriate management of such conversations.

From explicit management of informal conversations to their tacit management

Against this treatment of conversations, the way of taking individuals beyond their comfort zone in the first research phase was through diversifying ba – by bringing new parties into conversations the topic of which traditionally was responsibility, and more importantly – prerogative, of one specific staff group, i.e., the territory others were not allowed to tread. For example, the higher education quality would not be for students to discuss. By doing so, we gradually widened the range of perspectives a certain issue is looked at, which reflects in the new objectives for each successive action research cycle (see Table 1).

Theme	Education quality	A valuable class	Employability of graduates	Attracting smart heads
Objectives	─	→	─	─
Č	- all internal stakeholders (incl. students) – equal conversation participants - increased time for group conversations	- students – co- organisers - maximal speaking time for each participant	 external stakeholder engagement focus on one department ability to process conversation content 	- maximum free atmosphere - exchange student engagement

Table 1: Phase 1: conversation themes and objectives of each action research cycle

These conversations rested on the principles of Gurteen's Knowledge cafés (Remenyi 2004), widely known in the knowledge community around the world; they are not called informal, but their actual implementation rests on the informal, relaxed, and playful atmosphere, a precondition for extracting tacit knowledge and building on it. The range of stakeholders participating in and contributing to discussing the issues of education in the HEI under study was gradually extended by, first, engaging students and then outreaching different graduate groups, businesses, and local community members. The gathered data related to the management of informal conversations express the stakeholder readiness and willingness to get engaged, as well as their prevailingly positive evaluation of the conversational activity as such, e.g.,

- - "Finally, one of the most heated dormitory topics has been moved into a different space, (..) we've been given an opportunity to see what WE might possibly change", after the first time students were engaged;
- "Initial uncertainty of what to expect turned into heated discussions and enjoyment, of being given an opportunity to express myself (much more than in formal meetings)";
- "A possibility to have a multi-perspective view";
- "Incredible feeling of just sharing the space with the personalities of such a calibre [senior managers and executives from the local authority and businesses]";
- "People were just eradiating happiness. The chance to have a say! And in such an unusual company!".

But there was also a criticism concerning either behaviour of some participants – domination of some 'smart heads', the will 'to teach' the young 'from above', or conversation management, such as bringing participants of different age, social and intellectual background together – 'A too primitive discussion of serious issues of higher education. What can we possibly say if we have not studied the educational ideas and works of Komensky, Diderot, and Pestaloci. (..) Every issue is made vulgar, to the level of kitchen conversations".

All these aspects are about the tacit cognitive knowledge of individuals, i.e., the knower – speaker or listener – links the focal target, e.g., employability of graduates, with the subsidiary particulars or his subsidiary awareness. Subsidiary awareness of a professor in the field of higher education compared to that of the student or a business manager, undoubtedly, is more advanced, however not necessarily it better corresponds to the requirements of the labour market. If the knower, in such a situation, is only a skilful sender but not receiver, i.e., poor and unwilling listener, he is most likely to maintain his beliefs and is likely to be less able to *see* beyond his field, despite the presence of misunderstandings and also contradictory opinions, or 'tension and anxiety', which according to Stacey are conducive to changes (2001: 181).

The capacity of the knower to change links closely with conversation management; managing these knowledge cafés involved shifts of the focal target to some subsidiary particular – how conversations were organised, partially reflected in Table 1 as well. Upgrading students from participants to co-organisers, and later also organisers, might have been not only a way to boost their morale but also to make them more aware of their own responsibility for the learning outcomes, another issue in the higher education. Such awareness can be imposed form above neither; its development requires a change on the tacit cognitive level, only theirs. However, such cafés are unlikely to lead to them, despite the fact that the multi-perspective approach to organising conversations was appreciated by the vast majority of the participants and some self-reflection triggered. They may have reached Levels 1 and 2 of group tacit knowledge quality. The series of conversations – knowledge cafés – was about sharing not only practical wisdom but also of deeper values and beliefs. However, the insufficient frequency of these cafés and possibly also not open enough atmosphere - due to the absence of tacitly accepted equality among the participants, as seen above - impeded the possibility to seriously work towards this 'common goodness' (Level 3), the understanding of which among the participants differed as well.

The next chosen platform for change and development is the informal conversation as it is looked at in the complex responsive processes theory (Stacey 2001 and Shaw 2002) – ordinary or everyday conversations; we selected weekly coffee breaks in the former vice-dean's office in one of the HEI departments. Gradually these coffee breaks have developed into 'a bee hive', as one colleague puts it, "where you would leave what you have and get what you need". Referring to Stacey's proposed adjectives and nouns describing conversations that have a capacity for transformation (2001: 181), the findings clearly place these coffee break conversations closer to the edge of chaos ('liveliness' – 100% of responses, 'a bit of a chaos', 'variety' and 'activity' – 82%, 'incoherence' 73%, 'encouragement to act' – 64%, 'contradictions' – 45%). At the same time 'wellbeing' earned 73% and 'stability'- 45%, which are closer to the stability end and hence less transformative, but one of the respondents added a comment that it is more about the security: 'you always can join the coffee break 'with Valda' and share concerns and receive some help'.

These coffee breaks have developed to mean much more than coffee and lunch; respondents stress the togetherness they create and how they work 'towards common goodness'- achieving better understanding of each other, of practices, of the situation, encouraging change and co-operation. This is a sharp contrast to the situation in the neighbouring department, the dean of which admits – "we can only dream about it". Such conversations are a value in themselves – the 'common spirit' and 'shared revelations' seep into daily practices, tacitly. And also explicitly – there are observed much shorter 'lead times' for shared solutions to some problems of a professional character. Note-taking during these conversations was recently introduced to be able to better capitalise on the tacit knowledge surfaced during these conversations. We choose to look at it as a *tacit management* – management which is not so much about speaking as it is about listening, another seriously underdeveloped and also underused skill. Kahane sees the quality of listening as a way to avoiding 'the dialogue of the deaf' and moving forward; "Talk by itself, even brilliant speeches by famous people, does not create new realities. Most of the time it reproduces old ones" (2004: 69). This means that the ability and scope of moving forward is a two-way process which requires the mastery, engagement, and commitment from all involved 'knowers'.

Conclusions

This ongoing qualitative study has attempted to use the potential of informal conversations in triggering organizational or departmental change and development through addressing individual tacit knowledge. We have come to conclude that the quality of individual's tacit cognitive knowledge is both decisive in and depends on the interrelation among the three centres of tacit knowing. This interrelation can be used as a quality indicator for tacit cognitive knowledge since it reflects itself in any act of performing a task. These centres may be treated as what – the focal target, how & where from – subsidiary particulars, and who – the knower. Besides, who or the knower, in his turn, has his own subsidiary particulars that not only inform his choices and behaviour in relation to the focal target, but also define his ability to see or notice subsidiary particulars of the changeable broader context. This ability combined with the individual's commitment to quality empowers the knower to attend to weaknesses or obstacles identified among subsidiaries, which then requires a shift of the focal target to that particular problem to be able to improve on it. This is why novel aspects to managing conversations were gradually introduced, taking into account that particular situation. We see the triad of the tacit knowing theory introduced by Polanyi and adapted for this research as a good tool not only for improving conversation management but also for highlighting tacit cognitive knowledge as a critical resource that

deserves a more serious attention despite its intangible nature. Tacitly managed everyday informal conversations are a very effective way to engage with each other, each other's practices, ideas, beliefs, values, mentalities, i.e., the cognitive dimension of tacit knowledge, and build on it.

However, adopting ordinary informal conversations as a serious instrument for a sustainable change in a rather rigid and conservative post-soviet culture is not an easy task to do, not only because of the gradual and time-consuming nature of such a change, but also because they can be threatening to each individual involved, and most of all to people in positions of power, whether academic or administrative – "Acknowledgement of a mistake is difficult for managers who have been paid high salaries to be right (Walton 1994: 86). This may explain why some environments are not ready for such conversations yet. From the researcher's point of view, it is not easy to identify and verify such changes having taken place either. This is why the next focal target projected in the study is making a better use of the documented material from ordinary conversations. We are considering a more focused look into informal conversations of a very small target group and attempt at using specialized tools for extracting tacit knowledge and building on it paying a particular attention to the interchange of active and passive stages in this process.

References

- 1. De Geus, A. (2001). Dzīvīgais uzņēmums: Uzņēmuma veidošanās, attīstība un ilglaicīgums. The original The Living Company: Habits for Survival in a Turbulent Business Environment (1997). Harvard: Harvard Business School Press.
- 2. Erden, Z., von Krogh, G., Nonaka, I. (2008) The Quality of Group Tacit Knowledge. In Journal of Strategic Information Systems 17 (pp. 4-18), available at www.sciencedirect.com
- 3. Farson, R. (1997). Management of the Absurd. New York: Touchstone.
- 4. Ichijo, K. (2007). The Strategic Management of Knowledge. In Ichijo, K., Nonaka, I. (Eds), Knowledge creation and management: New Challenges for Managers (pp. 121-145). Oxford: Oxford University Press.
- 5. Kahane, A. (2004). Solving Tough Problems. San Francisco: BK Berret-Koehler Publishers, Inc.
- 6. Kalniņš, J.R., Vizule, I. (2007). Organizational knowledge creation: innovative approach to managing people. In the Proceedings of International Scientific Conference Employment and Labour Market Movements Conflicting Paradigms in a Globalised World (pp. 75 86). Riga: Riga International School of Economics and Business Administration.
- 7. Kalniņš, J.R., Vizule, I. (2011). Tapping on tacit knowledge in organisation's knowledge system in competitive environment: a case study into management education in Latvia. In the Conference Proceedings Current Issues in management of Business and Society Development 2011 (pp. 278-289). Riga: University of Latvia.
- 8. Mitchel, M., T. (2006). Michael Polanyi: The Art of Knowing. Wilmington, Delaware: ISI Books.
- 9. Nonaka, I. (1998). The Knowledge Creating Company. In Harvard Business Review on Knowledge Management (pp. 21 46). Harvard: Harvard Business School Press.
- 10. Nonaka, I., Toyama, R., Byosiere, P. (2001). A Theory of Organisational Knowledge Creation: Understanding the Dynamic Process of Creating Knowledge. In Dierkes, M., Berthoin Antal, A., Child, J., Nonaka, I. (Eds) Handbook of Organisational Learning and Knowledge (pp. 491-517). Oxford: Oxford University Press.
- 11. Polanyi, M. (1974). Personal Knowledge. Chicago: The University of Chicago Press.
- 12. Polanyi, M. and Prosch, H. (1975). Meaning. Chicago: The University of Chicago Press.
- 13. Remenyi, D. (2004). Knowledge Sharing and Collaboration Knowledge Cafes Do it Yourself Knowledge Sharing. In The Proceedings of the 5th European Conference on Knowledge Management, 30 September 1 October 2004 (pp. 743-748). (Remenyi, D. Ed.). Paris: Conservatoire National des Arts et Metiers.
- 14. Shaw, P. (2002). Changing Conversations in Organizations. London and New York: Routledge, Taylor & Francis Group.
- 15. Stacey, R.D. (2001). Complex Responsive Processes in Organizations. London and New York: Routledge Taylor & Francis Group.
- 16. Tsoukas, H. (2006). Complex Knowledge: Studies in Organizational Epistemology. Oxford: Oxford University Press.
- 17. Vizule, I, Kalniņš, J.R. (2007). Knowledge creation in organization: personnel training through a better use of internal knowledge resources. In the Proceedings of International Scientific Conference New Dimensions in the Development of Society (pp. 337–345). Jelgava: Latvia University of Agriculture, Faculty of Social Sciences.
- 18. von Krogh, G., Ichijo, K., Nonaka I. (2000). Enabling Knowledge Creation. Oxford: Oxford University Press
- 19. Walton, M. (1994). The Deming Management Method. Chalford: Management Books 2000 Ltd
- 20. Zeldin, T. (1999). How work can be made less frustrating and conversation less boring. In Education and debate (pp. 1633- 1635). Volume 319, 18-25 December. www.bjm.com