

# The Change Laboratory as a tool for collaborative transforming work activities: an interview with Jaakko Virkkunen

## O Laboratório de Mudança como uma ferramenta para transformação colaborativa de atividades de trabalho: uma entrevista com Jaakko Virkkunen

Interviewee:

### **Jaakko Virkkunen**

Psychologist, PhD in Work Psychology and Professor Emeritus at the Center for Research on Activity, Development and Learning (CRADLE), University of Helsinki.

Interview conducted by:

### **Rodolfo Andrade de Gouveia Vilela**

Engineer specialized in Occupational Safety and Ergonomics, MSc and PhD in Public Health. Associate Professor, School of Public Health School and Post Doctor from the University of Helsinki.

Address: Av. Dr. Arnaldo, 715, Cerqueira Cesar, CEP 01246-904, São Paulo, SP, Brazil.

Email: ravilela@usp.br

### **Marco Antonio Pereira Querol**

Agronomic Engineer, MSc in Management of Agroecological Knowledge and Social Change, PhD in Adult Education by University of Helsinki and Postdoc at the Federal University of Paraná.

Email: mapquero@gmail.com

### **Manoela Gomes Reis Lopes**

Physiotherapist, Specialization course in Public Health and Family Health, MSc in Public Health and PhD student in Public Health at University of São Paulo.

Email: lopes.manoela@usp.br

## Abstract

On September 2012, the School of Public Health, University of São Paulo (FSP-USP), in cooperation with the University of Helsinki - Finland, held a Training Course for the Change Laboratory Method conducted by Professor Emeritus Jaakko Virkkunen, Ph.D. in Work Psychology and Professor at the Center for Research on Activity, Development and Learning (CRADLE), University of Helsinki. He has a broader experience in formative interventions and conceded this interview to Saúde e Sociedade Magazine. During the interview, the trajectory and history of this Center was presented, which has a long tradition in research based on the Cultural-Historical Activity Theory (CHAT) based on the work of L. S. Vygotsky and his followers. Jaakko Virkkunen took part along with other CRADLE researchers in the development of a method called Change Laboratory (CL), a consolidated tool already applied in many countries and different areas of activity. Theoretical aspects, principles, the importance of demand and experience of application of CL were presented during the interview. Furthermore, other differences among participatory research methods are mentioned. At the end, the interviewee presents suggestions about the use of the CL.

**Keywords:** Historical-Cultural Activity Theory; Formative Intervention; Change Laboratory.

## Resumo

Em setembro de 2012, a Faculdade de Saúde Pública da Universidade de São Paulo (FSP-USP), em cooperação com a Universidade de Helsinque (Finlândia), promoveu um curso de capacitação sobre o método do Laboratório de Mudança (LM) ministrado pelo Professor Emérito Jaakko Virkkunen, doutor em psicologia do trabalho e professor do Centro de Pesquisa em Atividade, Desenvolvimento e Aprendizagem (CRADLE), daquela instituição. Com uma ampla experiência em intervenções formativas, ele concedeu esta entrevista à *Saúde e Sociedade*. Durante a entrevista, foi apresentada a trajetória e história desse Centro, que possui uma longa tradição em pesquisas baseadas na teoria da atividade histórico-cultural (CHAT), por sua vez baseada no trabalho de L. S. Vygostky e seus seguidores. Virkkunen, juntamente com pesquisadores do CRADLE, desenvolveu o LM, uma ferramenta consolidada, já aplicada em vários países e em diferentes áreas de atividade. Aspectos teóricos, princípios, a importância da demanda e experiências de aplicação desse método foram apresentados durante a entrevista. Além disso, são mencionadas diferenças com outros métodos de intervenção e de pesquisas participativas. Ao final o entrevistado apresenta sugestões para o uso do LM.

**Palavras-chave:** Teoria da atividade histórico-cultural; Intervenção formativa; Laboratório de mudança.

*Saúde e Sociedade: Could you tell us something about the trajectory and the history of CRADLE research center at the University of Helsinki?*

*Jaakko Virkkunen:* Yes, we can divide the history in three phases. There was a pre-history of CRADLE from late 1970s' on. There was in Finland a specific kind of collaboration between researchers and practitioners. First there was only one researcher, Yrjö Engeström, who was academically oriented person. The practitioners were working in human resources development in working life, who were all interested in Cultural-Historical Activity Theory and in applying the theories of Vygotsky and Leontiev in their work. So we had collaboration between researchers and practitioners on questions of development of professional work and work practices in working life. The first period of development ended with having a group called: "Group of Developmental Work Research". The first phase ended in 1994 when the approach was already documented and well established. Yrjö Engeström, who was the leading figure, had his dissertation on 1987<sup>1</sup>. Many projects applying on this new approach were carried out<sup>2</sup>.

Then the University of Helsinki started a new program of Centers of Excellence. A new center was established, which was first called "The Center for Activity Theory and Developmental Work Research" in 1994. In the next year a doctoral programme was established on Activity Theory and Developmental Work Research. The center got from the Academy of Finland a special funding for Centers of Excellence so that we could broaden the research. There were three professors working in the Center. The head of the center, Prof. Yrjö Engeström and his research group focused on the study of new forms of work activities. There was Reijo Miettinen who's research group focused on innovation processes and scientific research work. I came in 1995 to the Center and I had a research group that focused on Change Management and Intervention Methods. Then there was a research group on Occupational Health and Well-being with tight collaboration with the Finnish Institute of Occupational Health. The Center had a

1 ENGESTRÖM, Y. Learning by expanding: an activity- theoretical approach to developmental research. Helsinki: Orienta-Konsultit, 1987.

2 For review these projects: ENGESTRÖM, Y. Developmental work research: expanding activity theory in practice. Berlin: Lehmanns Media, 2005.

broad research programme, and the doctoral school with new doctoral students, which were about 15 students. These students started working in the Center and they had research projects.

There was in the same university the research group of Prof. Kari Hakkarainen that was studying networks of learning, network learning, and computer supported learning. In 2008, these two groups decided to fuse to form a new Center which got the name of CRADLE, Center for Research on Activity, Development and Learning. So, that is the history.

*Saúde e Sociedade: Could you tell us about the Vygotskian Activity Theory and his followers. How were his ideas further developed by CRADLE for studying and conducting interventions at work?*

*Jaakko Virkkunen:* The basic idea in Vygotsky's theory is that human psychological processes and activities are culturally mediated. This is the starting point. But Vygotsky himself, his students and pupils were also very much interested in developmental research. They were not interested in looking how things are at the moment, but analyzing what are the possibilities for further development and growth. Vygotsky's concept of Zone of Proximal Development brings forth these ideas of research that is focusing on possibilities of development and realization of these possibilities in human development. But Vygotsky and his nearest colleagues were very much doing experimental work in the school context and in psychological institutes, focusing rather much on young people, although they had other kind of research too<sup>3</sup>.

Vygotsky's pupil, A.N. Leontiev, broadened the view of this culture mediation by focusing or explaining that the cultural mediation is always related to the division of labour between people. The instruments that mediate man's interaction with nature also mediate relations between men. Work activities are always carried out through collaboration and division of labor. That was a very important point for the researchers who were actively collaborating

in CRADLE or in developing and applying the Developmental Work Research approach. The idea was that we have to study work not as it is but as it can be, as something developing and to reveal real possibilities for further development. The answer to your question is that the Finnish group has broadened the approach from children and school to working life, broadened the application of the basic ideas in different activities, but especially in work activities.

The other new phase or thing in the theory is that the original Vygotskian formulation was very much focusing on development as something vertical. So that the child learns the scientific thinking and the development is a vertical process. But in working life the situation is a bit different. Engeström has developed a theory of development as a horizontal process of collaboration between different activities, conceptualization and traditions<sup>4</sup>. So, I think that the main difference is that we work on Leontiev's idea of activities and work activities. Interventions are not focused on individuals as much as in work activities.

*Saúde e Sociedade: In Brazil, science and research, even in Public Health, are restricted to the diagnosis of the situational problem. So, academics have methodologies and tools for producing knowledge that help to understand health problems, social problems and environmental problems. However, it seems that the transformation is not object of the research. How do you see this question?*

*Jaakko Virkkunen:* It is the situation which Vygotsky describes in his studies already. In school the level of competence of the children was measured and he said that there can be big differences between students who have the same level in examinations. Some of them are working on the edge of their knowledge and some could be much better or have different possibilities for further development<sup>5</sup>. Vygotsky wanted to study what were the realistic possibilities for further development of each individual and not to focus on the existing situation.

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3 For more information: VYGOTSKY, L. S. *Mind in society: the development of higher psychological process*. Cambridge: Harvard University Press, 1978.

4 For more information: ENGSTRÖM, Y. *Expansive Learning at Work: toward an activity theoretical reconceptualization*. *Journal of Education and Work*, v. 14, n. 1, 2001.

5 For more information: VYGOTSKY, L. S. *Mind in society: the development of higher psychological process*. Cambridge: Harvard University Press, 1978.

Now, I think that in the working life and in our studies, the situation is so that if you study only how things are at present, you always produce old data. I heard an interesting example of this concerning a study of the ergonomics of some machinery. It took some time from the researchers to create a report. When they came back to the factory and explained what they had found there was first a silence in the room and then somebody said: "Yes, indeed we used to have that kind of machines then". They had made an analysis of the present but did not analyze what was going to happen. So, if you do research without the time perspective backwards on the history and forward on the future possibilities, you usually produce information that is not very relevant or useful because things go further and you cannot use old knowledge on how the situation used to be. That is one aspect of that.

The other aspect is that actually, you see connections between things only when you try to change them. In experimental science and in engineering, it is clear that you get phenomenon observable only by changing the situation. Therefore, descriptive research does not give information of the dynamics and the reason why things happen as they happened.

*Saúde e Sociedade: To know particular social and work situation, is it necessary to transform?*

*Jaakko Virkkunen: Yes, exactly.*

*Saúde e Sociedade: Interesting.*

*Jaakko Virkkunen: Yes, this is a good formulation.*

*Saúde e Sociedade: You mentioned that the research is not relevant if you do not look to the past and present. But what kind of theoretical and methodological tools Developmental Work Research and Activity Theory offer to researchers to expand the time line?*

*Jaakko Virkkunen: It has several aspects. The first is that you have to have a theoretical unit of analysis. You cannot have a historical analysis if you do not have a conception of the thing that is developing historically. So, the first instrument is the concept of activity system that you use as a theoretical unit of analysis. The second tool is the idea that the cultural mediation of activities is changing historically and you have to look the actual changes, but also the change in the discourse and the ideas and theories of a certain activity.*

In Developmental Work Research there are some methodological steps. The first is that you have to map the situation so that you know what is one activity and what is another activity, which you can decide on the basis of what is produced in that activity. Then we do an object historical analysis of how the object and motive and the system of the activity have developed. We do a theory historical analysis of the ideas of how this kind of activities should be carried on. We also do an actual empirical analysis of the actual practices and disturbances. The main idea is to look the activity as historically changing and also layered phenomenon that exist in the form of local activity and in a more general theoretical level as theories of the activity.

*Saúde e Sociedade: And then these analyses are tested by trying to transform a local activity?*

*Jaakko Virkkunen: Yes. There is one central concept that I did not say yet is that if you look to a developing system, then the dynamics of the development is based on the inner contradictions in the system. The researcher's task is to help the participants to understand and to reveal the inner contradictions in the system that produces certain disturbances, anomalies, accidents, diseases and things like that. When you have revealed and crystallized the contradictions then you are defining the problem that has to be solved and that leads then to innovations. It is a good basis for inventions and innovations.*

*Saúde e Sociedade: So, depicting these contradictions is essential to see how the activity is going in the future?*

*Jaakko Virkkunen: It is not about making a forecast of the future development. There are different types of causality in human activity. The central thing is that people are changing the work. They are producing new solutions. The contradiction is essential for directing people to search for certain solution which makes development possible. In research and development we have the problem that we are searching something but we do not exactly know what we are searching for. The contradictions defines rather well what we are searching. If we have innovations, we know what is a solution and what is not because we know the contradictions. It is essential for directing change attempts.*

*Saúde e Sociedade: How do you see transformation as object of research? Could you please tell us something about the Change Laboratory and the possibilities that this method offer in the field of health, education, communication, conditions of work and sustainability?*

**Jaakko Virkkunen:** The Change Laboratory is one method in the Developmental Work Research approach. It is based on a specific logic of invention. Traditional empirical research is based on statistical generalization. You collect data enough to make statistical generalization of how things are and what are the typical causal relationships.

In Developmental Work Research and in the Change Laboratory the basic problem is to invent a new solution for a problematic situation. In this approach a new solution is always first a local isolated new thing that starts to grow if the same contradiction exists in many activities. So the transformation is viewed in this method so that: a) first there is the phase of analyzing from the surface level to the underlining basic contradictions, b) second there is phase of creating an innovation that solves the contradiction that can spread and be enriched in the activity.

So the transformation is something else. It is different than change. Transformation means that there is a new logic of development. It is not just change that stops once you have made it. It is a change that creates further development. In the Change Laboratory, we intend to create something which produces new innovations and further development in an activity.

*Saúde e Sociedade: You just said that the main aim of the Change Laboratory is to create an innovation and solve a problem. It may sound very much with other participatory methods, like action research. Are they the same? If not, how does it differ from other participatory methods in which they to create innovations and solve problems? What is the main difference with other more traditional participatory research methods?*

**Jaakko Virkkunen:** I would like to compare this approach to action research and an approach that is called design experiment, which is common in pedagogic area. Actually, design experiment and the first versions of action research are very similar.

The starting point is usually an empirical problematic situation. In the design experiment and action research, the specialist is producing hypothesis of solution and some new instrument or new form of action. It is brought in practice and the practitioners experiment with that new solution, and change it according to experiences in the use. It can then stabilize or turn out that it was not a good solution and new solution is created and experimented with. The problem with these approaches in the traditional form is that the actor is the research who creates the model and the practitioners are experimental persons who try to use the model. In participatory action research, the situation is a little bit different because the practitioner gets involved in creating the solution, but the basic problem is the same: the whole process is based on common sense problem definition. There is a problem and a solution but there is no theoretical concept of what is the system where the problem emerges. So the big difference between the Developmental Work Research and the Change Laboratory compared with other approaches is the concept of activity system and the method of historical analysis of activity systems. We go behind the empirical problems and search for systemic causes of the problems and this means that the focus is much more on the collective activity instead of in individual actions. Action research typically takes the institutional context as given and focuses on individual's ways of working and acting. Our approach transforms the whole activity system.

*Saúde e Sociedade: Could you tell us which are the principles of the Change Laboratory?*

There are two main principles: the principle of ascending from the abstract to the concrete and the principle of double stimulation. The former comprises, however, actually several complementary principles.

Ascending from the abstract to the concrete is a principle of gaining understanding and managing the development of a complex system, in the Change Laboratory, the activity system from which the participants come. A system is understood as a configuration of relationships of interaction between complementary and therefore contradictory elements. A contradiction between aspects or elements in the interaction are managed through mediation.

For instance the acting subject's interaction with the object of action is mediated through instruments. As the elements of the system change, incompatibilities and new contradictions evolve that have to be managed or resolved by re-mediating the interaction. Ascending from the abstract to the concrete can mean the reconstruction of the genesis of a system from a small initial relationship, a germ cell, to a complex totality through the development and resolution of contradictions within the relationships of interaction. In the Change Laboratory it is, however, a process of finding the initial form of interaction that can be the basis of the development of a new form of the system, its next generation, so to say, by identifying a central current contradiction and finding a way of mediating it. Abstract here does not refer to something general and remote to material reality but rather something separate, something not (yet) integrated to the broader system that, however, represents a new principle that can become general like a new practice that the participants experiment with and develop further. This principle implies also the principle of thinking in terms of relationships of interaction between complementary elements and focusing on the features that the elements have as parts of a living system. It also comprises the principle of analyzing the systems in their change and development.

The principle of double stimulation is based on L. S. Vygotsky theory of how human beings manage their own behavior using external artifacts. It explains how participants' agency is supported in a Change Laboratory intervention. When a person encounters a problem or a conflict of motives he or she typically searches for an artifact to structure the situation and help to make a decision. When, for instance, one waits a person to a meeting and the person is not appearing, one is pondering whether to wait still a little or to leave. One can then decided to leave when the time is 30 min past the agreed time. When that has been decided and the time comes,

the person does not hesitate to leave. He or she has used the external artifact, the specific time in the display of a clock, as a signal to him/herself to carry out the previously planned action of leaving. In the Change Laboratory, a problematic situation in the practitioners' activity is brought to their attention through the mirror of their practice. These data are collected by the interventionist researcher through careful ethnographic research with the daily work of the participants (excerpts from interviews, videos etc.) which are presented to the participants during the CL's sessions. It is the first stimulus. The model of an activity system and other models are made available to the practitioners as possible second stimuli, with the help of which the practitioners can plan their actions of structuring the problem situation and proceeding in solving the problem.

*Saúde e Sociedade: Could you tell us about your new book<sup>6</sup> about the method of Change Laboratory? What are your suggestions or recommendations for the implementation of research using the Change Laboratory method in Brazil?*

*Jaakko Virkkunen:* The Change Laboratory is a new method developed in 1996, which was based on Yrjö Engeström's studies on work teams and the experiences of Developmental Work Research. The method has been used extensively in Finland and in other countries. We have quite a lot of experiences and reports of research based on the use of the Change Laboratory<sup>7</sup>. The idea of the book is to give a condensed overview of the basic theory and the method so that people can use the method and apply it in different contexts. We have a lot of articles and texts about research in which the method has been used but we have not had an overall picture of the method, or a text-book like presentation.

Because we have some history of the use of the Change Laboratory, we have learned something in the process, and my recommendation and understanding of the Change Laboratory is that it is

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6 VIRKKUNEN, J.; NEWNHAM, D. S. The Change Laboratory - a tool for collaborative development of work and education. Rotterdam: Sense Publishers, 2013. The book is being translated into Portuguese and will be edited by FABREFACTUM with funds from the cooperation between School of Public Health and the Ministry Public of Labor of the 15th Region.

7 Publications that applied the Change Laboratory are cited in: QUEROL, M. A. P.; JACKSON FILHO, J. M.; CASSANDRE, M. P. Change Laboratory: uma proposta metodológica para pesquisa e desenvolvimento da aprendizagem organizacional. Administração: ensino e pesquisa, Rio de Janeiro, v. 12, n. 4, p. 609-640. 2011.

actually a way of creating research-practice collaboration. It works better if you have a research institute, e.g. university, with long-term collaboration with working life organizations and you use the Change Laboratory in the collaboration with the practitioners. You can use the Change Laboratories so that you go to an organization, have one Change Laboratory and you go away and go to another and have a Change Laboratory, but the best results are reached if you create a community of practitioner and researchers - and you use the Change Laboratory for helping the practitioners to transform their practices and at the same time to collect information that is important in developing theory and knowledge about the phenomena.

*Saúde e Sociedade: Could you give some examples of applications of the Change Laboratory method in the field of Health, Communication and Education?*

*Jaakko Virkkunen:* Actually, it has been used rather extensively in the field of Health Care, Prof. Yrjö Engeström and his research group has carried Change Laboratories in hospitals and home care and other contexts in health care. I think that maybe the most interesting part of that work is a series of Change Laboratories and Boundary-Crossing Laboratories in primary Health Care and specialized health care. Engeström and his group had a Change Laboratory in a children's hospital<sup>8</sup> in which they found out that the problems that should be solved in one place in the health care network were related to the relationships and collaborations between institutions. The largest project in this area has been the Laboratory that focused of the care of the chronically ill patients that have several diagnosis at the same time, who are in the primary care and in different specialized care institutions as patients at the same time. The data that they collected about the patients show that different medical institutions and specialists didn't know enough about what the

others did and there was a lack of coordination between the persons who were taking care of the medical treatment of the patient. So they created in this Change Laboratory a new form of collaboration that they called knotworking<sup>9</sup>, which means that when primary care physician or specialist physician in the specialized care recognizes that this patient is chronic patient is going to be in the system for a long time, he or she collects in actual practice or virtually through emails the persons involved in the care, and they have negotiation of the overall plan of the care of the patient, and then they decide how they divide the responsibility and the work, making a care agreement which is an agreement with the parties, the patient and sometimes with the family members. This has been approved officially as the method for coordinating health care in the Helsinki area.

Then they had another Change Laboratory for implementing this new system in practice and to identify the problems and difficulties in its use. I do not know the current situation but basically knotworking turned out to be a very relevant concept for coordination in the rapidly changing work life.

*Saúde e Sociedade: Let's supposed that I have heard about the Change Laboratory and I got interest in applying one. What do you suggest? What should I do? What are the steps if I want to apply one Change Laboratory?*

*Jaakko Virkkunen:* It is a very theory-intensive method so that you have to study the theory carefully. Then you have to have some contact with some persons who have applied it, because it is still a new thing that much of the knowledge is tacit knowledge on the community that has used it.

*Saúde e Sociedade: The demand is an important question for us. Is it necessary that the company, or organization to have a strong demand, a problem and recognize that the problem exist?*

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<sup>8</sup> Further details of this research in: ENGESTRÖM, Y. Activity theory as a framework for analyzing and redesigning work. *Ergonomics*, v. 43, n. 7, p. 960-974, 2000.

<sup>9</sup> *Knotworking refers to a new form of work organization where the agency is distributed among many individuals, where no individual and no organization has control over the activity (see ENGESTRÖM, Y., ENGESTRÖM, R., VÄHÄÄHO, T. When the center does not hold: the importance of knotworking. In: Activity Theory and social practice: cultural-historical approaches. Oxford: A Arthus University Press, 1999).*

*Jaakko Virkkunen:* Yes, exactly. The Change Laboratory is paradoxically easier to use when the client is in a crisis and really want to... need urgently a solution and it shouldn't be tried to be applied only on the basis of an idea of the researcher: "I want to experiment with this because it is collaboration with real people". You cannot impose an experiment with them. The negotiation about the need and the recognition of the need are an essential aspect, as you said. But another aspect is the interest and willingness of collaborative development of the client unit. If there is a very strong hierarchy or a very closed way of thinking then it is difficult to start a Change Laboratory. But if they see that they are in a problematic situation and they want to have a better understanding of what the problem actually is, then that is a good starting point for using the method.

*Saúde e Sociedade:* *There should be some kind of demand and willing to change, and then the next should be study the theory and getting in contact with somebody who had experience. Is it necessary to have studied a course like this one that we did? Is it normal to have a 40 hours course<sup>10</sup>? Is it enough?*

*Jaakko Virkkunen:* It is enough for... It is like in a school for car driving. You have the training to be able to try to do it. But you learn it by doing. It is very hard to learn to use the concept if you do not have your own project. We usually have tried to have a system that people have first a Change Laboratory course and then the person who is conducting the course and has experience with Change Laboratory consults the students in carrying out their first Change Laboratory interventions. But things are different. Many of our doctoral students have carried out a Change Laboratory from scratch. It is possible because they have been working intensively in our center so that they could discuss the problems and have some support.

*Saúde e Sociedade:* *Support and supervision in the process.*

*Jaakko Virkkunen:* That is important that you have some person to give some supervision.

*Saúde e Sociedade:* *Is the Change Laboratory used for producing any kind of change or is it a tool for producing a specific kind of change?*

*Jaakko Virkkunen:* There are a lot of change intervention methods that aim at specific change, which ends with a specific change. You implement a new computer system and that is it.

Change Laboratory is what we call formative interventions method that focuses in opening a new perspective and a method of further development. So, it is not focusing on established or defined change, but in creating capability of further development and change in an organization or among a group of people who are working together.

*Saúde e Sociedade:* *So, it is not necessarily a tool for implementing a change that is pre-determined but it is opening a door for new possibilities, for new perspectives?*

*Jaakko Virkkunen:* Yes, and one of the big things in the method is that people who are in the Change Laboratory, they create a perspective for the further development of the activity and they also create a motivation for the development. After the Change Laboratory they are not just a group of individuals with many ideas of the future development but they are persons who work collaboratively to solve a contradiction and develop the activity in a certain direction.

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<sup>10</sup> Referring to the Training Course for the Change Laboratory Method conducted by the Faculty of Public Health, University of São Paulo, on September, 2012.