2023 Interview on the Change Laboratory

YRJÖ ENGESTRÖM
Center for Research on Activity, Development and Learning CRADLE,
University of Helsinki
yrjo.engestrom@helsinki.fi

The interview with Professor Yrjö Engeström took place on March 16, 2023, at his home in Sipoo, Finland, with Katsuhiro Yamazumi (Professor, Faculty of Letters, Kansai University) as the interviewer.

Katsuhiro Yamazumi
Would you tell me the origins of the Change Laboratory? The name Change Laboratory first appeared in your 1996 article.[1]

Yrjö Engeström
Like you said, the name first time appeared in a publication in 1996. We had been doing quite long intervention studies in a few settings. With my research group, I did first a big study in a primary care health center with medical doctors from 1986 to 1990.[2] Then we did another one from 1990 to 1993, again

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in health centers, but this time in the whole country. There were 21 health centers from around the country in which we conducted interventions. In the same period, we also conducted a three-year intervention study in Finnish lower courts or law.[3]

Reijo Miettinen conducted a fairly large intervention study in a commercial college. This intervention led to Reijo's PhD dissertation which was published in 1993, titled *From Lesson to Learning Activity* (in Finnish).[4] The idea was to expand the focus of teaching from a single lesson to a longer-term learning activity. Soon also Jaakko Virkkunen completed his dissertation, published in 1995. It was also a large intervention study in workplace safety and health inspections. He was studying the work of the inspectors and how the inspector's work could be made more impactful and meaningful.[5] These studies typically lasted years and were quite heavy. We noticed that it was becoming difficult for organizations to commit to such long-term processes.

So we started thinking of how to make these processes more compact so that we could take advantage of the energy in an activity system when it is ready for a focused effort which would not necessarily take many years but might happen for instance in a year. This was the first impulse, that we have to try something a bit more condensed.

And then I started looking at classical intervention methods. There was the legacy of Kurt Lewin, which led to what is called the laboratory method. It is a social-psychological approach to action research interventions. But it never became a very coherent methodology, especially from the research point of view. And action research has diversified, so that they are all kinds of action research. From the point of view of theory and research methodology, they are not very strong.

In those days, Peter Senge was well known for what was called *Fifth Discipline*. It was another attempt to create an intervention methodology. It was from the beginning also a commercial form of management consulting. Much like the work of Chris Argyris, it was mostly dealing with managers and trying to change the way managers think. These methods did not go down to the actual work in the frontline. And they didn't talk about the object of the activity. They talked about how to make managers think more creatively, with less bias, and so on. In Senge's approach, it was how to teach managers to think in systemic ways. The actual work was missing in those approaches.

We had built our own intervention studies at the level of the very frontline work. Much of our work was looking at how people actually do their work, videotaping that and asking people to reflect on that. It could be doctor-patient encounters in a health center. Or like in Jaakko Virkkunen's work, it could be recordings of how workplace inspectors discussed with the representatives of the workplace when they inspected the workplace safety.

The Change Laboratory was conceived as an attempt to make Developmental Work Research processes more compact. This was also good for data collection. When we have a compact series of intervention sessions, those create the backbone of the data. In previous projects, the difficulty was that we had all kinds of data, tons of it, just too much. For instance, in the health center project, we had the video-recorded doctor patient consultations, and interviews, and shadowing. And then of course intervention workshops. It was too diverse and not very coherent. So, to make it more coherent and compact was also important from the point of view of doctoral students who wanted to write a dissertation within a reasonable amount of time.

The first chance to realize a Change Laboratory in practice was in 1995. We had been interacting with the Finnish Postal Services and their head of human resource development named Liisa Varjokallio. We had worked with her in previous interventions and she was keen to pursue this. So a doctoral student, Juha Pihlaja and I, we started to design and implement the first Change Laboratory. In the postal services they were facing the challenge that the market was opened to private competition. Delivering mail was not anymore a monopoly of the state. Now it is common that you have UPS and FedEx and other private companies delivering mail. But in those days it was a new challenge. Juha conducted Change Laboratories with a few post offices, working with the actual mail carriers, and asking them to think how they could respond to this challenge. This was the first implementation of Change Laboratories. We meticulously planned each session, each intended learning action, ahead of time. It turned out that the interventions were very effective and produced very interesting results, including Juha Pihlaja's dissertation.[6]

Shortly after that, we had an opportunity to conduct a Change Laboratory in the editorial office of the main newspaper in Finland. One of their journalists, Merja Helle was a doctoral student in our doctoral program, and she opened up access there. So there was a Change Laboratory conducted in the news office with the journalists. Other Change Laboratory interventions soon followed.

In the name Change Laboratory, the word *laboratory* indicates that it is a bounded setting. On the other hand, we also emphasize that it should not be closed, that people go out and in. They can go out to the field, collect data, and return. Or they go out to the field and implement some new ideas and then come and report. So, it is not closed but it provides a setting which is compact enough that you can follow and record the process of change systematically from one session to another. From the very beginning it was very important that we record everything and transcribe everything, so that it becomes a systematic set of data.

So, "laboratory" indicates that the process is a bit more controlled. Not controlled like the controlled experiments where you want to control every variable. Obviously, this was not the idea. But the idea was to make it more focused so that we can support and follow a continuous process.

And this is a *Change* Laboratory because we aim at understanding how change happens. Maybe a more accurate name would be something like Expansion Laboratory. But Change Laboratory seemed like a natural name. I cannot really say exactly when the name was invented, because between Jaakko Virkkunen and myself and some of the doctoral students like for instance Juha Pihlaja and Merja Helle and others, we had a lot of discussion about this in 1995, which was the first year that we had our own doctoral program in the center.

I had just published a book called *Developmental Work Research* in Finnish. When I was writing for the book about the cases of our previous research, the cleaning work,[7] Reijo's dissertation and Jaakko's dissertation, there was this feeling that we need to make something which is more compact, and that organizations and workplaces and communities can more easily adopt. So that was also a very practical concern. But very quickly we realized that we need to write and publish about this, because there was a risk that private consulting companies will start using this name and steal the method. And they would never do it right, they would obviously just take the easy parts. So we even registered the name to prevent that. Nowadays, the Change Laboratory is used by researchers and practitioners, not for profit but for emancipatory development of activities. But at the beginning, there was a real risk that it will be turned into a commercial product without asking us.

From the beginning, we wanted to make sure that those who use the Change Laboratory are at least to some extent trained to understand the theoretical basis of it. This is an intervention method which promotes expansive learning. And actually even double stimulation was there, even in the very first article. At that time, it was still understood in a simplistic way. But we wrote that you have a problem which is the first stimulus; then you have models which serve as second stimuli. It was not a sophisticated understanding of double stimulation, merely a preliminary notion. Only after Annalisa Sannino's work we have started to more fully understand the meaning and practical consequences of double stimulation.[8]

The impulse about double stimulation came from reading René van der Veer's and Jaan Valsiner's book.[9] The authors point out something very important about double stimulation. Double stimulation is something in which the researcher cannot control how the experimental subject interprets the task. It is something that is left to the subject. But what can be done in double stimulation is to make visible how the subject actually constructs the task. You give up control, you realize that you cannot control how the other person interprets the task. But you can make it visible, which is basically the opposite to traditional experimental method. In a traditional experimental method, the idea is to control the variables, and it doesn't matter how the subject interprets the situation. The subject's interpretation and active role is basically eliminated. The idea is that if you do it in a statistically controlled way, you can predict that all the subjects will react the same way. This is a naive idea because people do not react to the same problem the same way.

This resonated with me very much because of the experiences from our cleaning study, which was published 1984, ten years before the idea of the Change Laboratory emerged. We had 20 cleaners, each one had the same task, to clean a specific office room. Each one of them got the same instructions, standard instructions on what must be done. Then we videotaped each one of them. All the 20 worked differently. No two cleaning a persons did their work exactly the same way. They did the tasks in a different order, they emphasized different methods, etc., even though it was supposed to be the most standard kind of task. So, this taught me that no matter how you standardize and control the variables, you cannot expect that people understand the task the same way.

This was also reinforced by a book by Denis Newman, Peg Griffin, and Michael Cole, which was focused on the subject's interpretation of the task.[10] Again, it was shown that it is not something that the researcher can control. We cannot control the mind of another person. It will always produce surprises. And the important thing is that we make it visible, so that we can start a dialogue about it.

That is why from the very beginning we talked about double stimulation. It was important that in the Change Laboratory, the construction of the problem is made visible. That the problem is not something that is just given; it is actually constructed by the participants. For that purpose, we bring in the mirror material. The disturbances captured in the mirror material are symptoms. It is for the participants to construct what is the problem behind these symptoms.

Recently, after all these years, Annalisa has and published a study on problem construction in the Change Laboratory.[11] She went back to the classic work that Jacob W. Getzels wrote about problem finding. People have mainly focused on problem solving. What is more important is problem finding, how you find and identify the problem. Getzels has a nice article about this and Annalisa used it as a good starting point for discussing problem construction in a Change Laboratory. It is a distinctive characteristic of Change Laboratory that even the problem is not predetermined by the researchers. It is one of the critical differences between Change Laboratory and many other intervention approaches.

During the first years, Change Laboratories were mainly used in Finland in various workplaces, including schools. Only in the past 15 years this type of intervention has really started to spread internationally. Last year I counted that there were over 30 countries in which Change Laboratories had been conducted and studies on them had been published. Right now, I don't know the exact number, but the main task is to nourish good quality work with the Change Laboratory.

Katsuhiro Yamazumi
In the 1996 article, you put already the prototypical layout of Change Laboratory.

Yrjö Engeström
That's correct.

Katsuhiro Yamazumi
In the layout, the central tool is a 3×3 set of surfaces for representing the work activity. The horizontal dimension of the surfaces represents three levels of abstraction and theoretical generalization such as model/vision, ideas/tools, and mirror. The vertical dimension of the three surfaces represents movement in time between the past, the present, and the future.

Yrjö Engeström
That has not changed.

Katsuhiro Yamazumi
That is the very interesting and revolutionary layout of Change Laboratory. Of course, it's related to Vygotsky's double stimulation as you point out. But not only that but many ideas are integrated into and involved in the layout.

Yrjö Engeström
That is true. The layout condenses a good number of ideas. It is an integration and materialization of these ideas. Some studies should be made on how that layout is actually used, how the surfaces are used and so on.

When we move toward fourth-generation activity theory, Change Laboratories become more diverse and there are multiple activity systems involved in the intervention. To what extent do we need to look at each one of the activity systems separately? And to what extent can we find common ground between them?

For instance, the Change Laboratory that was conducted by Annalisa Sannino's group at the national level of homelessness work. There were something like a dozen different activity systems involved. A couple of ministries, a few big NGOs, cities. It was a very diverse group. And you cannot do the analysis for each one separately. It becomes just too much and impossible to integrate. But if you start with an idea that they all share something, the risk is that they feel that it becomes too abstract. To overcome that is a big challenge, and it may eventually require that we somehow expand or extend the layout. When we did that Change Laboratory which I mentioned, we asked each participating activity system to tell about their own history. When we went into modeling, we could not anymore model each one separately. We needed to look at homelessness work as a single activity, even though it is a very heterogeneous activity. This was a necessary but also a risky abstraction. How to make sure that we can analyze and design both what is common to these different activities, and at the same time take into account their differences.

This is a challenge of the fourth-generation activity theory which requires careful experimentation and development. It can certainly be done, but it requires innovative work. It is also important to keep conducting intervention studies based on the first, second, and third generations of activity theory. In second generation studies you have just a single activity system to focus on. In the third generation, you may have two, three, four different activity systems, and you can still can focus on each one sufficiently. But if you have 12 or 15, you cannot do it the same way. I suppose that in your Change Laboratory you start out by focusing on one school, and I am happy about that. Eventually we should move toward coalitions where schools collaborate very closely with other activity systems. But that kind of de-encapsulation is only beginning to happen. When it happens, we need to know how to deal with that diversity.

Katsuhiro Yamazumi
Yeah, that's right. In our Change Laboratory intervention study conducted by myself and my research group in a Japanese elementary school, we could see children's inquiry learning toward de-encapsulation. For example, in their inquiry learning on dinosaurs, 6th grade students went to the university's dinosaur museum and the public library to investigate dinosaurs, and interacted with a most famous dinosaurologist of National Museum of Nature and Science. This is a kind of heterogeneous activity.

Yrjö Engeström
So, there will be a point when you need to look also at the museum as an activity system. At the beginning, it may not be necessary because your focal activity is the school. But in the future, it will become more and more so that there is not a single center. When this kind of de-encapsulation reaches a certain point, we cannot take the school as automatically the center point. The center doesn't hold anymore, it will be shifting, and it is important that schools learn that they do not have a monopoly of learning. They have to negotiate with other activity systems and learning happens by moving between them, in multiple places.

So even though the layout has remained, it may have to be developed further when we are engaged in fourth-generation studies. So far, they are still relatively rare, but this will become more and more urgent.

Katsuhiro Yamazumi
Yeah. So from the early years of conducting Change Laboratory, has the modeling using the triangular model of activity system been already done by practitioners themselves in Change Laboratory?

Yrjö Engeström
Yes. Initially we focused on the model of the activity system. And it often works very well if you allow the participants to really work on it. For example, the first Change Laboratory with homelessness work in the supported housing unit, it started out clearly a second-generation study because it was focused on one activity system. We presented a template, the triangle model, asking: "Who is the subject?" "What is the object?" The participants started to operate with the model as their own instrument. This way of working, especially when we are dealing with a single activity system or two or three activity systems, is very powerful.

We found that it was very important in this particular case to also use the model of the expansive learning cycle. We asked, "Where are you in your expansive learning cycle?" The participants had started a transformation process already before our Change Laboratory. They used the model of an expansive learning cycle as a way to diagnose how far they had progressed. They concluded that they had created a new model which they had not really articulated and made explicit. They were trying to implement something that they had not fully articulated. So they had to go back in the cycle to do the modeling more properly, and then continue the cycle. They realized that they had to do a kind of a loop back.

The third model used in that same intervention was the zone of proximal development. You have to be flexible and use the models when there is a need. When you start talking about how to solve contradictions in the activity system, a good way is to first think in terms of the zone of proximal development and its dimensions. This requires that you use the historical understanding that has been reached in the discussion of the history of the activity system. For instance, in the case of the housing unit, the idea of moving away from being a guard toward being a coach and a fellow traveler was already historically there. It had been discussed and just needed to be collectively articulated and formulated as a dimension of historical movement toward the future. So this first dimension of the zone of proximal development came almost directly from the historical analysis. But the other dimension, this opening up the unit to the outside world, was more difficult.

In a preparatory interview, one of the managers of the unit talked about the risk that this unit becomes too much like a "clam." We presented that part of the video-recorded interview in a session and asked, "What do you mean by a clam?" And she said, "I meant that it is too closed." That allowed the participants to embark on finding the other dimension. Sometimes you have to use relatively small hints that are in the mirror data and take them up later in the process when you see that the modeling of the zone of proximal development is difficult. One thing we have learned is that the mirror data must be available all the time. For each session, you have to think, "Is there something in the mirror data that would help us to move forward?"

It is not enough to use just the triangles. Oftentimes you need also other models. And sometimes the participants develop models of their own which we cannot predict. They can become very effective additional models, or second stimuli. You have to keep an open mind to what comes from the participants and what may be available templates used in their field of activity that can be transformed into effective second stimuli.[12]

Katsuhiro Yamazumi
Yeah. Practically, I have two questions. My colleagues and I are now conducting Change Laboratory sessions. As you pointed out, we use the model of the expansive learning cycle. The model was already introduced in the first sessions.

Yrjö Engeström
That makes sense.

Katsuhiro Yamazumi
And as you said, it is an instrument for participants to recognize where they are in the cycle of expansive learning actions.

Yrjö Engeström
It can increase self-reflectiveness of this.

Katsuhiro Yamazumi
Yes. And it's okay. In each session, We talk about what step of the expansive learning cycle it is located in. For example, the first session was the step of questioning. And in the next session analyzing will follow. So my question is what is the content of the session at the step of implementation and reflecting. Implementation seems to mean that after modeling practitioners implement the model into their real practice.

Yrjö Engeström
That action in Change Laboratory typically means that you start talking about what kind of specific pilot projects do you want to do to take steps to implement the new model. They can be very small steps or bigger steps. The participants have to decide what steps they can take. And those must be done

concretely, asking: "When, by whom, how do we report?" How do we follow up and assess what has been accomplished? Make real implementation plans. They can be very specific. Like in the case of this housing unit: "Okay, we will start a football team and by that and that date we will report who are members of the team, when do we have our first game, etc." They must be so specific that they become commitments. The first step of implementation is concrete commitment. I will do this by that and that date together with these and these people, and we will report.

Of course you usually cannot do full implementation in the session. But you can plan the implementation and make the commitments. And subsequently you can report concretely on how the implementation went.

As to the reflection actions, you have to produce materials for the participants to reflect: "How did we move through this cycle? What has happened? What did we do right? Where did we make mistakes or maybe omit something that we should have? How can we improve it now?"

In fact, this reflection should not be only happening at the end, it should happen throughout the process. But toward the end you can make it more powerful. Then there is the action of consolidation, which means that you start talking about how this affects other interconnected activity systems. For instance, how should we communicate with parents? Or maybe with the school board above the school? How do we reconfigure our relations with other activity systems? This is a crucial part of consolidation.

Another part of consolidation you may have to consider is: "Shall we create some ways to stabilize this?" Oftentimes stabilization requires some new rules or some new budget items, or things like that. So this aspect of consolidation is all about making sure that the new model does not evaporate.

Sometimes consolidation happens so that participants realize that we need to basically make physical changes in the way the space is used. Consolidation may be effectively accomplished when it involves some material rearrangement so that it cannot be just forgotten.

When you have a sufficient number of sessions, you have more time. You do not have to rush through the actions of the expansive cycle. You can also return, do a little bit iteration. And it is very important that you allow this. It can happen that at some point, the participants say, "Hey, maybe we didn't do the model quite right. Maybe we need to return to the model to make it better." And then you can do the reiteration. And there you have to be very sharp so that they do not feel that you move so quickly that something is left unresolved.

The implementation steps are vital. It is important to reach a point where the participants can say that we are doing it, we are doing concretely something new. So that it is not only happening in discussions within Change Laboratory sessions, it is happening also in the classroom so that actions have been taken which actually change the practice, even though they may be small beginnings.

You have to have an overall plan from the very beginning, but it has to be flexible enough so that you can modify and even change it as the process moves forward. So you do not mechanically enforce the plan. You listen carefully to what is said in the sessions and you realize, "Aha, there is something that they are coming up with that we need to include in the next session." It is never just following a plan, it is continuously revising the plan.

Katsuhiro Yamazumi
Yeah. Thank you. Very useful and helpful comment about the steps of a cycle of expansive learning actions. So next practical question is concerned with the four-field model that depicts a zone of proximal development.

I will use this four-field model in Change Laboratory sessions at the step of analyzing by teachers themselves.

Yrjö Engeström
Good.

Katsuhiro Yamazumi
In yesterday's interview with you (see "2023 Interview on Cultural-Historical Activity Theory" in this issue), you recommended that we push the intellectual ideas and concepts, and intellectual models for teachers. Rather, you pointed out that these ideas, concepts, and models should be grounded in the real concrete actions. But, when we bring the four-field model into our sessions, we could present the four-field model that depicts the zone of proximal development of school instruction toward de-encapsulation of it. That is the four-field model presented on your book chapter.[13]

Yrjö Engeström
Yeah, but that model is a generic one. We do not know how appropriate it will actually be for a specific school. If you present a generic model to the participants, it is useful to ask them to identify concrete examples for each one of the

four fields from their own practice, to fill the generic model with specific examples.

Let us say that you have this field which is very encapsulated and also superficial learning. "Can you give us an example? Have you seen something like that happening in your school or is it already overcome?" If the generic four-field model is appropriate for them, they can say that, "Oh, there's also this here, and we have seen some of these practices still in our own school. And here is an example." So they will fill it with their own experiences and their own knowledge about their own activity. In that process, you may find that they may even want to rename a dimension. They will say, "This is not quite right. For us, it is more like this..."

It is very useful if you see the participants engaged in finding modifications or variations in the four-field model. You do not have to decide immediately what is the right model. You can keep it open. And eventually they will settle because the participants will realize that they need some model which is sufficiently relevant for them. It may not be completely, exactly the best possible one. That is not so important. The important thing is that they create a perspective for the development of their activity.

One way is also that instead of giving the participants two dimensions, you just say, "Let us think about the two-dimensional four field, and I think that one of the dimensions is clearly this." You take it from their interviews or from documents about the history of the activity. And then you ask, "What would be the other dimension?" It is important that the participants get engaged in the construction of the dimensions. Surely you can also present them and say, "This is my view, what do you think?"

When we were working with a four-field model with the home care managers in Helsinki, we asked them, "Can you give us an example of each field?" This made it real for them. They could see that this is the field of, let's say, traditional old people's homes, the institutions where old people used to be put. They were aimed at equality but at the same time they were very inflexible and bureaucratic, mass production of standardized care.[14]

The participants can start playing and thinking in terms of both current examples and past phases of development, so that the four field is made alive. The most important field, the field of desirable future, is going to be the most difficult one. That is where you need to start asking for possible pilots, or spearheads. What kind of pilots could move toward that direction?

If you see that it works, the participants can use the triangular image of an activity system as a template to model the ideal activity—how they would like it to look in five years, for instance. But that can be very difficult. So it may be better to work first with the four-field and pilots, and let the future model emerge on that basis.

It's also entirely possible that the participants say that we need a different model, for example a new organization chart, or a new systems model for a specific critical aspect of the activity.[15] That is fine. But the four-field is usually a productive step because it opens up the direction. Yet there is not a single recipe for how to move.

Katsuhiro Yamazumi
But I am very interested in some kinds of recipes.

Yrjö Engeström
The good thing is that you are not working alone. You have a team there. This means that you have resources. I always say to people who want to conduct a Change Laboratory, "Don't do this alone." If you do it alone, you don't have anybody to discuss and reflect and find ways of moving forward. It is dangerous because you get stuck with your own ideas. Having colleagues and students working and reflecting with you is better than any recipe. Change Laboratory is not something to do alone.

Katsuhiro Yamazumi
Thank you very much.

Notes

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12 See Vänninen, I., Querol, M. P., & Engeström, Y. (2021). Double stimulation for collaborative transformation of agricultural systems: The role of models for building agency. *Learning, Culture and Social Interaction*, *30*. https://doi.org/10.1016/j.lcsi.2021.100541

13 Engeström, Y. (in press). Moving into the zone of proximal development of school instruction. In C. Le Hénaff, M. Le Paven, F. M. Prot, & H-L. Go (Eds.), *Comprendre et transformer la forme scolaire: Contributions de la théorie de l'action conjointe en didactique.* Rennes: Presses Universitaires de Rennes.

14 See Sannino, A., & Engeström, Y. (2017). Co-generation of societally impactful knowledge in Change Laboratories. *Management Learning*, *48*(1), 80–96.

15 For an example of a systems model generated in a formative intervention, see Bal, A., Afacan, K., & Cakir, H. I. (2018). Culturally responsive school discipline: Implementing Learning Lab at a high school for systemic transformation. *American Educational Research Journal*, *55*(5), 1007–1050.