Organisational learning during the coronavirus pandemic: A case study on models for extended learning and complexity management

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Abstract
This study examines learning in an exceptional situation. The study was carried out during the 2020 COVID-19 pandemic, when the organisations’ operations changed suddenly as the crisis broke out. The aim of the study is to structure activities during the crisis and the learning related to the adaptation of organisations. The study compares organisational learning in two different types of organisations, one in the health care sector and the other in the social construction and property sector.

Keywords
coronavirus pandemic, complexity, expansive learning, learning in a crisis, the zone of proximal development

Introduction
Organisational learning has extensively been studied in situations where the environmental changes taking place around the organisation are relatively slow even though imminent. Often the direction and speed of the movement is hard to detect. In this kind of
context the classical models developed, for example, by Peter Senge (Fulmer & Keys, 1998) and Chris Argyris (Argyris, 1997) provide tools for understanding and guiding the dynamics of learning and cultural change.

The research on organisations facing a crisis or disaster in their external environments mostly focuses on emergency management and learnings of the crisis. The crisis management and learning have been modeled as consecutive activities. However, many of the recent crises in Western societies have had significant durations and consequently other developments parallel the crisis management. Even though attempts to model the relationship between crisis and learning have been made (Roberts et al., 2007; Stern, 1997), here is as yet no comprehensive theoretical background for the interplay of organisational learning and crisis management. The main research question of our analysis relates to the relationship between the learning organisation and management of emergencies. We have chosen an abductive approach (Timmermans & Tavory, 2012).

During spring 2020, Finland was hit by the coronavirus pandemic as Europe was the main stage of the pandemic (Goniewicz, et al., 2020). Exceptional circumstances were declared in Finland on 16 March 2020 (Government Author, 2020). In the summer of 2020, restrictions in Finland were relaxed due to the very low number of COVID-19 infections. In early autumn 2020, the society started to return to normal, but during September–October, the number of infections increased again. Restriction measures were reinstated and continued until spring 2021, with some variations depending on the region. This research was carried out during this time period.

Framework: Complexity, expansive learning, learning in a crisis

Organisational scholar Ralph Stacey examines the internal organisation of organisations through the complex adaptive systems theory. Stacey concretises his thinking into a matrix that includes the dimensions of uncertainty and disagreement, among others (Stacey, 1995). According to the model of adaptive systems, moving away from the original on these axes leads to an area where centralised control of the situation is no longer possible, but order is created in smaller groups in different ways. Stacey called this state of the organisation a zone of complexity (Stacey, 1996).

The technical-rational side of the matrix refers to a stable, unchanged operating environment, which does not challenge the operating logic and its rationale. The quality and certainty of the system and the unchanged way of working are also reflected in the consensus of the actors involved.

The other extreme of the matrix is chaos. Chaos signifies extreme uncertainty and discontinuity. In practice, the operating environment and the organisation operating in it never go into total chaos, but as they move along the edge of chaos, they begin to seek a new interpretation and order in a changed situation. That area and process are described as a zone of complexity, which is characterised by increased uncertainty and disagreement in the operating environment and activities that could respond to them, as well as increased differences in the views of experts and operators on the situation and its interpretations. (Stacey, 1992; 2001; 2003; 2007; 2010, pp. 97–116; Shaw, 2002, pp. 11–20, 25–27, 37–42; Streatchfield, 2001, pp. 1–12; Laitinen, 2009).
According to Stacey, change is about learning and constant interpretation. In complex adaptive systems, the process of producing understanding is not linear but stochastic (McMillan, 2004; Stacey, 2007). Sudden changes requiring a rapid response rarely occur in a controlled manner, but are typically unpredictable and triggered by unexpected factors. In such a situation of compelling and sudden change, the formation of a common understanding and the acquisition of information become key issues.

Stacey’s thinking has also been influenced by Lev Vygotsky’s ideas about the meaning of speech. Yrjö Engeström’s model of expansive learning is partly based on Vygotsky’s sociocultural theory of human learning (Engeström, 1987, 2008, 2016).

In the theory of expansive learning, the view of the development of work through tensions and contradictions is emphasised, and only through the discourses related to them does the commitment and understanding of employees to the goals of development deepen and take shape. Expansive learning takes place in a situation where there is an interest in creating new knowledge and the need to look for solutions by specifying the tensions and contradictions that have formed in the established operating methods of the operating system and limit the development of the solution and the new operating model. (Engeström, 1999.)

In a change situation that requires problem-solving, cognition is fragmented into a process that progresses under the influence of different historical factors, cultural context, social environment, different actors, goals and tools. Thus, it is not simply a mental process but an interaction between different mental structures and culturally constructed tools and operating models. In the learning process, decentralised cognition emphasises real conditions, continuous dynamic feedback, and the distribution of expertise in the interaction between learners, the environment, and tools (Lu, 2010).

As Engeström states, studies of innovative organizational learning have produced general concepts and tools, but according to Engeström there have been few detailed models and attempts to model their steps as they occur in learning process in work teams. Thus Engeström challenges those organizational learning theories that consider learning a process of acquisition and reorganization of cognitive structures within the closed boundaries of specific challenges, problems or tasks and argues that this type of learning increasingly fails to meet the challenges of complex social change and fails to create novel approaches and ways of collaboration. (Engeström, 1999, pp. 377; 2001; see also Argyris, 1977; Argyris & Schön, 1978; Senge, 1990.)

In the expansive learning model, polyphony is important for learning, which means the emergence of new understanding through discussion within the organisation. This polyphony is particularly evident in situations where the previous approach has been found to be unsatisfactory and a new model is being sought through dialogue. In Vygotsky, the state of the organisation that creates development is called the zone of proximal development. (Daniels, 2008; Hedegaard, 2005; Kuusisaari, 2016.)

According to this perspective, the production and learning of new knowledge is a social process. The process features communication, creation, creative approach and development of meanings. It is a goal-oriented group activity of which the new information and the corresponding operating model cannot be referred to as a selection or
action of any individual participant. At the same time, collaborative learning is associated with social constructivism. (Kuusisaari, 2016; Daniels, 2008)

Engeström’s theory of learning is related to the knowledge-creation approach. Central to this knowledge-creation approach is the emphasis on the importance of mediation in information theory and human cognitive activities. According to that emphasis, no one is in direct relation to their environment, but this interaction is conveyed by different culturally formed and developed signs, interpretations, practices and modes of action.

The Engeström and Stacey models both have roots in Vygotsky’s theories (Van Der Meer, 2011). According to Vygotsky, development takes place between the current level of activity and development and the potential level of development by internalising various external tools to support thinking. (Daniels, 2008; Hedegaard, 2005; Kuusisaari, 2016; Newman & Holzman, 1993.)

John Stevenson has studied workplace learning, the processes of creating understanding and problem solving, and the process of creating meaning based on Vygotsky’s theory of learning. At the same time, in his research, he refers to Engeström, stating that according to Engeström all collective activities are tuned according to an object that gives meaning to joint activities. In this case, in complex problem-solving situations, solutions are dependent on rules, mediating artefacts and division of labour. According to Stevenson, in such complex problem-solving situations, learners come from different backgrounds and in different ways to acquire and know knowledge and thus do not uniformly perceive the situation as a challenge or process of learning a new meaning. (Stevenson, 2007.)

Organisational learning in relation to a crisis has been viewed from different perspectives (Smith & Elliott, 2007; Koronis and Ponis, 2018). The complexity of the situations and also the different levels of learning are recurring themes in these studies. On the one hand, crisis-specialised communities such as military, civilian crisis management and emergency organisations have been examined (Anttila, 2012; 2014; Uusikylä et al., 2020) and on the other hand, communities focussed on other activities that have entered a crisis (Antonacopoulou & Sheaffer, 2014; Smith & Elliott, 2007).

The experiences of the 2020–2021 coronavirus pandemic have produced a wealth of additional material on the development of expertise in exceptional circumstances (Bohmer et al., 2020; Boeren et al., 2020). Much of the scientific research has focused on the study of the education system and its working methods (Engelbrecht et al., 2021).

**Method**

Our starting point is to look at the management situation, learning and change of two Finnish organisations during an exceptional situation. The study aimed to structure crisis management practices in a prolonged exceptional situation, especially from the perspective of company/community organisation learning. In addition to situation-specific information, we strive to develop concept models suitable for managing protracted crises.

The study looks at the management and learning of two organisations in the context of the COVID-19 pandemic. The aim is to examine the activities of the target organisations in conditions requiring sudden change and their responsiveness and how the organisation
learns in a pressured, uncertain change situation and creates knowledge and understanding to manage the situation.

In terms of research design, the Blood Service can be considered a ‘crisis-specific’ organisation. Although pandemics and epidemics are not the actual target of blood service activities, monitoring and responding to the infection epidemiological situation is an integral part of their everyday operations. Stara represents an organisation specialising in other activities, namely construction and maintenance of public properties, which faced the COVID-19 crisis through its various interfaces.

The research is qualitative and multi-method. Actual research section consists of focus group and in depth interviews (Eriksson & Kovalainen, 2016). In addition to the situation at the time of the interview, the interviews examined memories of the situation in spring 2020 and the appearance and progress of the pandemic in Finland.

A total of 24 individuals were selected for this survey and interviewed in semi-structured focus group and pair interviews. Fifteen people were interviewed from Stara in two focus groups and nine people from Blood Services were interviewed in two focus groups and one pair interview.

Determining adequate sample size in qualitative research is ultimately a matter of judgment in evaluating the quality and saturation of the information collected and thus the guiding principle is the concept of saturation. The amount of samples of this study is related to question where data saturation occurs among a relatively homogeneous population. As the determination of sample size is contextual. The sources of practical information comprise interviews, surveys, and also participant observation and monitoring were used in the study as a secondary source of information. At the planning stage of this study, its methodological triangulation included using memos, guidelines and other written documentation of the organizations alongside the organizations’ internal inquiries and surveys of employees, and interview, and observation data. (Boddy, 2016; Mason, 2010; Marshall et al., 2013; Sandelowski, 1995).

Interviews were conducted from November 2020 to January 2021. The interviewees were selected using a sampling method so that they were considered to play the key roles in responding to the change challenges of the coronavirus pandemic in their own organisations. In both organisations, there were interviewees from both the support services – such as information management – and the organisation’s actual core functions, such as logistics and blood supply.

The research design started as an extended case study of two organisations, with Stacey’s complexity matrix as the theoretical framework. During the review of the material, it turned out that the impact dimensions according to the expansive learning model stood out from the material, whereby the analysis was modified in the direction of a grounded theory model. Axial entities (mediators) according to Engeström’s model of expansive learning became involved in the evaluation.
Target organisations

Organisation 1: Blood service

The Finnish Red Cross Blood Service (hereinafter Blood Service) is the only organisation organising blood donation in Finland. Its headquarters are in Helsinki, where the blood donated and the samples of blood donors to be tested are delivered throughout Finland. The regional blood service offices merely arrange blood donations. They are located in major cities around Finland, with the longest distance between locations being 600 km.

Combating blood-borne infections is one of the key tasks of blood collection establishments (McCullough, 1996). The Blood Service therefore employs specialists in infectious diseases and a hospital microbiologist. The COVID-19 pandemic was identified in January 2020 by the Blood Service Epidemiological Surveillance Working Group and included in the surveillance. As the situation progressed, a separate pandemic team was set up to coordinate and guide the protective measures throughout 2020.

Organisation 2: Helsinki city construction services, stara

Stara is the City of Helsinki’s Construction Services company. It provides services related to construction, maintenance and logistics in the urban environment for the City of Helsinki. Stara has just over 1400 employees.

The activities include the construction, care and maintenance of streets and parks. The organisation also builds and maintains the City’s facilities – schools, daycare centres and other premises. In addition, they take care of Helsinki’s nature, city forests and coastal waters. Stara’s services also include jobs that require special expertise, from soil surveys to the creation of works of art. Stara also provides logistics services for the City of Helsinki. The role of the Stara logistics unit was highlighted during the coronavirus pandemic. The logistics unit was mainly responsible for the procurement and delivery of masks, protective equipment and disinfectants for the City’s health services to various health care service locations.

Findings 1: Change of complexity zone under exceptional conditions

In the spring of 2020, awareness of the evolution and duration of the situation was quite fragmented but there was a general strong awareness of the need for rapid and strong response.

At the society level, the isolation of the Helsinki Metropolitan Area from the rest of Finland was an unprecedented act. It strongly affected individual employees in both organisations.

In the spring, social isolation of Uusimaa and remote schooling were strongly on the agenda. (Interviewee, Blood Service)
The individual perception of the external situation was quite similar in both organisations. By contrast, there were differences in internal management practices. The Blood Service shifted to a strongly centralised operation coordinated by a pandemic team and a contingency management team led by internal experts (infection physicians and microbiologists).

In the spring, there was a consensus on the management side on what needed to be done. (Interviewee, Blood Service)

In Stara, management was based more on policies made at the state and city level, the interpretation of which was at times challenging.

It has been difficult as there have been many bodies providing instructions. I’ve been involved in drawing up those instructions myself. And whether all those instructions are needed. There are also a number of instructions from the state and the people who talk about them. The ministers make pronouncements, the Ministry of Social Affairs and Health make them, the Finnish Institute for Health and Welfare (THL) make them, the Mayor makes them, the City’s coronavirus coordination group make them.

The development of a sense of control of the situation was facilitated by the calm epidemic situation in Finland in summer 2020. At that time, it was possible to have normal summer holidays and also new operating models at work began to be found. At Stara, the situation in the autumn was clearly more manageable than in the spring. People were more aware of the operating models and the persons involved in the operations.

But consensus has been found and predictability is now much better. The transition to a more predictable situation happened in the summer when the cooperation and operating model with the social welfare and health care started to be clear and the storage facilities started to be locked, that is, we knew what was going where.

On the other hand, the Blood Service experienced a slight uncertainty when the epidemic situation was unclear during the autumn, despite restrictive measures, and it was uncertain how to proceed in the future.

Even in the summer, we pretty strictly worked remotely as far away as we could but taking care of the tasks at the service points as much as there was a need. Now (late autumn 2020) although accustomed to the situation, there is a new kind of uncertainty as to whether this will ever end and if so how. (Interviewee, Blood Service)

Findings 2: Mediators of learning in the zone of proximal development

An analysis of the data revealed that the interviewees’ experiences of personal and organisational learning during the pandemic were divided according to the factors that mediate the learning of Engeström’s expansive learning model.
Object – learning outcome

This study covers learning as a target during a pandemic at the organisational and individual level and the resulting means of coping during a pandemic and the organisation’s survival and related (potential) renewal. Learning took place in both organisations, but its priorities were slightly different.

Regardless of the pandemic, the Blood Service underwent a major change in information systems and launched new types of cell therapy projects. Changes were made in the basic operations according to guidance from external and internal experts, and which were, at most, fine-tuned by local interaction. Based on the interviews, a significant part of the learning took place by managing the changes caused by the pandemic and partly even taking advantage of them, but not actually because of them. In terms of working methods, learning directly related to the pandemic was also evident.

We have had new development projects and it has been development and continuous learning for all of us. I don’t think that the pandemic has made learning difficult in any way. (Interviewee, Blood Service)

In practice, learning comes with the job, regardless of whether you are on-site or not. (Interviewee, Blood Service)

Stara’s interviews focussed on the rearrangements of internal operations and external interfaces related to the pandemic, which made it possible to meet the challenges of exceptional circumstances.

At first, we were in a rather unpredictable situation. There was a consensus, though. We have not yet reached the textbook example. Now there is more predictability and more consensus. And those who do not add value are not included. And now we dare to share more information. (Interviewee, Stara)

Sharing information is the key thing. For organisational learning to take place, information needs to be shared more widely. Even at the level of the whole city organisation. We have engaged people autonomously to reflect on how to do and develop their work. (Interviewee, Stara)

The experience of the situation in both organisations is that functions are organised in a new way without major problems. The following comments were received from the Blood Service:

The big surprise has been that things have gone so well, and so quickly in a new way. (Interviewee, Blood Service)

It hasn’t been gloomy all year, there has been many nice things, too. (Interviewee, Blood Service)
In the operations of Stara, too, everything had gone well overall. However, the interviews highlighted how internal and external interactions were needed to manage the situation:

There has been quite a lot of discussion here in many directions and in that grey area informal contacts and discussion and interaction have been used in order to understand what would be good and useful and coherent. I mean, it’s been learning all along. (Interviewee, Stara)

According to the interviewees, the aim was to return to the new normal after the coronavirus pandemic and ensure the required functions’ reliability until the pandemic subsides. The interviews revealed that in spring 2020, people felt uncertain about when the situation would ease and what the future would look like. Respondents felt that in the summer of 2020 and after the summer, the situation was clearer and the pandemic situation was better understood and managed than in the spring. It was mentioned in the interviews that in the spring there was also luck involved in dealing with and taking over the operations, the situation could have gone differently. The flexibility and responsibility of the interviewees was also repeated in many different comments. There are issues with the vulnerability of the structures; now there were no long periods of key personnel out of office during the change situation.

**Instruments of learning**

A particularly prominent tool in working during a pandemic is remote working software and other electronic transaction tools such as appointment and signature systems. In Finland, the share of employees who switched to remote work was among the highest in Europe and this was reflected in both surveyed organisations. A large proportion of the interviewees were able to switch to either a hybrid-commuting or remote working model, although a significant proportion of employees in both organisations surveyed remained at the workplace due to the nature of their work tasks. The smooth use of information systems and the voluntary organisation of remote work and work were signs of one’s own learning and adaptation.

Face masks are missing from the range of key tools for the pandemic season in spring 2020. Unlike many other countries, no strong efforts were made in Finland in the early stages of the pandemic to increase the use of masks.

Instead of face masks, the Blood Service staff were provided with screens and keyboards to support their work at home. In order to increase the safety of blood donation sessions (to control the number of visitors), the service started to use comprehensive appointment booking, which had previously been piloted but could not be made operational on a large scale.

Nowadays, everyone can connect a second screen, mouse and extra keyboard smoothly.

(Interviewee, Blood Service)
For example, we switched at a fast pace to book appointments for all blood donors, which I thought was a huge achievement. (Interviewee, Blood Service)

Some of Stara’s staff also quickly switched to remote working. The tools were remote working software already used before the pandemic, but longer working hours away from the office brought advantages and disadvantages.

But basically we adapted pretty quickly and exchanged just one tool for another. So the work at the office was switched to Teams. (Interviewee, Stara)

Both organisations had good and well-functioning IT systems in place to move to remote work. For tools, the coronavirus pandemic was a catalyst for the digital leap of the organisations. New operating models also had to be quickly invented and adopted, and different areas had different capabilities in terms of the speed of change.

**Learning subjects**

The employees of the Blood Service mainly acted centrally in the work community according to the instructions given by the pandemic group, and the reflection of their own work was limited. However, creativity was needed in private life and at the interface between private and professional life. Many new ways of working and operating were introduced in the Blood Service during 2020, partly due to the pandemic and partly despite it, and these gave positive experiences.

I have taken orders quite readily and waited for what will come next from the higher level and have done things according to the instructions. (Interviewee, Blood Service)

Maybe I’ve learned even more than during normal times. (Interviewee, Blood Service)

Stara’s employees emphasised initiative on pandemic preparedness and response. They also had a more reflective attitude towards their own work in pandemic conditions.

I have had no problems coping (in the hybrid). (Interviewee, Stara)

Self-reporting should be increased. (Interviewee, Stara)

In remote working, you have more work to do and you can do more, but at the same time, it should be understood that personal contacts, interaction should be better. (Interviewee, Stara)

**Community**

The geographical fragmentation of the teams around Finland and the variability of the information systems available created tensions in the Blood Service. From the point of view of the projects, the mood was divided. The Blood Service had major information system projects underway, and the implementation was not changed due to the pandemic.
Instead, the number of events for large group events was reduced, and there was a slight delay in changing them to online events.

Those who had to lead a project or team or something felt it was challenging as people were scattered and online meetings had to be organised. Not everyone could participate in them equally. And then there were others who were scared or belonged to a risk group so they didn’t want to come to the workplace. (Interviewee, Blood Service)

Our whole team was in a development project bubble, and it felt like the pandemic had no impact. (Interviewee, Blood Service)

In Stara, the challenges were most related to the cooperation of the wider organisation. Stara is part of a larger City group and is closely linked to the local public sector. Geographically, it operates mainly in the Helsinki area. Therefore there were no problems related to the situation in different parts of the country. The possibility of remote working was perceived as a suitable but not permanent solution.

Now this remote working has worked quite well. But when the situation becomes normal, it is not possible to work remotely on this scale. This has been a good exercise, it has worked quite well and flexibly. Office work and remote work have varied from one week to the next and from one month to the next. (Interviewee, Stara)

It may be that the meetings of one’s own unit have worked quite well and even the department meeting, but if we go to the municipal enterprise-level, let alone to the city-level, then the quality of the meetings is not so good. If I take a larger Teams meeting as an example, then yes, it is difficult to keep it high-quality when it no longer has that community. They are difficult to organise and less successful. (Interviewee, Stara)

In both organisations, the nearest work community was perceived as positive and with good team spirit. The interaction was maintained remotely. On the other hand, there were less informal conversations and everyday encounters. The work community was perceived as a resource, although virtual meetings focused mainly on work performance and case management.

**Rules**

Due to the nature of the organisation, the Blood Service had its own medical expertise on infectious diseases and the pandemic was one of the key threats. Thus, the operating models had largely been drawn up in advance but still required updating. Challenges were also encountered in terms of activities in different parts of the country. Decisions had to be made locally and the suitability of the centralised instructions assessed.

*The Blood Service* had a good pandemic plan and guidelines for working in a *pandemic situation in advance*. (Interviewee, Blood Service)
When the pandemic group was set up, clear instructions were given, but the instructions could, for natural reasons, vary quite a lot. (Interviewee, Blood Service)

At some point in the summer there was a problem with the fact that the situation was different in different parts of Finland: which unit wears a mask and which not. (Interviewee, Blood Service)

There were also guidelines for emergencies in Stara, but the pandemic deviated from the assumed model. A particular challenge was that, in exceptional circumstances, the activities of external partners were not governed by common rules.

And then we try to think about what these different guidelines mean to us. And there may be some nuances in these instructions, so how to find the common thread, that has been the key question. (Interviewee, Stara)

The exchange of information was difficult and not everyone had the same picture of the situation, and the situation was not made any easier by the fact that it involved many actors from all over who wanted to guide and coordinate these issues. (Interviewee, Stara)

Regarding the rules and guidelines, the interviews revealed two kinds of spirits. On the other hand, the work community’s own guidelines and the pandemic preparedness policies and policies already made were considered well-managed. On the other hand, the rationale and guidelines for macro-level, national guidelines and rules were considered ineffective. Nationwide and coordination problems were perceived to be related to the nationwide issuance of instructions, the instructions could change quickly, they were presented with different interpretations from different bodies and there seemed to be a lot of haste and uncertainty, chaos, according to the interviewees. Examples included the acquisition of masks, the instructions and recommendations related to their use, as well as discussions and guidelines regarding the declaration of a state of emergency for Uusimaa.

**Division of labour**

In the Blood Service, some recently introduced new ways of working had to be restored to the previous practice, but on the other hand, new ways of working were quickly introduced. Some of the tasks previously handled by the organisation itself, such as transporting stem cell transplants from one country to another, were outsourced to specialised courier services due to pandemic restrictions. Both positive and negative moments were experienced with agile development models.

We had a lot of Lean projects over the last few years, as a result of which one person handled the processes from start to finish. However, it could no longer be implemented because we had too few computers in use and operations were changed so that one person would use one computer all day long. (Interviewee, Blood Service)
When in support functions everyone works remotely as a rule, it took a while before we got everything sorted and things running smoothly. (Interviewee, Blood Service)

Agile operating models have been found to be valuable. For example, an appointment booking system or a new type of stem cell courier operation can be quickly introduced. (Interviewee, Blood Service)

The Blood Service had challenges, especially in the division of labour. The work was carried out with the help of individuals stretching and taking responsibility, but there was a vulnerability in the structure. The interviewees referred to independent and lonely work and that the work focused on managing one’s own tasks. The interviews mentioned, among other things, the change of the orientation of the new employee into self-learning and finding out about things independently. The interviewees referred to how the work changed to performing and fulfilling your duties. In the changed situation, when work management required prioritisation, the duties were narrowed down. Conferences as well as studying alongside work and writing a dissertation were secondary. Managerial activities changed and more monitoring was carried out in accordance with the achievement of objectives than in a coaching manner. The workload was partly unevenly distributed.

In Stara, the internal organisation went well, but there were challenges with the partners. Employees were faced with additional tasks due to changes in the operations of the partners belonging to the City group. At times, this was reflected in the workload.

In addition to our own work, a lot of work has been done, which means we have had double the work but still managed well. So we have been able to meet the needs. (Interviewee, Stara)

Some people had quite unbearable loads. (Interviewee, Stara)

Although we had already practised with the bird flu, no one had leadership abilities at the beginning. (Interviewee, Stara)

**Discussion and conclusions**

Through a surprising pandemic situation, the process of expansive learning in both organisations took place in a way in reverse: the change was dictated by external constraints and the former practices were replaced by new ones. This was followed by the development of micro-activities to support the new model. As the situation stabilised, new practices began to be reflected and developed further.

The response of the Blood Service to the pandemic was based on a pre-prepared contingency plan and existing structures as well as expertise. However, the actions taken and the duration of the pandemic exceeded the limits of pre-planned procedures. The employer was not able to provide detailed instructions on how to operate at local offices in different areas or at employees’ remote workstations (for example, in homes and summer cottages), so the importance of adaptive learning was emphasised geographically further away from the centre. As the exceptional situation prolonged, polyphony in the
organisation increased and more interactive leadership was needed instead of one-way initial guidance.

The relationship between the Blood Service and the central external stakeholder, the blood donors, was partly redefined when booking an appointment became mandatory with the pandemic and the practices of blood donation events were updated in line with the current regulatory guidelines. Pandemic blood donation research is being conducted in several blood establishments and will not be further explored in this study. Concerning this relationship, a new mode of action with increased digitalization was underway before the pandemic but the speed and extent of this change were orders of magnitude bigger than planned or expected.

In Stara, key construction and maintenance functions were not largely redefined with the COVID-19 pandemic. However, protection measures in line with pandemic guidelines required adaptation and learning at the individual and small group levels. The organisational interfaces within the City group and the public sector faced new and, in some cases, surprising challenges, the response to which required the reorganisation and learning of operations.

According to the interview material at Stara, the progress of the uncertainty situation followed a pattern in which initial observations led to the questioning of the functioning of the prevailing operating system. Engeström refers to the stage with the concept of contradiction. In Stara, some key employees had made observations and began to question the prevailing activity, where the discussion of questioning initially had different views and tensions and where solutions were sought. At the same time, the perception began to emerge that, as the situation evolved, it could not be controlled by the means and operating models of the prevailing operating system.

The key personnel acted as drivers of change in the situation, and the perception of the need for change began to form together in the zone of proximal development, so that the prevailing operating model, the related sense of control and competence were challenged, and the operating system changed. In Engeström’s terms, changing the operating system according to the object was a learning process of expansive learning. A partial change of that operating system meant tuning the operating system according to the object. The aim was to respond to the changes in the operating system required by the coronavirus pandemic so that the work community would be able to provide the required services in the changed, new situation. The process proceeded from the outside in the interviewed work communities, sharing and discussing observations and reflecting on and assessing the changing situation and its nature.

The organisations studied are culturally and structurally partly similar: they are both located in Finland, with their headquarters in Helsinki. Each is a fairly independent part of a larger entity, which in the case of Stara is the City of Helsinki and in the case of the Blood Service the Finnish Red Cross. The ethos of the Blood Service is health care while Stara represents the technical industry and public management. Perhaps surprising is the observation that, based on the interviews, there was not much difference in the emergency experience between these organisations on the individual personal level.

As a ‘crisis-specific’ organisation, the Blood Service started operations unanimously even though there was no real certainty about the situation (Stacey, 1996). In the
application of practical measures, first loop learning was quite effective. In the early stages of the crisis, new technical tools were effectively deployed. The introduction of a comprehensive electronic appointment booking for blood donors was related to the situation management required by the crisis, while the new Blood Service information system was a longer-term project that was completed despite the COVID-19 pandemic. As the crisis lengthened, the relative complexity of the situation increased and at the same time the need to discuss options at different levels increased. This allowed to reflect on the lessons learnt from the crisis in organisational, operational logic and second-loop learning.

In Stara, the reaction to the crisis itself was systematic, but especially in the management of interfaces, there were chaotic elements in the early stages of the crisis, the manageability of which improved as the crisis progressed. The division of labour between the various actors and the common rules of the network of public sector actors became more precise when the administration was able to organise itself in the maintenance phase of the protracted crisis.

Leadership adapted to the nature of the crisis and the importance of organisational learning have also been identified in other studies (Janssen & van der Voort, 2020; Anttila, 2012). A survey carried out during the coronavirus pandemic showed a link between the organisation’s learning ability and resilience (Orth & Schuldis, 2021). Different levels of learning in epidemic management have also been examined at the state level: Lee et al. (2020) found up to four levels of learning in South Korea’s pandemic response.

The tools of activity research have already been applied to some extent to the management of emergency organisations (Alharthi et al., 2021; Valecha et al., 2019). It has also been shown that these kinds of methods are suitable for health care development (Stenvall et al., 2018). The results of this study support and refine previous findings.

Based on the combination of Engeström’s learning model (Engeström, 2018) and Stacey’s matrix, it will be possible to further develop new contingency management practices that identify the need for interactivity and shared learning that is necessarily associated with protracted and expanding crises. At the same time, obstacles to learning from the crisis can be identified and avoided (Smith & Elliott, 2007).

A learning perspective on the management of emergency conditions should help to transfer and consolidate the good practices created during exceptional circumstances into normal operations. An interesting subject for further research could be the application of Engeström’s and Stacey’s models to transfer the lessons learnt from the crisis into the organisation’s permanent intellectual capital.

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