

Learning from experiments

Exploring how short time-boxed experiments can contribute to organizational learning

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Learning from experiments: Exploring how short time-boxed experiments can contribute to organizational learning

Abstract

Purpose

To explore how the involvement of workplace teams in experimenting with changes in their work practices through STBEs can support organizational learning. It is explored how staffs' experiences with experimental practices give rise to shared knowledge, and how this is supported by the design of the STBE-procedure. Also explored is how the STBEs support knowledge retainment.

Design/Methodology/Approach

The study builds on the authors' participation in a research and development project across seven financial enterprises in Denmark. Qualitative material was developed as part of the experiments. Theoretically emphasizing experience, knowledge creation through dialogue, and knowledge retention, the material was analyzed focusing on participants' experiences and interactions, as well as on procedures.

Findings

The STBEs occasioned direct experience with new work practices for managers and employees. Supported by the STBE-procedure, these experiences generated new knowledge individually, collectively and on an organizational level. The procedure also created routines that can underpin the retainment of the new practices and knowledge related to incorporating it in the organization.

Practical and theoretical implications

Practical: The STBEs are applicable when working with organizational learning related to new work practices. Procedures supporting dialogue and mindful processes appear to advantage in relation to learning from experiments.

Theoretical: The study implicate experience with changes in work practices to be understood as predominantly mindful in opposition to simple also when the changes appear to be simple.

Originality

Based on an original research and development project and unique qualitative material the study adds to discussions on how to best conduct and learn from experiments in organizations.

Experiments in organizations

From 2019 to 2022 seven explorative, interventionist, experiments were conducted as part of the Future Work Lab research and development project with the objective to create new knowledge and tools to strengthen mental health for the digital working life of financial workers in Denmark. The experiments addressed different issues such as sense of belonging and AI implementation and a method of short, time-boxed, experiments (STBEs) was developed. The STBEs were used to support workplace learning in the involved teams, and organizational learning on improving working environment through refinement of organizational practices. The aim of this study is to explore how the involvement of workplace teams in experimenting with changes in their work practices through STBEs can support organizational learning.

Experiments have long been part of organizational research and development, and has played a central role in developing Scandinavian working life and its tradition of employee/employer cooperation (Kensing and Greenbaum, 2013). However, experiments have not only played a historical role. Today, making experiments is a widespread approach to scientific, societal and organizational knowledge creation (Staunæs *et al.*, 2014; Pickering, Olesen and Danholt, 2021) and problem-solving in private and public organizations (Bødker, Simonsen and Kensing, 2009; Brown and Wyatt, 2010; Ehn *et al.*, 2014; Pickering, Olesen and Danholt, 2021).

Although the idea of experimenting originates from a context of hypothesis testing in natural science (Staunæs *et al.*, 2014), the experiments in organizational settings of today often carry other connotations and expectations:

One could argue that experiment is pervasive today because of a societal concern with agility and continuous adaptation coupled with a concern for making well informed 'evidence-based' decisions and to avoid haphazard actions.

*(Pickering, Olesen and Danholt, 2021,
pp. 10–11)*

The need for agility and continuous adaptation prevalent in many organizations can be understood as reinforced by a perceived social acceleration that makes demands on societal and organizational decision making and organizational change (Rabinow and Rose, 2006; Andersen, 2013; Rosa, 2013). Rosa (2013) argues that e.g., accelerated technological change has, ontologically, accelerated the rate of social change in society. Rabinow and Rose (2009) and Andersen (2013) take a more epistemological stance, pointing out that the way organizations orient themselves towards acceleration in itself acts as a driver for change by

demanding and making constant 'readjustment to readjustment'^[1] (Andersen, 2013). Underlying the tendency to use experiments in organizations (Pickering et al., 2021), there is an expectation that experiments offer knowledge and organizational learning. This even in a relatively quick, situated, context-sensitive manner. Yet we lack a more developed understanding of *how* this might come about. Therefore we, firstly, explore theoretical perspectives on the affordance of experiments in organizations to develop a targeted research question. Then, we empirically explore how the involvement of workplace teams in experimenting with changes in their work practices through STBEs can support organizational learning. Finally, we sum up the most important points concerning organizational learning from STBEs.

Organizational learning from experiments

Broadly, we understand organizational experiments as the deliberate trying out of actions that have not previously been tested in the specific organizational setting with the intention of learning and only progress to implementation if the experiment is perceived as beneficial to the organization and participants i.e. successful.

Argote and colleagues define organizational learning as "a process through which experience performing a task is converted into knowledge, which, in turn, changes the organization and affects its future performance" (Argote, Lee and Park, 2020, p. 5402). A process that we perceive as involving necessary interplay between individuals, communities of practice (Wenger, 1998), and organizations. The duration, time boxing, and explorative approach differentiates STBEs from pre-determined changes and implementation projects and conditions organizational learning in several ways. While still in the process of shaping and deciding future processes, STBEs give an opportunity for participants to gain direct experience with new ways of working. At the same time, the framing as experiments set the stage for a reflective process regarding the experiences. This is reinforced by time boxing, where experiments have a predetermined start and end date and evaluation. While positively stimulating reflection in relation to generation of experience and knowledge creation, time boxing might challenge organizational learning in other parameters. Especially with short-termed time boxing, knowledge generated in experiments might not settle in organizational practices and knowledge retention gets hampered.

Departing from the above definition of organizational learning and the sketched prospects and challenges in relation to STBEs, we will here clarify our approach to experience, knowledge creation and knowledge retention to lay the ground for developing focal points for an empirical analysis.

Experience

A classical distinction in relation to organizational learning is between learning from direct (own) or indirect (others') experience (Echajari and Thomas, 2015; Argote, Lee and Park, 2020). Indirect experience codified as concepts, guidelines etc. might be a starting point for an organizational experiment. Nonetheless, gaining direct experience with new actions – being simple tasks or more complex procedures – situated in a specific organizational setting, is a central purpose of organizational experiments. Also, it can be argued to be very important for learning in the workplace (Paloniemi, 2006).

In the above definition of organizational learning, Argote and colleagues refer to experience in relation to performing a task. In their comprehensive literature review, Echajari and Thomas (2015) differentiate between learning from direct experience from simple, repetitive tasks, from failures or rare experiences, or from complex and heterogeneous experiences. Although the categories may appear simple, they are not easily applied in empirical analysis. Apart from tasks such as conveyor belt work or making pizzas, what tasks can be categorized as simple? Most tasks involve many different elements, e.g. knowledge of job content, social skills, organizational knowledge and ICT (Paloniemi, 2006) as they are performed in relation to the norms and practices of a professional community (Schön, 1987; Wenger, 1998), and an organization under more or less changing circumstances. Adding to this, making experiments will most likely not be experienced as simple and unambiguous, even when experimenting regards simple changes in task performance or processes. Also, the mere framing of a change as an experiment invites participants to reflect on the changes, their set-up, and their effect. The situatedness of even relatively simple changes is thereby stipulated and blurs distinctions between simple and complex experience.

In continuation of especially the distinction between simple and complex heterogeneous experiences, Echajari and Thomas (2015) suggest that learning progress differently in relation to the two types of experience. As we focus on heterogeneous and complex experiences, high intellect (March, 2010; Echajari and Thomas, 2015) or mindful (Argote, 2013; Echajari and Thomas, 2015) processes are pointed to as an appropriate framing for understanding organizational learning. To comprehend organizational knowledge creation from complex experiences, we find there is a need to go beyond explicating understandings of the causality of events (March, 2010). Instead we will expand on the dialogical practices (Tsoukas, 2009; Argote, 2013), that can be seen as a central part of creating knowledge from organizational experiments.

Knowledge creation and retention

Argote and Miron-Spektor explain the creation of organizational knowledge as occurring “when a unit generates knowledge that is new to it” (2011, p. 1128). Having described organizational experiments as the deliberate trying out of actions that have not previously been tested in the specific organizational setting, it appears inevitable that there must be a potential for knowledge creation in organizational experiments. Yet it is unclear *how* knowledge is created (Tsoukas, 2009).

Going beyond the conceptualization of knowing-in-action as transformed to knowledge-in-action through articulation (Schön, 1987), Tsoukas (2009) emphasize dialogue as a *precondition* for knowledge creation with dialogue creating new knowledge in the form of conceptual developments and realizations. He argues that conversational interactions enable participants to distance themselves “from their customary ways of understanding and acting, and reconceptualize a situation” (Tsoukas, 2009, p. 953) by the reflection, displacement of meaning and questioning of their utterances in the response from conversational partners. He thereby ascribes a most important role to dialogue for workplace learning for individuals and communities, but also as a precondition for more formalized organizational learning which requires conceptualization.

Though predominantly focusing on conversation, Tsoukas calls for research on how e.g. “demonstrations mediate conversational interactions in organizations” (2009, p. 953). In line with this, we see experiments as a form of ‘demonstrations’, that allow for participants to gain direct experience with specific changes to gain new perspectives by distancing themselves from their customary ways of acting. While experiments have the potential to be experience-generating demonstrations, conversational interactions must still be expected to play an important role to grasp, realize and negotiate knowledge from the direct experience with experiments. This both as informal, every day, dialogue, but most importantly also as reflective practice, that supports reflection on an organizational level (Høyrup, 2004). This should be stressed as dialogical processes both in experiment design, and as an analytical focus.

However, even with a well accomplished experiment supporting knowledge creation through demonstration and dialogue in the workplace’s community of practice, it is not given that knowledge will be retained in the formal organization. For knowledge to be retained at organizational level, it must become embedded in and change the organization. This might be challenged by conducting experiments within a short time frame. Argote et al. argue that knowledge can be retained through the “embedding of it in a repository, such as a routine or a transactive memory system” (2020, p. 5402). Organizational experiments conducted with a purpose of learning from the experiments must be expected to feature some kind of evaluation and written record that might serve as a go-to repository. Over the course of the

experiment, it must also be expected to build up a transactive memory system of distributed knowledge, but in a short time-boxed experiment, this might not settle. Drawing on Argote et al., building a routine as part of the experiment would be another way of retaining knowledge. Routines are most often understood as related to simple, repetitive, processes, but learning through more complex processes can also include routines in a more dynamic form (Echajari and Thomas, 2015). Changes in routines may be perceived as “reflective of changes in knowledge, and therefore indicative that organizational learning occurred” (Argote and Miron-Spektor, 2011, p. 1124). Accordingly, routines can be a relevant focus when working with emergent processes such as organizational experiments. Simultaneously, routines can be seen as an analytically relevant focus when aiming to detect organizational learning, and as a focus for experiment design, striving to build dynamic, reflective, routines.

Drawing on these accounts of experience, knowledge creation as based on demonstration and dialogical, and knowledge retention, we formulate our research question. From the relatively broad aim of exploring how the involvement of workplace teams in experimenting with changes in their work practices through STBEs can support organizational learning, the research question is specified to: *How do STBEs generate direct experience, support transformation of direct experience to shared knowledge, and support its’ retainment it in the organization?*

By focusing on the relations between direct experience, shared knowledge and organizational knowledge retainment, the research question addresses relations between individual and collective workplace learning and organizational learning.

Methods

Case context

The cases studied in this paper are all part of the Future Work Lab project, a project initiated by the financial sector trade unions and the Danish Employers’ Association for the Financial Sector and funded by the Velliv Association. The project ran from April 2019 to November 2022. The objective of the project was to create new knowledge and tools to strengthen mental health for the digital working life of financial workers.

That aim was fulfilled by conducting *short time-boxed experiments* (STBEs), each lasting about six weeks, in each of the cases. Seven different financial companies participated with one case each. All experiments focused on ‘micro changes’ (Bruskin, 2021), which meant changes in the everyday practices of employees rather than grand strategic changes. This does not imply that these changes are less significant than

strategic changes, since employees often find micro changes to be the most radical changes (Bruskin, 2021), but that they are limited, manageable changes.

The experiments took place as part of the involved teams' everyday work. The Future Work Lab consultants and researchers primarily had contact with the teams prior to the experiment phase, at the kick-off to the experiment period, during the pit stops, and in the evaluations, where participants were interviewed about their experiences with the experiment.

The project was organized with specialist consultants within management, working life, implementation, etc. as the drivers and developers of the design of the case experiments. Two university researchers (authors XY and XX) were funded by the grant to follow the cases, collect data, and provide a scientific assessment of the results. The researchers participated in meetings and workshops between consultants and case departments as well as internal meetings and workshops for the consultants.

Cases were recruited through the networks of the Future Work Lab where the project manager contacted HR-managers to recruit a department for an experiment. The contact between the project manager and HR-manager also provided an initial framing of the purpose of the experiment. When a department was identified the STBE-procedure was initiated.

The STBE-procedure

The STBE-procedure was developed as part of the project by the consultants and researchers. The STBE-procedure was inspired by design thinking (Brown & Katz, 2019) and the double diamond design model developed in 2005 by the British Design Council (Design Council, 2007). The procedure covers the process from developing the theme of the experiment to evaluating the experiment and consists of four steps as illustrated in fig. 1:

1. Exploring: Meeting with high level management to determine the theme for the experiment and identify relevant department. Interviewing department manager(s) and 3-4 employees individually to get an understanding of the work in the department and what it is like to work there. Also, informants are asked to elaborate on the joys and challenges of the work.
2. Defining: The consultants and researchers analyze the interviews by identifying common themes across the interviews. This results in a problem definition which captures the consultants and researchers' perception of the challenges in the department. The problem definition is discussed with manager(s) and employees and then refined and validated.
3. Developing: Based on the problem definition the consultants and researchers develop an experiment i.e. a number of concrete changes that are to be tested in the department. The

experiment is discussed with manager(s) and employees to ensure it is feasible and that they are willing to do the experiment.

4. Experimenting: The concrete changes are described in detail and presented to the department at a joint kick-off workshop. Details such as specific meeting times are discussed and decided with the department to fit best with their daily work rhythm. Two pit stops are held, at week 2 and 4, to discuss and modify the experiment if needed. After the experiment is completed in week 6 a pit stop is held focusing on evaluating the experiment.

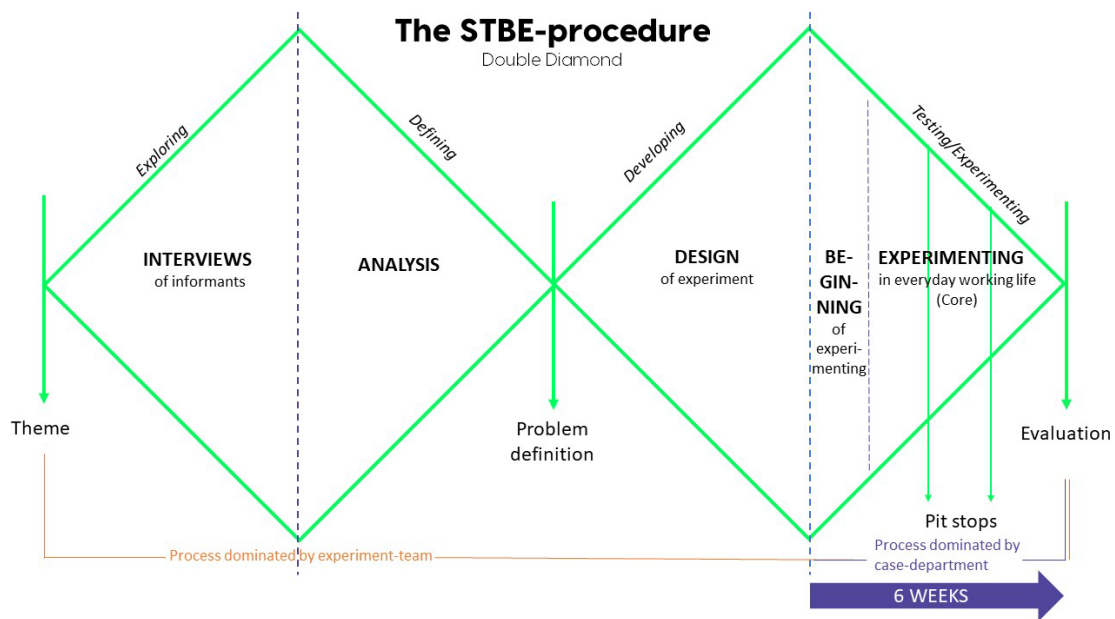


Fig. 1: The Future Work Lab project double diamond model

Source: Adapted from Grosen, Edwards & Lyck (2022)

Research approach

The case recruitment process was handled by the project manager without involvement of the researchers. Cases were initially contacted through the network of the financial sector trade unions and the Danish Employers' Association for the Financial Sector. Cases were selected based on their willingness to conduct a short time-boxed experiment designed by the consultants and researchers in collaboration with the employees and managers in the case department. Later, as the first cases were completed and the project gained public visibility, interested case departments contacted the project and negotiations were initiated. The initial framing of the experiment purpose was done between the initial contact person, typically a manager, and the project manager. This framing was very general and outlined an overall purpose such as improving well-being in digital work.

The specific purpose was agreed between the case department, consultants, and researchers. It was emphasized that the experiment addressed a real problem in the department and was sufficiently interesting for the department to commit time and effort to the experiment. With this close relationship and involvement between researchers, consultants and the case departments this project drew on the organizational development tradition of action research (Coughlan and Coghlan, 2002; Coghlan, 2011). Action research is concerned with studying organizational change carried out in close collaboration between researchers and practitioners by going through a process of diagnosing, planning, acting, and evaluating. This matches the elements of interviews, analysis/design, experimenting and evaluating from the STBE-procedure. The overall study of the Future Work Lab focused on real-life issues relevant to both theory and practice, which was achieved through integrating systematic research, reflection, and scientific knowledge (Coughlan and Coghlan, 2002; Shani *et al.*, 2008). A distinguishing factor from normal organizational consultations is the specific goal of scientific learning (Wiklund-Engblom *et al.*, 2023). The collaborative approach of action research was evident in the interviews, development of the problem definition and design of experiments.

In developing the specific purpose of the individual experiment, the manager was interviewed first to gain an overall impression, then four individual interviews with employees were completed. In line with both action research and the action research inspired participatory design tradition (Kensing & Greenbaum, 2013; Robertson & Simonsen, 2013), part of the interviews explored the respondent's perception of problems in common reflection between respondents and researcher. Possible solutions were then aggregated and further developed by the project group. As work environment researchers we were able to draw on theory to challenge respondents. And at the same time respondents influenced and challenged our preconceptions of their work leading to a deeper common understanding of the work and its challenges.

Before finalizing a problem, definition or experiment design respondents were included in the discussion forming a dialogue enriching both employees and project teams understanding and leading to new insights.

Data collection

Data collection followed the four steps of the STBE-procedure. During the exploration phase the researchers participated in the interviews, made audio recordings, and took notes. In the defining phase, researchers also participated in the analysis and discussion with the consultants, and made notes as well as collecting the written output from the analysis, and taking pictures of group-notes on whiteboards. In the

developing phase, the researchers participated in discussing the experiment and made notes from meetings. The output of the developing phase was a description of an experiment intended for the case department. This description was also collected. During the experiment, the researchers participated in the workshops and took notes.

Following the experiment, the experiment team evaluated the results through individual interviews with managers and short focus group interviews with employees. In each case three group interviews with 3-4 employees were conducted using teams. The group interviews focused on the employees' personal perception of the experiment and the perceived outcome of the experiment. The evaluation served as feedback for the consultants on the case and STBE-procedure and was facilitated by a consultant. The researcher's audio recorded and took notes from the evaluation.

Overview of experiments

Table 1: Overview of experiments. All experiments lasted five or six weeks. # = Number of employees in the experiment. The footnotes specify the experiment team involved in the individual experiments. Source: Authors' own work.

Name	Experiment	Work	#	Start
Hybrid pulse ²	Two different forms of regular weekly virtual meetings were tried out to support teaming and well-being in the virtual working life of a geographically spread team	Insurance sales support	20	April 2021
Colleague to go ³	Twice a week, employees were sent on a half-hour walk with a random teammate as an experiment with strengthening employees' sense of belonging and community in hybrid working life	Real Estate Financing, Pension & Savings	44	April 2021
Focus time ⁴	Five hours of undisturbed focus time for every individual employee and team leader were scheduled to experiment with energy and job satisfaction	IT development (33) and HR (7) in a financial company	40	Nov 2021
Hidden KPIs ⁵	Performance management KPIs were concealed from team leaders and employees, aiming to diminish strain and move attention to other forms of quality development	Bank call center	40	Nov 2021

Brain break ⁶	A mandatory daily 20 min. late morning break with no requirements for content was introduced to experiment with stress reduction	Car claims department	16	Feb 2022
Self-management ⁷	Improve employees' self-management through reflective planning and discussions with colleagues. The experiment was terminated before schedule as employees were reported not to experience it meaningful.	Two bank departments	50	Mar 2022
Tech collaboration ⁸	Test a collaboration process for engaging managers and employees in constructive dialogue regarding a new speech recognition technology in banking support.	Bank call center	16	June 2022

Analytical strategy

As described in the beginning of the article, present-day organizations are commonly initiating a continuous stream of changes. Apart from being part of changing organizations, the study of the STBEs were accomplished while the experiments were undergoing; even data from evaluations reflected organizational change in the making as they were input to organizational decision making on the future of the practices experimented with. Based on this processual character of the organizations' situation, we emphasize processes epistemologically. On this basis, our analytical strategy addresses organizational experiments with by focusing on narratives of emergent organizational actions and activities (cf. Van de Ven and Poole, 2005) including evaluations of them.

We will do this by drawing on the records of the experiments processes described above. In these records we will focus on how experiences with experimental activities are framed. Also, we will focus on the role of dialogical processes in knowledge creation, and on how such processes are incorporated in the experimental set-ups. Describing incidents and reflections, accounts of these interactions provide the basis for the following analysis of generation of experiences, knowledge creation and organizational learning. In relation to the experimental set-up and course of experiments we will, furthermore, focus on potentials for supporting knowledge retention.

Analysis: Short time-boxed experiments from experience to organizational learning

In the following analysis we focus on the Experimenting phase which is further subdivided into four elements: a) Beginning of experimenting, b) Experimenting (core), c) Pit stops, and d) Evaluation. Across the seven experiments, similar experiences were articulated relating to these four elements.

Beginning of experimenting

All experiments began with a kick-off meeting with the entire department, where employees were asked to reflect on a presentation of the design of the experiment, and its basis in interview excerpts and general knowledge on mental health and well-being. This occasioned voicing of concerns and reflective dialogue on how the experiment would affect the practices of the team. Issues raised at the kick-off meetings primarily concerned practical matters.

Each of the experiments were designed with actions that participants were expected to repeat over the course of the experiment. The experiments can thereby be seen as suggesting a routine. In the beginning of the experimentation-period, participants generally tested ways of doing the actions required by the experiment. For example, fitting new planning routines and focus time into their daily schedule (in the experiment with focus time), or finding what kind of break was best for them, as here in the experiment working with brain breaks and stress reduction:

"I've found that when I really need a real brain break, it's really good for me to just be by myself and give my eyes some peace, or to chat with my colleagues, which also shifts the focus from customers or concerns to something that's fun, something that's different in my work." (Employee, Brain break)

In the quote, the adoption of the word 'brain break' from the naming of the experiment suggest that the conceptualization and dialogue during kick off and beginning of experimenting has itself created or underpin a focus on breaks during work. Further, the experiment as demonstration appears to have given rise to a realization of, what constitutes quality in a brain break for this particular employee.

The experiment set-up with trying out actions, as well as the duration and time-boxing, appeared to make even skeptical employees give the experiments a try. This sometimes made them change their opinion on the experiment that their team was involved in:

"I could say I wasn't particularly in favor of this [Colleague to go] when you rolled it out. I just couldn't see I had time for it, and I could certainly take a walk in the evening myself. Then, when I had been on the first walk, I have to say I was nicknamed 'the convert'

because now I see the idea of it! I think it was really awesome to get out and get some fresh air, talk to a colleague, get to know a colleague, get some new energy. It's really been a success experience; really, really, really good." (Employee, Colleague to go)

The quote illustrates the experiment as both demonstration and dialogical process. Through participating in the experimental action (walking with a colleague) it is demonstrated to the skeptical employee what effects the action can have. The nicknaming of him points to a dialogue where also colleagues have become aware of the changed stance of 'the convert'. The individual knowledge of the effects, that the participation in the experiment has given the sceptic/convert, has become a shared awareness through the teasing dialogue.

Even when the actions prescribed by the experiment design are simple, these excerpts demonstrate a more encompassing instantiation of experience than mere task repetition. Set off by both participation in the actions and related dialogical processes, the processes come across as mindful/high intellect processes, creating reflective knowledge.

Experimenting (core)

Whether it involved weekly virtual meetings, daily breaks, focus time or other actions related to the experiments, the duration of the experimentation period and reiteration of experiment actions enabled the participants to gain experience about the way the actions affected their work routines, well-being, and mental health.

In several cases, the individual organization of work changed as the experiments created a focus on certain aspects of work, as here in relation to the 20-minute daily brain breaks:

"I had an awesome experience where I had been doing a lot of random tasks. Then I thought: 'Now I'm going to do an annoying case'. Right there I had that break, and I got some fresh air, and I realized: 'Now I'm ready!'. I actually think that... I think I did the case in a completely different way than if I had just been doing all kinds of work, and then gone on to the next thing." (Employee, Brain Break)

The participation in the experiment act as a demonstration of how it can affect the task execution. Though the reflections in the quote concerns individual organization of work, it is of relevance for the organizational production flow.

In other cases, the experiences involved changing relations to colleagues; for example, how this affected access to support on tasks:

“And actually, this morning someone asked for help on the phone [at an MS Teams meeting, actually] and then it was just seized by one of the others, and you could hear that the way they talked at this whiteboard meeting was completely different from what it has been before. And they’ve been out for a walk together.” (Team leader, Colleague to go)

As in the previous quote with ‘the convert’, it is notable that changes in practice spurred by the experiments are also noted by others. Even though reflections are often articulated as individual experiences, they also give rise to changes in relation to the teams’ organization of work and thereby more collective knowledge creation as practical changes demonstrate a distancing from former routines for collaboration.

Changing relations to colleagues were also experienced as part of the Hybrid pulse experiment, where virtual platforms were made the primary base for cross-geographic co-working instead of the departments common work processes based within the individual geographic units:

“I can hear when my husband says ‘who?’, that I’ve probably never talked about her [a colleague] before, but I’m just doing that now. But he says that once in a while: ‘Who is she? Is it someone in the department? Yes, but she is over in [a distant city].” (Employee, Hybrid pulse)

Even though geographically dispersed employees also prior to the experiment were part of the same department, the new genuinely hybrid organization of work changed the experience of working together. The reiteration of specified types of virtual meetings built up not only new work routines, but also new social relations as geographically distant colleagues became familiar.

Reiterating experiment actions and thereby building a routine was a component of all the experiments. In the Tech Collaboration experiment, building a recurring routine for employee-team leader collaboration when implementing or changing the way the technology was used in work became the focus for the experiment (see fig. 2). In the department, a call center, had recently started using a call monitoring system that would track and score all customer calls. The capabilities and purpose of the technology were poorly explained which had led to rumors and misconceptions. This caused distrust and miscommunication between management and employees. In the experiment, consultants and researchers developed a structured dialogue model to facilitate open dialogue and build mutual understanding and trust. The model was dubbed the Trust Key and specifies turn-taking on talking/listening, focus and timeframe.

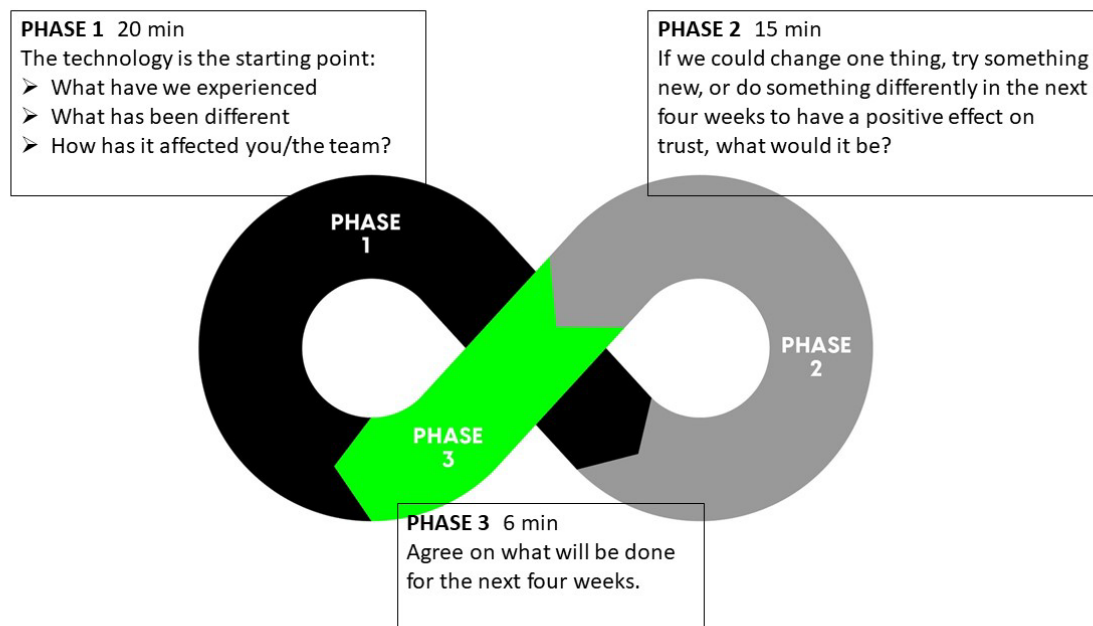


Fig. 2: Trust key for tech collaboration

Source: Adapted from Future Work Lab, (n.d.)

Phase 1 of the routine had a build-in reserved space for, first, employees telling their experiences with the use of the technology while the team leader just listened, second, the other way around. In an organization with conflict and distrust between employees and team leaders, this created a safe environment for listening to and understanding how the technology affected others' experience of the working environment. This corresponds to Tsoukas (2009) idea of dialogue as a way to distance the parties from their own immediate perspective and thereby reconceptualize the situation, and also draw on aspects of using storytelling in technological change (see e.g. Law, 2009). In phase 2 and 3, agreements on how to proceed with the technology implementation could be made because mutual understanding of both parties standpoints formed in phase 1.

As individuals and as teams, the case departments generated knowledge (as emphasized by Argote and Miron-Spektor, 2011) through the reiterated actions of the experimentation period. The knowledge generation is based on a combination of individual and collective experiences with the reiterated actions, changes in practices because of these experiences, and formalized dialogues.

Apart from knowledge on how the experiment actions influenced on the thematically defined problem, case departments also generated knowledge on practicalities enabling the performance of the experimental actions such as putting it in the calendar and explicating and repeating management support.

Pit stops

A pit stop was held approximately every second week in each of the experiments as part of the STBE procedure. Pit stops were used to adjust the design of the experiment in accordance with perceived inexpediences in the design, and to help participants to go through with the proposed actions.

In the 'Hybrid pulse' case, one of three actions, a constantly open chat channel where one could ask for support from colleagues, was adjusted to stop the chat from being too disturbing by not requiring notifications to be turned on. During the remaining period of this experiment, the team further developed their own meaningful way of using the chat, thereby demonstrating how experience articulated in dialogue was translated into new practices.

At pit stops, barriers to making the experiment actions part of daily work were also revealed. For example, during the first pit stop in the focus time experiment the consultants showed that most employees did not book focus time in their calendar. This opened a dialogue about the reasons for not booking. It became evident how a culture of constant accessibility hampered participants' use of focus time in the case-department; it was felt to be illegitimate to prioritize 'deep work' over expedient responses to requests. However, the managers highlighted their own positive experience of using focus time and that it was booked and visible to all in their calendar. This changed the perception of legitimacy and the participants began booking focus time in their calendar and do deep work.

As illustrated, the pit stops created a formalized room for dialogue which, as in the 'Hybrid pulse' case, could be used for agreeing on adjustments in experiment practices. Also, as in the 'Focus time' case, it could be used for realizing dissonance in perceptions and address them.

Echoing traditions of participatory design (Kensing and Greenbaum, 2013; Robertson and Simonsen, 2013) and the widely accepted importance of having control in working life (cf. Karasek and Theorell, 1990), pit stops allowed employees and team leaders to have a voice in the iteration of the experiment. The pit stops were also an occasion for putting team leader and employee experiences into words in a collective workplace setting, thereby consciously relating them to the case department's previous knowledge. The design of the experiments thus encouraged a conversion of experiences to collective narratives of desirable routines, effects, and hindrances.

Evaluation

Evaluations concerned how the experiments had affected the different themes and problem definitions concerning sense of community, teaming and well-being, stress, etc. in the case departments. This not only involved the defined themes of the experiments, but also more generally how the experiment had affected

tasks, organizing, and relations at work. A central part of the evaluations was group interviews, and discussions of results with the entire teams. Like the pit stops, evaluations through their form formalized dialogue between participants, consultants, and researchers, stimulating explication of experiences and realization of knowledge created while experimenting.

The interviews informed the final report describing experiences and concluding on the effects on the problem definition of each experiment. Enhancing central experiences, evaluations were summarized in presentations to the case departments and their top management. These presentations provided descriptions of the design and actions performed, how they had been experienced by employees and team leaders, experiences of productivity in the experiment period, practical aspects that had hampered or advanced the execution of the experiment, and perspectives for future use of experiences from the experiment.

Before being presented for top management, the final report was presented for the entire case departments who were invited to comment. The evaluation thereby allowed participants to have a say in the interpretation of the experiments and the organizational narrative involved and to negotiate meaning and future perspectives with each other as well as with the consultants and researchers.

We understand this process of evaluation as central to the creation of organizational knowledge as its form of collective dialogue stimulated mindful reflection and development and the distribution of a common narrative between organizational members (as emphasized by Argote and Miron-Spektor, 2011). Importantly, the reports on the experiments offered a knowledge repository (Argote, Lee and Park, 2020) in the form of a description of the organizational routine that had been tried out repeatedly and adjusted, and was well-proven by the team involved as relevant to their situation. The evaluations thus contributed to knowledge creation and organizational knowledge retention.

Concluding discussion

In this paper we have examined a procedure for conducting short time-boxed experiments, the STBE-procedure, to explore how STBEs can generate direct experience, support transformation of direct experience to shared knowledge, and support its' retainment in the organization. The procedure was developed and used in the Future Work Lab research and development project on mental health and well-being in financial sector companies in Denmark. In our study of the procedure, we have emphasized how the procedure with its characteristics as a demonstration offers direct experiences for the participants, how informal dialogue, and reflective practices support knowledge creation and knowledge sharing, and how retainment of the knowledge obtained from the experiments is supported by the STBE-procedure.

Action research was used as the methodological approach where researchers and case engage and develop their understanding of the problem and possible changes that can be part of experiments through dialogue. This approach is valuable and necessary to develop interventions that may improve work environment. Employees, on one side, were given an opportunity to highlight problems in their day-to-day work but needed an outside view of their work to transform the problems into suggestions for changes. The dialogue with researchers and consultants offered this outside view and also contributed with ideas based on the overall purpose of the project i.e. improving work environment.

A general notion across the seven studied STBEs is that as well the framing of the concrete changes in the specific STBEs as experiments, as the time-boxing of the experiments, has been significant for the way participants has engaged in the experiments. Framing the changes as something that were to be experimented with to explore its workings and not deliver a fixed outcome, seemed inviting for active participation and reflection. Simultaneously, the time-boxing with a relatively short time frame supported engagement as the experiments became manageable for both managers and employees. Related to this, the explicit premise that changes would be rolled back^[9] if it did not work made participation feel safe for both managers and employees.

The STBEs offer participants direct experience with iterations of concrete practices changing their and their teams' work processes through what can be termed demonstration (Tsoukas, 2009). We have shown how these experiences has both changed participants' view of the new practices, caused reflection, and changed the way individuals and teams performed and related to their work.

In the evaluation interviews following the experiments, reflection based on own experience with experiments is predominant, yet reflection on others' way of responding to the experiments also came forward and appeared as playing out in informal dialogue between colleagues, employees and management, and employees and their families. More formalized dialogue on the workings of the experiments were built into the STBE-procedure as pit stops and evaluation. In line with Tsoukas' (2009) reasoning on the role of dialogue for the creation of new knowledge in organizations, these dialogues created new understandings and realizations that formed the basis of changes in e.g. experimental set-ups and organization of work. Expanding upon Tsoukas, the demonstration of new practices unfolded in the experiments was the constant underlying base of the dialogue. Creating a forum for sharing reflections on these experiences collectively, the formalized dialogues addressed matters on how to best organize work and thereby translated participants experiences to an organizational level (as addressed by Høyrup, 2004).

Even though the concrete changes to practices in the specific experiments were often simple (see table 1), the organizational learning cannot be conceived of as related to simple task repetition and simple experiences, but must be perceived as mindful processes (cf. Argote, 2013; Echajari and Thomas, 2015). Even in the simplest experiments in the study, individual and collective reflection through pit stops and evaluation plays a central part in generating both knowledge and changes in practice for both employees and managers.

On top of being a firm base for dialogue, reflection, and changes in practices, we argue that the STBEs enhance possibilities for a broader part of organizational members to participate in discussions of the desirable futures for the organization. Offering participants direct experience with potential changes in organizational practices allow more people than those accustomed to abstract strategic considerations a basis for entering discussions. This is underpinned by the STBE-procedure with its build-in dialogues that invites all participants to 'have a say' and experience increased control in their working lives in all steps of the procedure (Karasek and Theorell, 1990; Kensing and Greenbaum, 2013; Robertson and Simonsen, 2013).

Despite underpinning participation, knowledge generation through dialogue, reflection and changes in practices, retainment of knowledge and new practices can seem challenged by the short time frame of the studied STBEs. However, the repetition of the core activities and the repeated pit stops mean that routines are developed during the STBEs and becomes repository for organizational knowledge (Argote, Lee and Park, 2020). A key benefit of the STBEs was the routine of a structured process for trying out and training new practices while simultaneously reflecting on them in relation to the particular situation of the organization. This routine was adjusted and well-proven by the individual team.

We thereby conclude that the STBE-procedure can support that direct experience occasioned by experiments, gives rise to shared knowledge and its' retainment it in the organization. It also points to a way of working with organizational change, that invites for involvement and allow employee experiences and reflections to inform change processes, supporting workplace learning for both individuals and communities, in ways that can underpin sustained organizational learning.

Relating to the definition of organizational learning as "a process through which experience performing a task is converted into knowledge, which, in turn, changes the organization and affects its future performance" (Argote, Lee and Park, 2020, p. 5402) our study has certain limitations. As our data only concerns the experiment periods, we cannot conclude on long term effects and thereby' future performance' of the participating departments. We have been informed that some of the participating

departments returned to their pre-experiment practices. Others are known to have fully or partially continued the practices introduced and developed through the experiment period, and one organization has decided to take up the STBE-procedure in the broader organization (Hansen, 2022). Though clearly needing deeper investigation, we will argue that this indicates that the STBE-procedure has potential to support organizational learning. The cases were all conducted in a Danish cultural context which may limit the applicability using the STBE-procedure in other cultural contexts. Danish work culture emphasize employee involvement, autonomy, collaboration and has low hierarchies. This may be conducive to employee engagement in the STBE-procedure and limit applicability in other contexts.

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[1] Our own translation from Danish: "Omstilling til omstilling".

² Experiment team for Hybrid pulse: David Karstensen, Søren Skaarup and Kasper Edwards

³ Experiment team for Colleague to go: Pia Hauge, Eva Bjerrum and Sidsel Lond Grosen

⁴ Experiment team for Focus time: Pia Hauge and Kasper Edwards

⁵ Experiment team for Hidden KPIs: David Karstensen, Søren Skaarup and Kasper Edwards

⁶ Experiment team for Brain breaks: Pia Hauge and Sidsel Lond Grosen

⁷ Experiment team for Self-management: Pia Hauge, Signe Bjørg Lyck, Troels Bjerg-Nielsen and Sidsel Lond Grosen

⁸ Experiment team for Tech collaboration: Signe Bjørg Lyck, David Karstensen, Anders Raastrup Kristensen, Kasper Edwards and Sidsel Lond Grosen

[9] Except in the Tech collaboration experiment.