

With a Little Help From Change Management

Effects of a Short-Term Change Intervention on Employee Attitudes and Behavior

Lisa Mlekus^{ID}, Anna-Lena Kato-Beiderwieden^{ID}, Katharina D. Schlicher^{ID}, and Günter W. Maier^{ID}

Department of Psychology, Bielefeld University, Germany

Abstract: Change-management activities require extensive interventions, for which small and medium-sized companies often lack the expertise. Thus, we examined whether a short-term intervention could be an innovative approach that affects employees' attitudes and behavior. In the cooperative project IviPep, a company developed digital tools for its own internal development process. Our intervention was part of the corresponding training and consisted of a 5-minute presentation about prototypical reactions to change and a 45-minute workshop. Employees could voice their concerns, reflect on advantages, and work on potential solutions to address their concerns. Results of a survey before and after the training ($N = 22$) showed that the short-term intervention significantly increased readiness for change ($d = 0.72$) but did not significantly increase overall attitude toward change ($d = 0.16$) or behavioral resistance to change ($d = -0.37$), although the effects pointed in the intended direction. Our results indicate that even small change efforts can make a difference.

Keywords: change management, technology implementation, short-term intervention, change readiness, resistance to change

Auswirkungen einer Kurzzeit-Change-Intervention auf Einstellungen und Verhalten von Beschäftigten

Zusammenfassung: Change-Management-Aktivitäten erfordern umfangreiche Interventionen, wofür kleinen und mittleren Unternehmen oft die Expertise fehlt. Als innovativen Ansatz haben wir untersucht, ob eine Kurzzeitintervention Einstellungen und Verhalten der Beschäftigten beeinflussen kann. In dem Kooperationsprojekt IviPep entwickelte ein Unternehmen digitale Instrumente für seinen Entwicklungsprozess. Unsere Intervention war Teil der zugehörigen Schulung; sie bestand aus einer 5-minütigen Präsentation über prototypische Reaktionen auf Veränderungen und einem 45-minütigen Workshop. Beschäftigte konnten ihre Bedenken äußern, über Vorteile reflektieren und mögliche Lösungen für die Bedenken erarbeiten. Die Ergebnisse einer Umfrage vor und nach der Schulung ($N = 22$) zeigten, dass die Kurzzeitintervention zu einer signifikanten Steigerung der Bereitschaft, sich für die Veränderung einzusetzen führte ($d = 0.72$), aber nicht signifikant zur Steigerung der generellen Einstellung gegenüber der Veränderung ($d = 0.16$) oder des Widerstandsverhaltens ($d = -0.37$) führte, obwohl die Effekte in die beabsichtigte Richtung zeigten. Unsere Ergebnisse deuten darauf hin, dass selbst kleine Change-Interventionen einen Unterschied machen können.

Schlüsselwörter: Change-Management, Technologieeinführung, Kurzzeitintervention, Veränderungsbereitschaft, Widerstand

Project Goals

A variety of environmental factors, such as political developments, economic circumstances, sociocultural elements, and technological advancements, are forcing organizations to constantly change (Senior & Swailes, 2010). In recent years, one of the strongest drivers of change was probably the increasing digitalization of work processes (Cascio & Montealegre, 2016; Parker & Grote, 2020; Schlicher et al., 2020). To ensure the successful implementation of technologies, this should be accompanied by change management (Mlekus et al., 2018). Change management refers to activities

that support the development of an organization from its present state to a desired future state (Stouten et al., 2018). Popular change models (e.g., Kotter, 1996; Oreg et al., 2011; Oreg et al., 2018) and the empirical change literature (e.g., Mosadeghrad & Ansarian, 2014; Oakland & Tanner, 2007) agree that one of the most essential activities to ensuring a successful change are employee information and employee participation. Several studies (e.g., Amarantou et al., 2018; Paruzel et al., 2020; Peccei et al., 2011) found that a lack of employee involvement during the change process was associated with a more negative attitude toward change, less change readiness and acceptance of the change, and more

resistance to change. Yet, especially for small and medium-sized companies, it is challenging to continuously involve their employees, as they lack expertise in the fields of change management, organizational development, or work design. Thus, the present project aimed to use a short-term intervention¹ during a technological change, and to examine whether it could improve the affected employees' attitudes and behavior toward the change.

Objective and Client

The project was conducted in cooperation with a German company from the electrical industry. The production network to which the company belongs employs about 1,500 people worldwide and about 600 people in its headquarters, where our intervention took place. The company develops and manufactures electronic drive systems and components, which are highly specialized products for individual customer requests. Each variant of a product requires complete documentation of the development process to prove its compliance with the necessary standards and guidelines. One year ago, in the scope of an audit, the company was informed that its current documentation process did not meet all requirements. Thus, for about 1 year the company worked on a new process and developed new digital tools for detailed documentation (most of which are based on Microsoft Excel). The team that revised the process consisted of the head of quality management, two employees from the quality-management department, the heads of the development departments, and an employee who programmed the digital tools to support the new process. The team had to meet a deadline, namely, the time of the audit in the following year, which resulted in serious time pressure. The programming of the solution began about 3 to 4 months before the deadline and was still regarded as a work-in-progress at the time when the new tools were presented in a 5-hour training².

Before the training, the majority of the employees who were supposed to adhere to the new process had not been informed that a new process was being developed, and therefore they had no opportunity to voice their requirements. To ensure that they still accepted the new process, the company reached out to us, two work psychologists, for support during the implementation. The company organized the training to give instructions on the usage of the new tools. Our support consisted of two parts: First,

we gave guidance to the employee who was responsible for the training content on how to convey the message of a new development process and the new documentation tools. Second, we developed a short-term intervention as part of the 5-hour training consisting of input on emotional change reactions (theoretical part) and an interactive workshop (practical part) aimed at involving the affected employees. The focus in this research lies on the evaluation of our short-term intervention following evidence-based management recommendations (Pfeffer & Sutton, 2006), because the intervention can be used similarly in other change management processes, whereas the content of the company training has to be adapted to each new project. We report on the results of the evaluation of the short-term intervention of a pilot study, since often only small samples can be obtained in the organizational environment of small and medium-sized organizations.

Target Group

The participants of the training were mostly employees from the development department and some employees from the sales department. Although the developers would be the ones responsible for a complete documentation with the tools, their colleagues from the sales department were needed to gather the necessary information from the customers about their product requests. Compared to the former process, the new process required closer cooperation between the two departments because the information from the sales team was needed earlier and in greater detail. Therefore, the company decided to include both departments in one training. A total of 50 employees participated in the training.

Change-management processes can be differentiated according to their scope and pace (Street & Gallepe, 2009). Regarding Street and Gallepe's systematization, the present change represents a punctuated, episodic-radical change, characterized by adaptations that have to occur suddenly, followed by long-term continuous change, impacting processes, practices, and rules in an organization. Employees had to learn to use the new tools and to adapt their working routines. Therefore we conclude that the change process had a medium-strong impact on employees.

¹ The term "intervention" refers to a 50-minute intervention conducted by two work psychologists which was part of a 5-hour training that also included an introduction of the technology by a member of the organization.

² The term "training" refers to the full 5-hour training organized by the company.

Innovation

The change literature offers a multitude of models on how change should optimally be implemented so that the affected employees accept it. While some comprise only three or four steps (e.g., Hiatt, 2006; Lewin, 1947), others require 8 (e.g., Kotter, 1996) or even 10 steps (e.g., Kanter et al., 1992). In the case of technology implementations, companies particularly use agile strategies and project management processes with iterative step sequences (Kotter & Ameln, 2019; Schlicher et al., 2020). The multitude of available models as well as the complexity of some of these models make it obvious that a company planning to implement a change usually requires help from a professional in the fields of change management, organizational development, or work design. Yet, small and medium-sized companies often do not employ such professionals and might lack the financial resources to procure the required expertise (cf. Done et al., 2011). Our aim was therefore to examine whether acceptance of the change could also be accomplished by a simpler and more practicable short-term intervention.

Change management typically occurs throughout a technology implementation, from the initiation to the evaluation phase and in the form of short- and long-term interventions (Schlicher et al., 2020). There is no fixed definition of when an intervention is deemed short- or long-term; the distinguishing criterion is that short-term interventions are an abbreviated form of a comparable long-term intervention (e.g., Virgili, 2015). Evaluation of short-term interventions is important not only to assess their practicality but also to accurately assess their mechanism of action (Occam's razor). Our expectation that a short-term change management intervention results in positive effects is supported by evidence from clinical research as well as the training literature. For example, the effectiveness of Solution-Focused Brief Therapy and Motivational Interviewing as brief interventions was already demonstrated (Gingerich & Eisengart, 2000; Güntner et al., 2019; Trepper et al., 2006; Vasilaki et al., 2006). Other studies also provide evidence in support of the feasibility and effectiveness of brief, self-guided, mindfulness-based interventions (Cavanagh, 2018; Hülshager et al., 2015; Virgili, 2015).

Although in several domains longer training generally results in more favorable outcomes than shorter training (Bezrukova et al., 2016; Lacerenza et al., 2017), some studies have also found positive effects for relatively short training. For example, Richter et al. (2016) conducted training on how to deliver bad news as a manager. The training lasted just 5 hours, the online version on average 3 hours, and both training modalities resulted in improved formal delivery of bad news as well as consideration of

fairness principles. Rosch and Caza (2012) investigated short-term leadership programs for students that lasted on average 8 hours. The students reported higher levels of leadership competencies immediately after the training and even 3 months later. In the realm of creativity, Clapham (1997) found that even a 30-minute creativity training led to increased creativity criteria (e.g., fluency, elaboration) compared to a control group.

Conceptual Background

The Change Process

Changing an organization is a complex undertaking. Not only do organizational structures have to be changed, but individuals who were not included in designing the change must be convinced of the necessity of the change, while the individuals who design the change often face high uncertainty when its goal and the paths leading to it are unclear (e.g., Karp & Tveteraas Helgø, 2009; Sparr, 2018). Larger organizations can address these complex situations by applying knowledge gained from previous change processes, as larger organizations tend to implement more changes than smaller organizations (Lee & Xia, 2006). Accordingly, larger organizations may have larger IT departments and networks to support the change than smaller organizations with their more limited financial resources and change experiences. The short-term intervention presented is intended to support small and medium-sized organizations in particular in designing change management that involves employees in the change process (see also Rivard & Lapointe, 2012).

Compared to the other causes of change, technological change places specific demands on change practitioners (Senior & Swailes, 2010). When a new technology is introduced in a workplace, employees have to adapt their work routines, which, at least temporarily, disrupts organizational routines (Demerouti, 2020). Working with new technology can also mean work design changes for employees, who may experience a change in autonomy when working with a new system or have to learn new skills to operate the system (Parker & Grote, 2020). Demands may also result from the new technology itself: The technology may require extensive customization before being used, leading to stress in employees (Momoh et al., 2010). Furthermore, limited resources and the stress of one's colleagues may burden employees (Smolan, 2015). Facing these demands requires a protected space for employees to formulate their sorrows, demands, and wishes for the new technology and the change process. The short-term intervention presented here provides just such a protected space.

The timing of change management has changed with recent developments. The traditional change-management literature recommended waterfall models of change, in which different phases of a change process followed one another, each phase proving different challenges to the implementers of the change (e.g., Hiatt, 2006; Judson, 1991; Kanter et al., 1992; Kotter, 1996). A new approach emphasizes designing change according to agile project management principles (Kotter, 2014; Kotter & Ameln, 2019; Project Management Institute, 2017), especially with technological change projects, which usually consist of shorter development periods of the technology and coordination with the customer to ensure the development fits the customers' requirements (e.g., Serrador & Pinto, 2015). Therefore, change management must align closer with agile project management practices (Hornstein, 2015; Wastian et al., 2017). The present short-term change intervention serves to give change practitioners a simple tool that can be applied quickly and flexibly in diverse change settings and timings.

Effective Communication and Participation for Successful Digitalization

Most change models have in common that they recommend communication about the change as well as the active participation of the affected employees. It is therefore not surprising that these are among the most important change-management activities to promote change readiness (e.g., Armenakis et al., 1993; Rafferty et al., 2013). Empirical studies found, for example, that communication and participation were positively associated with positive attitudes toward the change, and negatively associated with resistance to change (Bentler et al., 2019; Lines, 2004; Wanberg & Banas, 2000). Therefore, we also focus on these theoretically and empirically proven important aspects of change management when designing our short-term intervention.

For effective change-related communication, Armenakis et al. (2007) identified five change beliefs that should be addressed: discrepancy, appropriateness, efficacy, principal support, and valence (see Table 1). The authors extracted these beliefs by doing a content analysis of change publications by scholars and practitioners; other researchers found support for the effective design of change management following these five principles (e.g., Holt et al., 2013; Neves, 2009). *Discrepancy* refers to the belief that the current situation needs to be improved, and that change is therefore necessary. *Appropriateness* describes the belief that the planned change activities fit the discrepancy. To address this belief, the communication should make transparent how the change team planned

the change. *Efficacy* is the belief that each individual – and the organization as a whole – are capable of successfully implementing the change. *Principal support* refers to the certainty that one's leaders and respected peers support the change. Finally, *valence* describes the belief that individuals benefit from the change. These beliefs (applied to the company's situation) were addressed during the training by highlighting the importance of the new development process and presenting the features of the new tools.

To ensure effective participation, the employees must perceive having control over the situation. As stated in Ajzen's (1985) theory of planned behavior, any intention to act (e.g., an action that supports the change) can be translated into behavior only if the individual perceives that they have the opportunities and resources to do so. The theory clearly distinguishes actual and perceived behavioral control, meaning that, even if an organization offered multiple opportunities to participate in a change process, the employees' behavior would be affected only if they were aware of these opportunities. Here, again, communication is essential. In the training, the new development process and tools were introduced, while in the intervention, emotional reactions to change were made directly explicit (theoretical part), and employees were involved through participation (practical part).

Communication and participation interventions are often evaluated concerning their impact on different aspects of change attitude because a positive change attitude is a prerequisite for various other change-supportive behaviors (e.g., Rafferty et al., 2013). Change attitude is defined as the individuals' view of a change process, measured in affective, cognitive, and behavioral components (Bouckennooghe et al., 2009; Oreg, 2006). Different expressions can be differentiated, for example, change resistance as a negative (Oreg, 2006) and change readiness (Rafferty et al., 2013) as a positive form of change attitude. Especially the behavioral intention to act on or resist the change in association with an employee's overall attitude to change is of interest for the evaluation of change interventions. Long-term change interventions of communication and participation have been shown to influence employees' attitudes and behavioral reactions to change (e.g., Vakola, 2016; van Dam et al., 2008). In accordance with the positive effects of short-term interventions in other domains, we propose that single events of communication and participation also increase employees' attitude to change, intentional change readiness, and behavioral resistance to change.

In conclusion, we derive the following hypotheses.

Hypothesis 1: A short-term intervention aimed at communication and participation has a positive effect on the overall attitude toward the change.

Table 1. Change beliefs, definitions, and their application to the company's situation

Change belief	Definition	Application to the company's situation
Discrepancy	Belief that a change is needed	The current process does not fulfill the audit's requirements, and in order to be legally unassailable, a new process is needed
Appropriateness	Belief that the proposed change addresses the discrepancy	The new process helps the company meet any legal requirement because experts in these requirements were involved in the development of the new process
Efficacy	Belief that the individual and the organization are capable of successfully implementing the change	The tools have been developed in a way that even new employees can use them after a short introduction
Principal support	Belief that leaders and respected peers support the change	The company's leaders support and even demand the new process
Valence	Belief that the change results in personal benefits	In the current situation, each individual developer could be made responsible for a defective product if the documentation is not complete

Note. Change beliefs and definitions are based on Armenakis et al. (2007).

Hypothesis 2: A short-term intervention aimed at communication and participation has a positive effect on intentional change readiness.

Hypothesis 3: A short-term intervention aimed at communication and participation negatively affects the behavioral resistance to change.

Project Flow and Methodology

Procedure

The first meeting between the authors and the company took place in December 2019, 2 months before the company had scheduled the next audit at which point the new process had to be in place. We discussed that the training would consist of separate parts: an introduction to the tools that needed to be used in the new process and our change management intervention with a theoretical and a practical part. The introduction to the tools would be given by one of the company's employees. We met with him five times over the next 2 months to give feedback on the presentation slides and to discuss how he could convey the message about the change. As a basis, we used Armenakis et al.'s (2007) five key change beliefs and applied them to the situation in the company. Table 1 summarizes how the five change beliefs were addressed during the training.

Because 50 employees had to be informed about the new process, we decided to conduct the training in three groups of 16 to 17 employees each, to enable the employees to have a better opportunity to ask questions and work in small groups during the interactive part of the training.

All employees were invited to the training 4–5 weeks in advance (a timeline of the procedure can be found in the online supplementary material). Together with the invitation, the employees received a link to an online survey where they were asked to indicate their overall attitude

toward the change and intentional readiness to change. Those employees who indicated that they already knew that the new process was going to be introduced were also asked to answer questions regarding their behavioral resistance to change.

At the beginning of the training, the head of quality management gave a short overview of the subject and the aim of the training and introduced us and our role during the day. Following this, we performed the first part of the intervention: a 5-minute theoretical introduction to prototypical reactions to change. The greatest part of the day consisted of information about the new process and the tools to be used, presented by members from the quality-management department. This part took about 4 hours, including breaks. The second part of the intervention took place after the employees knew everything about the new process. We conducted an interactive workshop where they could reflect on challenges as well as opportunities and advantages, and work in small groups to create solutions to address the challenges. On the day after each training, the respective participants received an email with a link to a second survey. It included the same questions as the first survey, but this time all participants were asked to answer the questions regarding their behavioral resistance to change.

Intervention

As mentioned above, the intervention consisted of two parts: a 5-minute theoretical part and a 45-minute practical part (detailed instructions on how to conduct the intervention can be found in the online supplementary material). In the theoretical part, we aimed to inform about prototypical emotional reactions to change. The literature contains a great number of similar models on this topic (for an overview see Elrod & Tippet, 2002),

many of which used the five stages of grief by Kübler-Ross (1969) as a basis and adapted it to change in general or specific to organizations. The original model by Kübler-Ross describes the response of individuals facing their own death (denial, anger, bargaining, depression, and acceptance). We decided to use a visualization of Grant's (1996) transition curve model, which assumes seven phases during an organizational transition: shock, denial, depression/incompetence, acceptance, testing, search for meaning, and integration. Depending on the phases, the individual may feel more or less self-esteem and competence. During the training, we showed the model and explained the individual phases using a fictitious example of a mechanic who is confronted with a technological change at his workplace. Afterward, we applied the model to the participants' situation. As an example, we stated that some of the participants might have experienced shock when they received the invitation to the training or after learning about the content and aim of the training. We further explained that the goal of the training was to arrive at the stage of testing (which we labeled "learning"), and that this stage would continue afterward because then the participants would test the new process with the new tools in their everyday work.

During the practical part, we aimed to enable employee participation in the change process. We split the practical part into three phases: challenges, opportunities, and solutions. In the first phase, we asked the participants to reflect on the possible challenges and obstacles they perceived in association with the new process. The participants wrote their answers on moderation cards and pinned them on a pinboard. Afterward, we summarized the answers for the whole audience. Example challenges were increased time effort, greater effort to collect all the necessary information, and the perception of increased responsibility. In the second phase, we asked the participants to think of all the advantages and opportunities they thought the new process offered. This time, the participants answered orally, and we wrote each answer down. We refrained from collecting the challenges in the first phase orally to ensure that participants felt that they could also write down critical remarks. Example advantages were that the new process was complete and therefore reliable, contained knowledge documentation for new employees, and ensured transparency of decisions and solutions. Taken together, the first two phases served the purpose of providing the employees with a voice, which means that they were able to express their views, arguments, and concerns regarding the new process. This was important because organizational change can sometimes be perceived as a threat, and giving employees a voice might help them to regain a feeling of control and participation (Reiss et al., 2019). Voice is one

of the main means to facilitate procedural justice, which describes the fairness or justice of the process that leads to a decision (Colquitt, 2001) and is related to work performance, job satisfaction, and affective commitment, among other things (Cohen-Charash & Spector, 2001).

In the third phase, the participants were asked to work in groups of three to four, consisting of employees from the development department and the sales department. Each group received one of the challenges from the first phase and was instructed to think of concrete ways on how to overcome this challenge. An example solution to the challenge of increased time effort was to strengthen the teamwork between development and sales employees. This active involvement in the third phase was aimed at strengthening the employees' belief that they were capable of coping with the change (cf. efficacy, Armenakis et al., 2007).

Participants

Of the 50 employees who participated in the training, 32 completed the survey before the intervention, and 31 after the intervention. A total of 22 employees participated in both surveys; they thus constitute the final sample. The participants were mainly male (86.4%; 13.6% female) and middle-aged (13.6% each were 24–31 and 32–39 years old; 22.7% each were 40–47 and 48–55 years old; 18.2% were 55–63 years old; for 9.1% age data were missing). The participants' tenure was quite long: 18.2% had worked for the company for 2 to 9 years, 31.8% for 10 to 20 years, and 40.9% for more than 20 years (9.1% missing data). The majority indicated that their highest degree was a diploma or master's degree (45.5%), followed by participants with a bachelor's degree (22.7%) or vocational training (18.2%). Only one person each (4.5%) indicated that they were still in vocational training or had completed further vocational training (e.g., technician, master school; 4.5% missing data).

Measures

Overall Attitude Toward Change

We used a scale by Herrmann et al. (2012) to measure the overall attitude toward change. This German scale was developed based on the established scales Readiness for Organizational Change (Armenakis et al., 1993), Affective Commitment to Organizational Change (Herscovitch & Meyer, 2002), Openness to Change (Miller et al., 1994), and Cynicism about Organizational Change (Stanley et al., 2005). The scale consisted of six items assessed on a 5-point Likert scale ranging from 1 (*does not apply at all*) to

Table 2. Descriptive statistics and correlations for study variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. T1 Overall attitude	3.02	0.70	–				
2. T1 Intentional readiness	3.64	0.76	.47*	–			
3. T1 Behavioral resistance ^a	1.84	0.53	–.34	–.01	–		
4. T2 Overall attitude	3.13	0.69	.79***	.34	–.32	–	
5. T2 Intentional readiness	4.07	0.39	.42	.37	–.33	.17	–
6. T2 Behavioral resistance	1.71	0.54	–.47*	–.18	.53*	–.61**	–.13

Note: ^aSample for this scale was $n = 16$. * $p < .05$, ** $p < .01$, *** $p < .001$.

5 (*applies very much*). A sample item is “I increasingly perceive the change process as ‘my thing.’” Reliability (Cronbach’s α) was .81 (.77 for the matched sample) at t1 and .77 (.82 for the matched sample) at t2.

Intentional Readiness for Change

To assess the participants’ intentional readiness for change, we translated and used two items developed by Bouckennooghe et al. (2009). These were translated following collaborative and iterative translations guidelines (Douglas & Craig, 2007). Ratings could range from 1 (*does not apply at all*) to 5 (*applies very much*); a sample item is “I am willing to put energy into the process of change.” Cronbach’s α was .78 (.81 for the matched sample) at t1 and .80 (.38 for the matched sample) at t2.

Behavioral Resistance to Change

We translated (see Douglas & Craig, 2007) and used Oreg’s (2006) behavioral subscale of change attitudes to assess the behavioral resistance to change. The scale consisted of five items and was measured on a scale from 1 (*does not apply at all*) to 5 (*applies very much*). A sample item is “I protested against the change.” Cronbach’s α was .65 (the same for the matched sample) at t1 and .60 (.67 for the matched sample) at t2.

Project Results

Table 2 provides an overview of the descriptive statistics and correlations between the study variables. As expected, for both times of measurement, the correlations between the overall attitude and the intentional readiness to change were positive, and the correlations between these constructs and the behavioral resistance were negative. The means indicate that the overall attitude and intentional readiness to change were both greater after the intervention, and the behavioral resistance was lower.

Hypothesis Testing

In our hypotheses, we expected that the overall attitude toward the change (Hypothesis 1) and the change readiness (Hypothesis 2) would be greater and the behavioral resistance to change (Hypothesis 3) would be lower after the intervention. First, we checked whether the requirements for statistical tests were met. We conducted dependent t -tests for overall attitude and behavioral resistance. For intentional readiness, we conducted a dependent t -test with bias-corrected accelerated bootstrapping using 5,000 samples because, in contrast to overall attitude and behavioral resistance, the assumption of normality was violated.

The overall attitude toward change did not change significantly between before ($M = 3.02$, $SE = 0.15$) and after ($M = 3.13$, $SE = 0.15$) the intervention, $t(21) = -1.17$, $p = .26$, $d = 0.16$. This represents a small effect (Bosco et al., 2015). Thus, we had to reject Hypothesis 1. The intentional readiness to change was significantly higher after the intervention ($M = 4.07$, $SE = 0.08$) compared to before ($M = 3.64$, $SE = 0.16$) the intervention, $t(21) = -2.91$, $p = .03$, $d = 0.72$. This represents a medium effect. Thus, the results provide support for Hypothesis 2. For the behavioral resistance to change, there was no significant difference between before ($M = 1.84$, $SE = 0.13$) and after ($M = 1.66$, $SE = 0.10$) the intervention, $t(15) = 1.48$, $p = .16$, $d = -0.37$. This represents a small to medium effect. Thus, we had to reject Hypothesis 3.

Discussion and Transfer

The present study examined whether a short-term change intervention influenced employees’ change attitudes and behavior. The results showed that the intervention, which lasted about 50 minutes in total, had a positive effect on the employees’ intentional readiness to change. There were no significant effects on the overall attitude toward the change or the behavioral resistance to change. Yet,

resistance to change among employees was already low before the intervention, so that large effects could not be expected.

An often-mentioned concern of change practitioners is that, when they allow employees to voice their sorrows or wishes, the change might spiral out of control, as change practitioners may no longer be able to satisfy all the different and potentially opposing goals of the organization and its employees, leading to even more dissatisfaction and change resistance. The simple solution in many organizations is simply to not let employees participate in the change (Rivard & Lapointe, 2012). As a counterargument to this concern, the evaluation of this short-term intervention showed that resistance to change did not worsen throughout the intervention. Even though employees voiced their concerns during the interactive part, the tendency of the trend for resistance to change was that they perceived less resistance. We can therefore conclude that organizations applying our intervention need not fear the adverse effects of opening Pandora's Box, but instead the intervention had only positive effects.

Because the effects for overall attitude and change resistance revealed a trend in the expected direction – and effect sizes were small to medium – the results might have resulted from power issues. A power analysis revealed that we would have needed a sample of 309 participants to find a significant effect for the overall attitude or 60 participants for the behavioral resistance. Follow-up studies should determine the required sample sizes a priori based on the results of our pilot study. There were not enough employees in the training to achieve such sample sizes. Nevertheless, our results give a first indication that short-term interventions in the context of change processes can indeed have a positive effect on employees' attitudes.

Limitations

The investigated change did not affect all employees in the organization, so that the results cannot be generalized to larger-scale change projects that might affect the whole organization. This is, however, not surprising because, as Jones et al. (2019) recently stated, every change project is unique and cannot be accomplished with a one-size-fits-all approach, even though we intended to design the intervention following more general change principles. We evaluated the intervention through a change that, according to Street and Gallupe (2009), represented a punctuated, episodic-radical change with a medium-strong affectedness of employees. However, we cannot derive conclusions about the effectiveness of the intervention for the three other kinds of change scope (persistent,

continuous-convergent; turbulent, continuous-radical; tectonic, episodic-convergent), varying levels of affectedness of employees, or other causes for change (e.g., restructuring). Because we developed the short-term intervention with the intention that it could be used similarly in other change-management processes, follow-up research should evaluate the intervention in other change contexts and compare the results.

Another limitation is that we cannot attribute the results with absolute certainty to our change intervention. The intervention was incorporated into a training where the employees were informed about the new development process and the tools that needed to be used in the future. Therefore, the changes in attitudes might have been because of the more general training, or the intervention, or both. Thus, on the one hand, the actual intervention might have been the entire training, which lasted about 5 hours. In comparison with other change interventions, this can still be regarded as a short-term intervention, and our results indicate that there was a positive effect on the employees' intentional readiness to change. On the other hand, we assume that our short-term intervention has the greatest impact because the intervention helped to make emotional reactions to change explicit (theoretical part), and because employees were directly involved in the change process through participation (practical part). To be more certain, future research should also investigate the 50-minute intervention and its long-term effects in isolation.

Finally, we applied scales that had been translated from English by the study's authors and not yet validated in German. Regarding resistance to change, the reliability scores were below the recommended threshold of .7, which might have influenced measurement quality. Future research should replicate our findings with validated scales.

Practical Implications

Because of the increasing digitalization of work processes, one can assume that many change projects today and in the future deal with the implementation of new technology (Schlicher et al., 2020). As in our case, the technology is often implemented only in one department and therefore does not affect the entire organization. As a consequence, it might be more efficient for these organizations to adopt a short-term intervention rather than conducting a complete change process. Thus, our approach might be relevant for many organizations.

The significant effect of the intervention on intentional readiness to change has high practical relevance. The goal of conducting change management during the implemen-

tation of new technology is that the employees actually use the new technology. When intentional readiness to change is high after the intervention, employees are likely motivated to interact positively with the new technology and integrate the new tools effectively into their work routines.

In addition to being an effective intervention to increase the employees' intentional readiness to change, the participants' feedback itself offers valuable information. First, in the interactive part we collected the specific demands that the employees perceived when thinking of using the new tools (e.g., need to learn how to operate the system, new work roles, need for customization of the technology). These demands can be very specific to an organization. When employees name demands that are important to them, the organization receives information on how they could alter the change process to effectively address these demands or teach employees required skills (see also Kato-Beiderwieden et al., 2021). Second, the organization receives feedback on the mood of the affected employees. The written feedback of the company portrayed showed that the employees were very satisfied with the training day. Previous research found, for example, that the satisfaction with workplace training is positively related to job satisfaction and intrinsic work motivation, and negatively associated with turnover intention (Dysvik & Kuvaas, 2008; Huang & Su, 2016; Schmidt, 2007), and therefore the effect of an intervention extends beyond the specific change situation at hand.

Although our short-term intervention was successful in changing some of the employees' attitudes, we would recommend some improvements, based on the participants' feedback. When asked about what could have been done better, participants suggested that it would have been nice to have known beforehand that there would be a new development process. This emphasizes that even more communication and greater transparency earlier on in the process are crucial. Another suggestion was to include more practical examples on how to apply the tools for the new development process. We derive from this suggestion that future interventions should incorporate even more everyday situations of the participants so that their feeling of efficacy (cf. Armenakis et al., 2007) is increased.

In conclusion, our study showed that short-term interventions can be a practical and effective means to affect employees' attitudes during change processes. Change management can be a practical and effective little help for the successful implementation of new technologies in the workplace.

Electronic Supplementary Material

The electronic supplementary material is available with the online version of the article at <https://doi.org/10.1026/0932-4089/a000372>

ESM 1. Timeline, schedule, and material of intervention in German and English

References

- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckmann (Eds.), *Action control: From cognition to behavior* (pp. 11–39). Springer.
- Amarantou, V., Kazakopoulou, S., Chatzoudes, D., & Chatzoglou, P. (2018). Resistance to change: An empirical investigation of its antecedents. *Journal of Organizational Change Management*, 31(2), 426–450. <https://doi.org/10.1108/JOCM-05-2017-0196>
- Armenakis, A. A., Harris, S. G., Cole, M. S., Fillmer, J. L., & Self, D. R. (2007). A top management team's reactions to organizational transformation: The diagnostic benefits of five key change sentiments. *Journal of Change Management*, 7(3–4), 273–290. <https://doi.org/10.1080/14697010701771014>
- Armenakis, A. A., Harris, S. G., & Mossholder, K. W. (1993). Creating readiness for organizational change. *Human Relations*, 46(6), 681–703. <https://doi.org/10.1177/001872679304600601>
- Bentler, D., Mlekus, L., Paruzel, A., Bansmann, M., Foullois, M., Jenderny, S., Woeste, L., Dumitrescu, R., Röcker, C., & Maier, G. W. (2019). Einführung von Augmented Reality in der Produktentstehung. Technische Realisierung und Change-Management als Erfolgsfaktor für den Veränderungsprozess [Introduction of augmented reality in product development. Technical realization and change management as success factor of the change process]. In Gesellschaft für Arbeitswissenschaft e.V. (Ed.), *Arbeit interdisziplinär analysieren – bewerten – gestalten*, Article C.9.2.
- Bezrukova, K., Spell, C. S., Perry, J. L., & Jehn, K. A. (2016). A meta-analytical integration of over 40 years of research on diversity training evaluation. *Psychological Bulletin*, 142(11), 1227–1274. <https://doi.org/10.1037/bul0000067>
- Bosco, F. A., Aguinis, H., Singh, K., Field, J. G., & Pierce, C. A. (2015). Correlational effect size benchmarks. *Journal of Applied Psychology*, 100(2), 431–449. <https://doi.org/10.1037/a0038047>
- Bouckennooghe, D., Devos, G., & van den Broeck, H. (2009). Organizational change questionnaire – Climate of change, processes, and readiness: Development of a new instrument. *The Journal of Psychology*, 143(6), 559–599. <https://doi.org/10.1080/00223980903218216>
- Cascio, W. F., & Montealegre, R. (2016). How technology is changing work and organizations. *Annual Review of Organizational Psychology and Organizational Behavior*, 3, 349–375. <https://doi.org/10.1146/annurev-orgpsych-041015-062352>
- Cavanagh, K., Churchard, A., O'Hanlon, P., Mundy, T., Votolato, P., Jones, F., & Strauss, C. (2018). A randomised controlled trial of a brief online mindfulness-based intervention in a non-clinical population: Replication and extension. *Mindfulness*, 9(4), 1191–1205. <https://doi.org/10.1007/s12671-017-0856-1>
- Clapham, M. M. (1997). Ideational skills training: A key element in creativity training programs. *Creativity Research Journal*, 10(1), 33–44. https://doi.org/10.1207/s15326934crj1001_4

- Cohen-Charash, Y., & Spector, P. E. (2001). The role of justice in organizations: A meta-analysis. *Organizational Behavior and Human Decision Processes*, 86(2), 278–321. <https://doi.org/10.1006/obhd.2001.2958>
- Colquitt, J. A. (2001). On the dimensionality of organizational justice: A construct validation of a measure. *Journal of Applied Psychology*, 86(3), 386–400. <https://doi.org/10.1037/0021-9010.86.3.386>
- Demerouti, E. (2020). Turn digitalization and automation to a job resource. *Applied Psychology: An International Review*, 0(0), 1–6. <https://doi.org/10.1111/apps.12270>
- Done, A., Voss, C., & Rytter, N. G. (2011). Best practice interventions: Short-term impact and long-term outcomes. *Journal of Operations Management*, 29(5), 500–513. <https://doi.org/10.1016/j.jom.2010.11.007>
- Douglas, S. P., & Craig, C. S. (2007). Collaborative and iterative translation: An alternative approach to back translation. *Journal of International Marketing*, 15(1), 30–43. <https://doi.org/10.1509/jimk.15.1.030>
- Dysvik, A., & Kuvaas, B. (2008). The relationship between perceived training opportunities, work motivation and employee outcomes. *International Journal of Training and Development*, 12(3), 138–157. <https://doi.org/10.1111/j.1468-2419.2008.00301.x>
- Elrod, P. D., & Tippet, D. D. (2002). The “death valley” of change. *Journal of Organizational Change Management*, 15(3), 273–291. <https://doi.org/10.1108/09534810210429309>
- Gingerich, W. J., & Eisengart, S. (2000). Solution-focused brief therapy: A review of the outcome research. *Family Process*, 39, 477–498. <https://doi.org/10.1111/j.1545-5300.2000.39408.x>
- Grant, P. (1996). Supporting transitions: How managers can help themselves and others during times of change. *Organisations and People*, 3(4), 38–40.
- Güntner, A. V., Endrejat, P. C., & Kauffeld, S. (2019). Guiding change: Using motivational interviewing within organizations. *Gruppe. Interaktion. Organisation. Zeitschrift für Angewandte Organisationspsychologie (GIO)*, 50(2), 129–139. <https://doi.org/10.1007/s11612-019-00459-z>
- Herrmann, D., Felfe, J., & Hardt, J. (2012). Transformationale Führung und Veränderungsbereitschaft [Transformational leadership and change readiness]. *Zeitschrift Für Arbeits- und Organisationspsychologie*, 56(2), 70–86. <https://doi.org/10.1026/0932-4089/a000076>
- Herscovitch, L., & Meyer, J. P. (2002). Commitment to organizational change: Extension of a three-component model. *Journal of Applied Psychology*, 87(3), 474–487. <https://doi.org/10.1037/0021-9010.87.3.474>
- Hiatt, J. M. (2006). *ADKAR: A model for change in business, government and our community: How to implement successful change in our personal lives and professional careers*. Prosci Learning Center Publications.
- Holt, D. T., & Vardaman, J. M. (2013). Toward a comprehensive understanding of readiness for change: The case for an expanded conceptualization. *Journal of Change Management*, 13(1), 9–18. <https://doi.org/10.1080/14697017.2013.768426>
- Hornstein, H. A. (2015). The integration of project management and organizational change management is now a necessity. *International Journal of Project Management*, 33(2), 291–298. <https://doi.org/10.1016/j.ijproman.2014.08.005>
- Huang, W.-R., & Su, C.-H. (2016). The mediating role of job satisfaction in the relationship between job training satisfaction and turnover intentions. *Industrial and Commercial Training*, 48(1), 42–52. <https://doi.org/10.1108/ICT-04-2015-0029>
- Hülshager, U. R., Feinholdt, A., & Nübold, A. (2015). A low-dose mindfulness intervention and recovery from work: Effects on psychological detachment, sleep quality, and sleep duration. *Journal of Occupational and Organizational Psychology*, 88(3), 464–489. <https://doi.org/10.1111/joop.12115>
- Jones, J., Firth, J., Hannibal, C., & Ogunseyin, M. (2019). Factors contributing to organizational change success or failure. In P. Ordóñez de Pablos, R. G. Hamlin, A. D. Ellinger, & J. Jones (Eds.), *Evidence-based initiatives for organizational change and development* (pp. 155–178). IGI Global. <https://doi.org/10.4018/978-1-5225-6155-2.ch008>
- Judson, A. S. (1991). *Changing behavior in organizations: Minimizing resistance to change*. Basil Blackwell.
- Kanter, R. M., Stein, B. A., & Jick, T. D. (1992). *The challenge of organizational change: How companies experience it and leaders guide it*. Free Press.
- Karp, T., & Tveteraas Helgø, T. I. (2009). Reality revisited: Leading people in chaotic change. *Journal of Management Development*, 28(2), 81–93. <https://doi.org/10.1108/02621710910932052>
- Kato-Beiderwieden, A.-L., Schlicher, K. D., Ötting, S. K., Heppner, H., & Maier, G.W. (2021). Prospektive Kompetenzanalyse (ProKA) – Ein Verfahren zur Einschätzung von zukünftigen Kompetenzveränderungen. [Prospective competency analysis (ProCA) – A procedure for the assessment of future competence changes]. *Gruppe. Interaktion. Organisation. Zeitschrift Für Angewandte Organisationspsychologie (GIO)*, 52, 245–260. <https://doi.org/10.1007/s11612-021-00577-7>
- Kotter, J. P. (1996). *Leading change*. Harvard Business School Press.
- Kotter, J. P. (2014). *Accelerate: Building strategic agility for a faster-moving world*. Harvard Business Review Press.
- Kotter, J., & Ameln, F. von (2019). Agility, hierarchy and lessons for the future. John Kotter on the legacy and future of Change Management. *Gruppe. Interaktion. Organisation. Zeitschrift Für Angewandte Organisationspsychologie (GIO)*, 50(2), 111–114. <https://doi.org/10.1007/s11612-019-00461-5>
- Kübler-Ross, E. (1969). *On death and dying*. Macmillan.
- Lacerenza, C. N., Reyes, D. L., Marlow, S. L., Joseph, D. L., & Salas, E. (2017). Leadership training design, delivery, and implementation: A meta-analysis. *Journal of Applied Psychology*, 102(12), 1686–1718. <https://doi.org/10.1037/apl0000241>
- Lee, G., & Xia, W. (2006). Organizational size and IT innovation adoption: A meta-analysis. *Information & Management*, 43(8), 975–985. <https://doi.org/10.1016/j.im.2006.09.003>
- Lewin, K. (1947). Frontiers in group dynamics: Concept, method and reality in social science; social equilibria and social change. *Human Relations*, 1(1), 5–41. <https://doi.org/10.1177/001872674700100103>
- Lines, R. (2004). Influence of participation in strategic change: Resistance, organizational commitment and change goal achievement. *Journal of Change Management*, 4(3), 193–215. <https://doi.org/10.1080/1469701042000221696>
- Miller, V. D., Johnson, J. R., & Grau, J. (1994). Antecedents to willingness to participate in a planned organizational change. *Journal of Applied Communication Research*, 22(1), 59–80. <https://doi.org/10.1080/00909889409365387>
- Mlekus, L., Paruzel, A., Bentler, D., Jenderny, S., Foullois, M., Bansmann, M., Wöste, L., Röcker, C., & Maier, G. W. (2018). Development of a change management instrument for the implementation of technologies. *Technologies*, 6(4), Article 120. <https://doi.org/10.3390/technologies6040120>
- Momoh, A., Roy, R., & Shehab, E. (2010). Challenges in enterprise resource planning implementation: State-of-the-art. *Business Process Management Journal*, 16(4), 537–565. <https://doi.org/10.1108/14637151011065919>
- Mosadeghrad, A. M., & Ansarian, M. (2014). Why do organisational change programmes fail? *International Journal of Strategic Change Management*, 5(3), 189–218. <https://doi.org/10.1504/ijscm.2014.064460>