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Resilience in the context of multiple adverse circumstances? Leadership capacity and teachers' practice during COVID-19 at schools serving disadvantaged communities

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ABSTRACT

Building and sustaining capacity for organisational learning appears to be a prerequisite for organisational resilience. For schools, organisational learning in crisis situations, such as COVID-19, requires that they have certain learning capacities. Using quasi-longitudinal data, the paper analyses how schools' leadership capacity (as perceived by educators) at schools serving disadvantaged communities (SSDC) at the beginning of the COVID-19 pandemic predicted the educators' practice about a half year after returning to face-to-face-teaching (objectives and expectations regarding student performance and the staff's willingness to innovate). We used data from two standardised surveys of the staff from 35 SSDC in North Rhine-Westphalia, Germany, conducted at the beginning of 2020, and at the end of 2021. The results of multilevel regression analyses showed that a higher leadership capacity at the start of the pandemic predicted a stronger orientation towards performance objectives during distance learning. No associations were found, however, between schools' leadership capacity and the educators' expectations regarding student performance as well as between schools' leadership capacity and the staff's willingness to innovate. Our findings help strengthen our knowledge about the antecedents of successful school improvement in challenging locations during times of crisis.

KEYWORDS

Schools serving disadvantaged communities; leadership; organizational learning; resilience

1. Introduction

There is widespread consensus that the COVID-19 pandemic presented a major challenge to schools, and that schools serving disadvantaged communities (SSDC) were particularly affected by the pandemic (e.g. OECD 2020).

SSDC are teaching a group of students that do not conform to the normative expectations that the education system has for students. Many SSDC, however, do not have the knowledge and structures for professional learning that are needed to give their students an education that strengthens them for their future. As a result, teachers at these SSDC often feel helpless and focus their pedagogical work on compensating the perceived 'deficits' of their students (e.g., Bremm, Klein, and Racherbäumer 2016), which leaves them in a constant situation of adversity (see Órdenes 2018; Zumpe 2022). In the pandemic, therefore, schools in which many educators already perceived their situation as a 'chronic crisis', had to deal with an additional 'adhoc crisis' situation.

Especially in the German-speaking world, there was an almost uniform framing from the very beginning of the pandemic that students from disadvantaged or marginalised communities would therefore inevitably be particularly disadvantaged and 'left behind' during the pandemic (for an overview of the discussion, see Bremm and Racherbäumer 2020). Contemporary research gives the impression that in fact the negative consequences of the pandemic were particularly pronounced at SSDC (e.g. forsa 2021). And yet, there were SSDC that successfully navigated the pandemic (e.g. Schönbächler et al. 2020), were able to *learn* in the context of crisis and change or rearrange their resources and routines in such a way as to emerge stronger (Robert Bosch Foundation 2021) and thus have proven to be *resilient organisations* (e.g. Sutcliffe and Vogus 2003).

Organisational learning in crisis situations, however, requires that schools have learning capacities. One capacity that has been shown to be of particular importance for organisational learning is leadership. We can therefore assume that leadership capacity was also relevant for whether schools were able to deal with the challenges and threats posed by the pandemic in a resilient way (e.g. Grissom and Condon 2021).

However, there has been little research from the German-speaking world that systematically examines whether and to what extent schools with a high leadership capacity were better able to navigate the pandemic than schools with a lower leadership capacity, and especially when these are serving disadvantaged communities. We seek to address this shortcoming by assessing how the leadership capacity at SSDC at the beginning of the pandemic was related to how teachers perceived their practice roughly half a year after returning to face-to-face teaching, which in Germany was one and a half years into the pandemic. We particularly focus on how the educators assessed their schools' learning objectives, their students' ability to learn during the pandemic, and the staff's willingness to innovate at this point in time. To do so, we use data from two standardised surveys of the staff from 35 SSDC in North Rhine-Westphalia, Germany, conducted at the beginning of 2020, and at the end of 2021.

2. Schools serving disadvantaged communities

SSDC have a high proportion of students that tend to have lesser social, cultural, or economic resources than students from more privileged communities (Bourdieu [1987] 2021), which means that they do not conform to the normative expectations of a school system that, in Germany, is grounded in a white, monolingual, middle class milieu (e.g. Hummrich and Terstegen 2020). For SSDC, this means that they work with learning and performance prerequisites that do not fit the expectations of the system, and *habitus* differences between the school and the students. SSDC thus are regularly dealing with adversity because they often do not have the resources and / or strategies needed to attend to the needs of their students (e.g., Bremm, Klein, and Racherbäumer 2016).

Research on organisational learning at SSDC suggests that these often react to the adversities by reducing complexity and focusing on the management of their ongoing perceived crises rather than pursuing more purposeful goals. For instance, they often lack clear goals or a meaningful vision and organisational structures that are geared to collaborating to achieve the goals (Hemmings 2012; Muijs et al. 2004; Orr et al. 2008; Potter, Reynolds, and Chapman 2002). Research of SSDC furthermore suggests that these are particularly vulnerable to pessimistic views of their students and their 'educability' (Valencia 2010) as well as their own abilities to make a difference for these students (McKenzie and Scheurich 2004; Potter, Reynolds, and Chapman 2002). Dealing with adversity (Órdenes 2018; Zumpe 2022), an overemphasis on the (perceived or actual) 'deficits' of their students (Valencia 2010), and the experience of a perceived 'failure' on a regular basis, create pessimistic school cultures marked by a shifting of responsibility for adversities to external circumstances (such as students' families or systemic conditions), resulting in a perceived helplessness and an inability to accept constructive feedback in a situation that the educators believe is not in their control (Hemmings 2012; Klein and Bronnert-Härle 2022).

In the context of the COVID-19 pandemic, this situation of a perceived 'chronic crisis' was accompanied by an adhoc crisis that was framed in the German-speaking context as something that could hardly be solved by the schools (Bremm and Racherbäumer 2020). Research from German-speaking countries at the beginning of the pandemic in spring 2020 showed that from the start, many educators felt that students from marginalised communities would not be able to keep up (forsa 2020; Lorenz et al. 2020), and principals at SSDC were less inclined to maintain academic and curricular standards during the pandemic than principals at schools serving more privileged communities (e.g., Jesacher-Rößler and Klein 2020).

The consequences of this expectancy are evident in recent findings from Germany. In a representative survey of German teachers carried out in September 2021, teachers at SSDC were less likely to report that they used the technical equipment available for distance or hybrid learning, and less likely to agree that

their schools had systematic concepts for getting in contact with students and their families and giving students individual feedback on a regular basis during distance and hybrid learning formats, than teachers at schools serving more privileged communities (forsa 2021). In April 2022 – about one year after most German schools had finally returned to mostly face-to-face-teaching – teachers at SSDC were more likely to agree that they should focus more on the socioemotional needs of their students and less on academic learning, and that their instruction was still based on 'crisis management', than teachers at schools serving more privileged communities (forsa 2022).

These findings show that how teachers perceived the situation of disadvantaged students in general and during the pandemic impacted their teaching and the learning opportunities they offered for their students.

3. Organisational responses to crisis and adversity

Crisis and adversity can trigger different behaviours in organisations. Sutcliffe and Vogus (2003) point out that one possible organisational response to crisis and adversity is to 'reduce the complexity and variety of the information they seek and use to make decisions, consequently narrowing the range of possible behavioral responses' (94). The behaviour described in the previous paragraph, in which SSDC focus their action on 'crisis management' while setting aside academic learning can be seen as such a response of 'reducing complexity'. Sutcliffe and Vogus (2003) illustrate that while this type of response is often foregrounded in crisis literature, research shows that there is another possible way that organisations respond to adversity: Some organisations recover more quickly from the initial shock of a crisis, find ways to adapt more quickly to the new situation and use it to achieve their actual goals, and thus come out of the crisis stronger.

Resilience can be interpreted as the ability to 'bounce back' (Sutcliffe and Vogus 2003, 96) or grow in a crisis situation despite or because of it (Rolfe 2019, 22). *Organisational* resilience means that an organisation has strategies to prepare for possible crisis situations (*anticipation*), mechanisms to cope with the immediate crisis (*coping*), and learn from the crisis (*adaptation*) (Vakilzadeh and Haase 2021).

According to Barton et al. (2020), crises always mean that routines and strategies are thrown into disarray. Responding to a crisis in a resilient way means to review the routines, resources, and strategies an organisation has, and to consider how these can be rearranged (Barton et al. 2020). 'The goal is still to create order from chaos' (Barton et al. 2020, 117), but not by focusing all energy on coping, but by systematically rearranging existing resources and developing new routines to be able to act successfully. Barton et al. (2020) therefore point out that resilience is not 'something you *have*, it's something you *do*' (117). Thus, while 'a crisis in an organization may be a stimulus for intensive organizational learning' (Batorski 2021, 80), *capacity* for organisational

learning appears to be a requisite for organisational resilience (e. g., Orth and Schuldis 2021).

In SSDC, the pandemic created a special situation. Theoretically, the chronic adversity of SSDC also means more opportunities to develop resilient behaviours (Barton et al. 2020). Research shows that many SSDC do not, in fact, 'organize for resilience' in this chronic adversity, but that some actually do. Does that mean that SSDC who were able to respond more resiliently to their chronic adversity before the pandemic were also less likely to respond to the pandemic by reducing complexity? To answer this question, we first need to look at factors for resilient organising in schools.

3.1. Organisational resilience and organisational learning capacities

Responding to adversity and crisis in a resilient way is dependent on the learning capacities of an organisation. Sutcliffe and Vogus (2003) point out that in order to organise for resilience, organisations need (a) 'sufficient resources to build and enhance competence', and (b) structures and processes that 'mobilize [the] mastery motivation system to foster growth and efficacy' (106). The more material, personal, and social resources (such as particular knowledge and competencies of the educators, networks, and support structures) a school organisation has in the context of adversity, and the more diverse these resources are, the greater its room for maneuver in a crisis, and the more likely a school is to find solutions to challenges, have a sense of accomplishment, and have people feel self-efficacious (Sutcliffe and Vogus 2003). 'Organising for resilience' (Sutcliffe and Vogus 2003, 94) therefore is about identifying resources, expanding group knowledge, and diversifying competences and experiences, in order to broaden conceptual scope (Sutcliffe and Vogus 2003, 99–105). In order for the organisation to expand these resources, it needs structures and processes that enable them to do so, such as intellectual stimulation, empowerment, encouraging professional development and the belief in the capabilities of the group, as well as structures that help systematize these processes (Sutcliffe and Vogus 2003, 95).

Models of organisational learning capacities or school improvement capacities used in the school context describe various components that schools need in order to expand resources, bundle them, and apply them systematically (e.g. Marks, Louis, and Printy 2000). According to Marks, Louis, and Printy (2000), schools need capacities in six areas in order to be able to learn: organisational structure, shared commitment and collaborative activity, knowledge and skills, feedback and accountability, teacher empowerment, and leadership. The last capacity, leadership, can be seen as a capacity of its own as well as the bracket that encompasses and influences all of the other capacities. Against this background, *leadership capacity* is particularly relevant for organisational learning in the context of crisis and adversity (e.g. Vakilzadeh and Haase 2021).

3.2. The role of leadership capacity

Organising for resilience and for organisational learning thus necessitates leadership that cares for the socioemotional needs of the students and educators, communicates with the organisations' environment, and translates the demands of the crisis into decisions for the school while *coping* with the crisis (Grissom and Condon 2021; Striepe and Cunningham 2022), but also leadership that facilitates collaborative professional learning, empowers educators and encourages them to repurpose and recombine what they know to find new solutions, and enables them to do so by building learning-focused organisational structures and processes in *anticipation* of possible crises or challenges (e.g. Vakilzadeh and Haase 2021).

Leadership literature describes different types of leadership that are aimed at these latter aspects of anticipation, the most researched type being *Transformational Leadership* (TL; Bass and Avolio 1994). TL is aimed at transforming people, giving them a sense of purpose and instilling in them the wish to as well as enabling them to strive for this purpose. Bass and Avolio (1994) described four key behaviours of TL: Idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration. Research points out that TL can, in fact, have a positive influence on the resilience of organisations and teams (e.g. Santoso, Sulistyaningtyas, and Pratama 2022; Van der Kleij, Molenaar, and Schraagen 2011).

Leithwood, Aitken, and Jantzi (2006) developed a model that focuses on leadership practices specific to schools. TL is thus comprised of (1) *setting directions* in a way that educators feel a sense of purpose, are included in the development of school goals, and understand them as their own, (2) *helping people*, so that they are both inspired and empowered to push forward and try new things, and (3) *restructuring the organisation*, so that educators can collaborate in innovating practice and solving problems, and have their voices heard in decision-making processes (Leithwood, Aitken, and Jantzi 2006).

Several studies have shown that these TL practices can have positive effects on the way educators think about their school and collaborate with each other. In a meta-analysis, Leithwood and Sun (2012) found that TL had positive effects, for instance, on school coherence, shared goals, job satisfaction and commitment, teacher empowerment and teacher tendency to take risks, and teacher use of knowledge – all of which are relevant capacities of a resilient organisation in the face of adversities. A study on the role of TL, school organisational conditions, and teacher factors by Thoonen et al. (2012) suggested that improving TL practices may be an important prerequisite for building school-wide capacity. Sun and Leithwood (2015) moreover looked into studies analysing the specific effects of direction setting, and found that this practice was related to increased job satisfaction and teacher commitment, as well as teacher empowerment and teacher efficacy, thus indicating that giving educators a clear overarching goal

and a strong sense of purpose can help build beliefs that are relevant for how educators perceive challenges and adversities. Qualitative studies from very effective SSDC show that here, too, the categories of setting directions, helping people, and restructuring the organisation (Leithwood, Aitken, and Jantzi 2006) seem to be relevant for how resilient the schools are in the face of the 'chronic' adversity they are facing (for an overview, see Klein and Bronnert-Härle 2022).

Most of the research published so far on leadership in times of crisis has focused on leadership that '[deals] with events, emotions and consequences in the immediate present in ways that minimize the personal and organizational harm with the school community' (Smith and Riley 2012, 69). A few authors have moreover studied leadership for organisational learning in the context of COVID-19. For instance, research from the initial phase of the pandemic in spring 2020 indicates that by affecting the self-efficacy of teachers or the communication structures in schools, TL had an effect on how teachers managed to adapt their instruction during lockdown (Burić, Parmač Kovačić, and Huić 2021; Masry-Herzallah and Stavissky 2021). In an interview study of school leaders who had successfully navigated the crisis caused by the pandemic, McLeod and Dulsky (2021) found that both a strong vision and organisational capacity building were relevant factors for the fact that the leaders were successful. In a study with principals of SSDC, Grooms and Childs (2021) moreover found that an important part of the leadership of principals during the pandemic was to address and reverse deficit thinking of the teachers towards their students, and restructure organisational routines that allowed teachers to collaboratively develop effective instruction for their students.

4. Study design

The preceding sections have shown that in order to get through a crisis like the COVID-19 pandemic and its aftermath, schools need organisational resilience. This necessitates leadership capacities not only for the coping during the crisis, but also for anticipating crisis and for organisational learning during the crisis. This is particularly true for SSDC, as these are often perceiving a 'chronic crisis', which was joined by an 'adhoc crisis' during the pandemic. So far, however, there is no research that analyses whether a strong leadership capacity at an SSDC also meant that educators at that school were less likely to simply reduce complexity, and more able to change their routines and adapt their practice to the new situation. The goal of this paper therefore is to analyse this association. We seek to answer the following research questions:

RQ1: How did educators at SSDC estimate the leadership capacity at their school at the beginning of the pandemic in spring 2020?

RQ2: How did educators at SSDC perceive their situation in fall 2021, about a half year after returning to face-to-face-teaching, with regard to …

(a) their school's staff's goal to maintain academic learning during the pandemic,
(b) their expectations towards their students' ability to learn, and
(c) the school's staff's willingness to innovate?RQ3: How did educators at SSDC with a higher and lower leadership capacity at the beginning of the pandemic differ in their perception of their situation in fall 2021?

To answer these research questions, we use data from a mixed-methods study designed to evaluate the model project 'Talent Schools' in North Rhine-Westphalia, Germany, which is funded by the States' Ministry for School and Education and carried out through the University of Duisburg-Essen and the University of Siegen. The model project aims at supporting SSDCs through the provision of additional resources and the implementation of instructional concepts and strategies designed to enhance students' academic performance, as well as their linguistic and social competence. All of the project schools were secondary schools ($N = 29$ general secondary schools and $N = 6$ vocational schools).

5. Method

5.1. Data and participants

We use data from two standardised online surveys carried out in the same cohort of schools between February and April 2020, as well as between October and December 2021. The first survey covered the initial learning and working conditions at the participating schools at the beginning of the project, including leadership practices as perceived by the educators (teachers and further pedagogical professionals at the schools). The follow-up survey was designed to capture changes and adjustments in the course of the model project, as well as educators' perceptions of learning during the COVID-19-pandemic; i.e. their objectives, their expectations towards their students' ability to learn, and the staff's willingness to innovate. Participation in the survey was voluntary and the survey was completed individually within a time frame of nine weeks. A total of $N = 912$ educators from all 35 schools participated in the initial survey (overall response rate: 27.1%), while $N = 455$ educators from 29 schools participated in the follow-up-survey (overall response rate: 14.8%). The schools were situated in both small and larger cities and differed by their numbers of educational staff involved in the model project ($M = 87.9$, $SD = 41.2$, min: 23, max: 204), Moreover, while all schools were SSDC, the percentage of students exempted from co-paying their learning materials and the number of German language learners per school varied.

5.2. Measures

5.2.1. Leadership capacity

Educators' perceptions of leadership practices at the individual schools were measured in the initial survey with a German adaptation of the *Nature of*

School Leadership Survey (Leithwood, Aitken, and Jantzi 2006; see Klein and Bronnert-Härle 2020). The following five dimensions of leadership practices entered our leadership capacity index: (1) goal-oriented leadership; (2) fostering collaboration, (3) providing a safe learning and working environment, (4) intellectual stimulation, and (5) fostering shared decision-making. In a first step, we constructed five multiple-item mean scales for each dimension of leadership. All items were identical in metric (1 – *do not agree at all*; 5 – *fully agree*).

To confirm the one-dimensional factor structure of each leadership scale, we ran a series of CFA using the SEM-tool in Stata 17.0. For all scales, the CFA revealed an adequate fit of the one-factorial structure on all indices but χ^2 and RMSEA, which both demonstrated less than optimal fit (with RMSEA values between .10 and .15, CFI values between .95 and .99, TLI values between .92 and .96, and SRMR values between .01 and .04).

For each leadership scale, we calculated school-level aggregated means based on the individual teacher ratings in a second step, so that all respondents belonging to the same school had identical values on the different leadership scales. In a third step, we constructed an overall index of leadership capacity for each school. In forming the index, the five composite mean-scales were combined to another mean scale so that the index tapped the different dimensions of leadership capacity. It showed a very good internal consistency (Cronbach's alpha = .95). Exploratory factor analysis indicated that all five subscales loaded on one single common factor (with factor loadings > .84).

5.2.2. Educators' practice a half a year after returning to face-to-face teaching

The follow-up survey contained the items on the educators' perceptions of their schools' learning objectives, their expectations regarding students' ability to learn and the staff's willingness to innovate half a year after returning to face-to-face teaching.

Goal to maintain academic learning: The educators' perceptions of their school's staff's goal to maintain academic learning was measured by four items capturing to what extent schools had made an effort to sustain student learning (source: Project 'COVID-19 – Challenges and Opportunities for School Improvement'; see e.g., Jesacher-Rößler and Klein (2020); example item: 'We did our best during distance learning to ensure that students did not fall behind in their performance.') The response scale ranged from 1 – *does not apply at all* to 5 – *applies fully* (Cronbach's alpha = .79).

Low expectations towards students' ability to learn: The educators were further asked to indicate the extent to which they agreed with three different statements with regard to their students' ability to learn during distance learning (source: Project 'COVID-19 – Challenges and Opportunities for School Improvement'; see e.g., Jesacher-Rößler and Klein (2020); example item: 'The situation under distance learning was so stressful for our students that we lowered our

professional standards in order not to put them under additional strain.') The response format ranged from 1 – *does not apply at all* to 5 – *applies fully* (Cronbach's alpha = .68).

Collective willingness to innovate: The educators were asked to answer six different items capturing the staff's willingness to constantly develop and change educational practice under distance learning following COVID-19 (example item: 'Our school has made a committed effort to embrace the changes brought about by distance learning as an opportunity for renewal and development.') The items were derived from Quellenberg (2009) and slightly modified in order to capture the context of the pandemic (adapted version: Project "COVID-19 – Challenges and Opportunities for School Improvement"; see e.g., Jesacher-Rößler and Klein (2020)) (Cronbach's alpha = .81).

Table 1 provides an overview of the study variables.

5.2.3. Control variables

In the multilevel regression models, we additionally controlled for school type (0 = general educational secondary school, 1 = vocational school), educators' gender (0 = female, 1 = male), their function in school (0 = teacher, 1 = other educator), as well as years of experience at the particular school.

5.3. Analytical strategy

In order to combine the leadership scales from the initial survey with the scales on educators' perceived practices during the pandemic from the follow-up survey, we merged the school-aggregated leadership scales to the follow-up data set ($N = 455$ respondents from 29 of the 35 schools). All respondents who only participated in the follow-up survey but not in the initial survey were assigned the aggregate mean values for their school per leadership dimension. Only educators from schools with at least three participants in both surveys were included ($N = 434$). The following information refers only to this subsample.

The schools of our final analysis sample consisted of 21 general education and five vocational schools. The mean staff size was 91.1 ($SD = 44.0$). A total of 91.1 percent of respondents were regular teachers ($N = 388$), while 8.9 percent were other educators (e.g. social workers, $N = 38$). A total of 66.2 percent of the respondents were female. The respondents had been teaching for $M = 13.2$ years ($SD = 9.4$), and worked at the particular school for $M = 8.0$ years ($SD = 6.9$).

Based on the respondents' mean value on the index of leadership capacity, we categorised the analysis sample into two groups: (1) respondents from schools with low leadership capacity (LLC; values below the mean, $N = 176$ respondents; 39.9%) and (2) respondents from schools with high leadership capacity (HLC; values above the mean, $N = 261$; 60.1%). First, we explored

Table 1. Operationalisation of the study variables.

Scale	Subscale	N° Items	Example Item	Response Scale	Reliability	Source
Leadership						
Transformational leadership practices	Goal-orientated leadership	7	'Leadership at our school gives us a sense of overall purpose.'	1 = do not agree at all; 5 = fully agree	$\alpha = .95$	Klein and Bronnert-Härle (2020), translated and adapted from Leithwood, Aitken, and Jantzi (2006)
	Fostering collaboration	4	'Leadership at our school facilitates effective communication among staff.'	1 = do not agree at all; 5 = fully agree	$\alpha = .91$	
	Providing a safe learning and working environment	4	'Leadership at this school fosters a safe learning environment for all in the school.'	1 = do not agree at all; 5 = fully agree	$\alpha = .87$	
	Intellectual stimulation	5	'Leadership at our school encourages me to try new practices consistent with my own interests.'	1 = do not agree at all; 5 = fully agree	$\alpha = .91$	
	Fostering shared decision-making	4	'Leadership at our school regularly considers our opinions in the decision-making process.'	1 = do not agree at all; 5 = fully agree	$\alpha = .90$	
Teachers' practices during COVID-19						
Objectives and expectations regarding student performance and the staff's willingness to innovate	Goal to maintain academic learning	2	'We did our best during distance learning to ensure that students did not fall behind in their performance.'	1 = does not apply at all; 5 = applies fully	$\alpha = .79$	Project "COVID-19 – Challenges and Opportunities for School Improvement"; see e.g., Jesacher-Rößler and Klein (2020)
	Low expectations towards students' ability to learn		'The situation under distance learning was so stressful for our students that we lowered our professional standards in order not to put them under additional strain.'	1 = does not apply at all; 5 = applies fully	$\alpha = .68$	Project "COVID-19 – Challenges and Opportunities for School Improvement"; see e.g., Jesacher-Rößler and Klein (2020)
	Collective willingness to innovate	6	'Our school has made a committed effort to embrace the changes brought about by distance learning as an opportunity for renewal and development.'	1 = does not apply at all; 5 = applies fully	$\alpha = .81$	adapted from Quellenberg (2009)

Note: Item examples are translated versions of the German items; α = Cronbach's alpha.

zero-order correlations between the school-aggregated leadership scales, the leadership capacity index, and the three outcome variables to provide an overview of the interrelations between the study variables. Second, using Stata 17.0, we conducted a series of multilevel regression analyses (e.g. Snijders and Bosker 2012) to examine the association between schools' leadership capacity at the beginning of the pandemic and educators' practice about a half year after returning to face-to-face-teaching. Since there were missing values on most of our study variables (with the percentage of missing values ranging between 1.8% for educators' function in school and 51.4% for years of experience, and being less than 18% for the three dependent variables), we applied multiple imputation (*MI*, see Rubin 1987). Assuming that missing values were missing at random (Schafer and Graham 2002), we used $m = 100$ imputed datasets on the basis of multivariate normal imputation (MVNI).

6. Results

6.1. Descriptive results

Table 2 provides the means, standard deviations, and zero-order correlations of the study variables. We calculated Spearman correlations, since Shapiro–Wilk tests indicated that the study variables significantly deviated from a normal distribution ($p < .001$). The dichotomous leadership capacity index was positively and statistically significantly correlated with the goal to maintain academic learning ($r = .16$, $p = .004$). This was also the case for all single leadership scales except providing a safe learning and working environment. Furthermore, participative decision-making was statistically significantly

Table 2. Means, standard deviations and zero-order correlation matrix of the study variables ($N = 329–434$).

	M	*SD*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1. Goal-oriented leadership [a]	3.78	.46								
2. Fostering collaboration [a]	3.64	.48	.91***							
3. Providing a safe learning and working environment [a]	3.43	.56	.80***	.71***						
4. Intellectual stimulation [a]	3.39	.38	.89***	.81***	.68***					
5. Fostering shared decision-making [a]	3.56	.41	.86***	.90***	.57***	.80***				
6. Leadership capacity (low *vs*. high) [a]	3.56	.42	.84***	.85***	.66***	.71***	.85***			
7. Goal to maintain academic learning	3.88	.77	.15**	.15**	.05	.13*	.17**	.16**		
8. Low expectations towards students' ability to learn	3.97	.70	−.09	−.09	−.03	−.07	−.12*	−.02	−.10	
9. Collective willingness to innovate	3.62	.69	.07	.05	−.05	.02	.09	−.02	.33***	−.16**

Note: *M* and *SD* are used to represent mean and standard deviation, respectively. [a] School-level aggregated scales. Spearman correlation coefficients are shown; *$p < .05$. **$p < .01$. ***$p < .001$ (two-tailed).

related to low expectations toward students' ability to learn, meaning that educators who perceived a lower amount of participative decision-making were more likely to agree that their students had *not* been able to learn during distance learning.

With regard to *RQ1*, that is, how educators at SSDC estimated the leadership capacity at their school at the beginning of the pandemic in spring 2020, Table 2 shows that on average, the educators reported fairly high levels of agreement for all scales. The highest scores could be observed for goal-orientation ($M = 3.78$, $SD = .46$), followed by fostering collaboration among staff ($M = 3.64$, $SD = .48$).

The educators further tended to assess the overall leadership capacity at their schools positively ($M = 3.56$, $SD = .42$). Independent samples *t*-tests showed that the goal to maintain academic learning during the pandemic differed systematically between schools with HLC vs. LLC (LLC: $M = 3.83$, $SD = .73$, HLC: $M = 4.06$, $SD = .66$, $t(361) = -3.08$, $p = .002$). There was no difference, however, in teachers' expectations toward their students' ability to learn (LLC: $M = 3.89$, $SD = .78$, HLC: $M = 3.87$, $SD = .77$, $t(379) = .32$, $p = .746$) and the staff's willingness to innovate (LLC: $M = 3.64$, $SD = .70$, HLC: $M = 3.61$, $SD = .69$, $t(356) = .32$, $p = .749$).

As for *RQ2*, that is, how the educators perceived their situation about a half year after returning to face-to-face-teaching in fall 2021, the respondents tended to agree that their expectations regarding their students' ability to learn during the pandemic were rather low ($M = 3.97$, $SD = .70$). At the same time, they also agreed that it was important to maintain academic learning during the pandemic ($M = 3.88$, $SD = .77$). Their assessment of the collective willingness to innovate at their school tended to be positive as well ($M = 3.62$, $SD = .69$).

6.2. Results from multilevel regression analyses

After imputation, we tested for substantial intra-class-correlation (ICC) by averaging across all obtained ICCs from the $m = 100$ imputed data sets for each dependent variable. The ICC for the goal to maintain academic learning, low expectations toward students' ability to learn, and collective willingness to innovate was .13, .22, and .11, respectively, and all of the variance components in the empty models were statistically significant, suggesting that the multilevel character of the data should not be ignored.

To answer *RQ3*, we performed a series of random intercept regression models with the three variables of educators' practice during the pandemic as dependent variables. Table 3 displays the results of the three regression models (Model 1 to Model 3). In all models, the binary variable of LLC *vs*. HLC served as our central independent variable, which we entered together with our set of control variables. The results of Model 1 showed that a higher (compared to lower) leadership capacity was statistically significantly associated with the

Table 3. Multilevel random intercept models predicting teachers' practices one and a half years into the pandemic.

	Model 1 Goal to maintain academic learning					Model 2 Low expectations toward students' ability to learn					Model 3 Collective willingness to innovate				
			CI					*CI*					*CI*		
	b	*SE*	*LL*	*UL*	*p*	*B*	*SE*	*LL*	*UL*	*p*	*b*	*SE*	*LL*	*UL*	*P*
Fixed effects															
Individual level															
Intercept	3.845***	.194	3.465	4.225	< .001	4.161***	.218	3.735	4.588	< .001	3.19***	.196	2.81	3.58	< .001
Gender (ref. female)	−.267***	.073	−.411	−.123	< .001	−.007	.075	−.153	.140	.927	−.006	.078	−.160	.147	.934
School type (ref. general education school)	−.191	.150	−.103	.485	.203	−.404	.214	−.824	.015	.059	.004	.163	−.315	.323	.981
Function (ref. teacher)	.026	.140	−.248	.300	.854	−.097	.142	−.375	.182	.496	.353**	.131	.096	.609	.007
Years of experience at school	−.006	.007	−.020	.007	.355	.006	.008	−.009	.021	0.441	.001	.007	−.012	.014	.868
School level															
Leadership capacity (ref. low)	.284*	.116	.057	.511	.014	−.131	.163	−.450	.189	.422	−.009	.126	−.255	.238	.946
Random Effects															
Level 2 variance	.044	.026	.014	.139		.120	.044	.058	.248		.238	.054	.153	.371	
Level 1 variance	.423	.033	.364	.492		.476	.035	.411	.550		.651	.026	.602	.703	
Statistics	F (5, 11122.1) = 3.67, p = .003					F (5, 11984.5) = .87, p = .501					F (5, 12170.5) = 1.41, p = .217				

Note: *p < .05. **p < .01. ***p < .001; Level 2: N = 26, Level 1: N = 434; data set with m = 100 imputations.

goal to maintain academic learning as reported by the educators ($b = .284$, $SE = .116$, $p = .014$). In addition, male gender was negatively associated with the goal to maintain academic learning ($b = -.267$, $SE = .073$, $p < .001$). The results in the second model (Model 2) showed no significant associations between educators' low expectations toward students' ability to learn and the independent variables of interest. Finally, the third model (Model 3) indicated that there was no statistically significant association between leadership capacity and collective willingness to innovate ($b = -.009$, $SE = .126$, $p = .946$). Other pedagogical professionals, however, perceived a higher collective willingness to innovate at their school, compared to teachers ($b = .353$, $SE = .131$, $p = 007$).

Additional regression models in which we entered the five school-aggregated leadership scales separately as our central predictor variables showed that none of them reached statistical significance; however, fostering collaboration was significant at the 10%-level ($b = .217$, $p = .054$) in the model predicting the educators' goal to maintain academic learning.

7. Discussion

Using quasi-longitudinal data, we addressed the question of how the leadership capacity at SSDC at the beginning of the COVID-19 pandemic was related to educators' perceptions of their school's learning objectives, their students' ability to learn during the pandemic, and the staff's willingness to innovate roughly a half year after returning to face-to-face teaching. This is one of the first empirical studies from the German-speaking world that systematically examines whether and to what extent SSDC with a high leadership capacity were better able to navigate the pandemic than schools with a lower leadership capacity.

While on average, educators had a rather positive view of the leadership capacity at the beginning of the pandemic (*RQ1*), we were able to distinguish between schools with low *vs*. high leadership capacities. Moreover, educators were very positive about their schools' goal to maintain academic learning and their school's staff's willingness to innovate, but rather pessimistic regarding their students' ability to learn during the pandemic (*RQ2*). Multilevel regression models revealed that educators at schools with a higher leadership capacity at the beginning of the pandemic showed greater efforts towards maintaining academic learning about a half year after returning to face-to-face-teaching, compared to schools with a low leadership capacity (*RQ3*).

Our findings should be interpreted keeping some limitations in mind. First, our data is based on a sample of SSDC that had already been pre-selected for a model project by the States' Ministry for School and Education. Consequently, the schools may exhibit certain features (e.g. more contact with educational administration and research) and they receive special resources for school

improvement, so that the results might be different in a different sample of SSDC. Our results must, therefore, be regarded as exploratory, and should be replicated in larger samples of schools. Second, we relied solely on educators' subjective ratings of both leadership capacity and teacher practice during the pandemic. Future studies should rely on more objective measures, such as observations, or apply multi-perspective ratings or mixed-method approaches. Third, due to the low response rate to the standardised online surveys, the sample and school-level constructs might not validly represent the schools' total personnel. In this context, our sample might be biased, for instance, towards teachers who felt less stressed or had more time.

With these limitations in mind, our results are partially compatible with research from other contexts showing that TL capacities affect school organisational conditions in general (Leithwood and Sun 2012; Thoonen et al. 2012) and in times of crisis (Masry-Herzallah and Stavissky 2021). While our results have shown that leadership capacity appeared to be important for promoting educators' goal to maintain academic learning during the pandemic, it seemed unrelated to educators' expectations towards their students' ability to learn and their willingness to innovate in the face of the pandemic. On the one hand, the documented limited influence of leadership capacity may question the importance of TL practices at SSDC in the German context for successfully managing and adapting to events of crisis. Future studies should have a closer look at which factors are important for teachers' willingness to repurpose and recombine what they know to find new solutions in SSDC, apart from leadership practices. Prior research has shown, for example, that teacher motivational factors play a key role that might further be enhanced by improved leadership (Thoonen et al. 2012).

It is, on the other hand, relevant to distinguish the type of teacher variables that we observed. One of them described a specific goal for the pandemic (maintaining academic learning) and thus a more 'tangible' aspect, whereas the other two referred to professional attitudes (willingness to innovate) and beliefs about the 'schoolability' of the students during the pandemic. While the perceived leadership capacity at the school was predictive of the more 'tangible' specific goals that teachers had one and a half years into the pandemic, it was less predictive of the teachers' attitudes and beliefs. Our descriptive results showed that even the school-level aggregated score of intellectual stimulation, a leadership practice that is directly aimed at the innovativeness of those led, was not related to either of these two perceptions. Our sample does not allow us to examine this relationship at the individual level; however, our data show that whether an educator is at a school whose leaders are on average perceived as intellectually stimulating or not, has no relevance to how this educator assesses the innovativeness of the staff. This finding is contrastive to the findings reported by Leithwood and Sun (2012) and could be an indicator of a generally lower effectiveness of leadership that aims at the

pedagogical autonomy of teachers in the flat hierarchies of German schools (see Klein and Bronnert-Härle 2020).

In line with prior research from SSDC, our results showed that – regardless of the school's leadership capacity – the educators reported that they expected major limitations to their students' ability to learn independently, which was flanked by a lowering of professional standards (e.g., Lorenz et al. 2020). It should be emphasised that we only measured the educators' expectations, not the actual ability of the students. At the time of our survey, neither the schools nor the researchers in this project had objective data about the students' ability to learn during the pandemic. Interestingly, our data showed that the educators' expectations towards their students' ability to learn were unrelated to the school community's goal of maintaining academic learning. Low expectations of students' ability to learn independently can generally be understood as part of an institutionalised set of norms that emphasise the individual deficits of the students at SSDC (Khalifa 2018; Valencia 2010). However, our data indicate that even when leadership did not affect these norms, it had an effect on what teachers strived to achieve during the pandemic. As a result, we can assume that while leadership did not affect the general beliefs of the educators about their students, it affected how resilient the organisation was with respect to maintaining its greater goals during the pandemic, rather than reducing complexity.

Our results need to be interpreted with caution since schools' leadership capacity was not consistently related to our three dependent variables that furthermore tapped different aspects of organisational resilience during the pandemic. Alternative modelling of leadership revealed that the estimated coefficients were largely insensitive to changes in model specification: When the school-aggregated continuous predictors of the single leadership scales were used instead of the binary variable on leadership capacity in the multilevel models, no statistically significant associations were observed in Models 2 and 3, while the effect of fostering collaboration was marginally significant in Model 1. Nevertheless, the obtained coefficients for the leadership scales as well as for leadership capacity in Models 1 and 2 revealed quite strong associations with the dependent variables; due to a rather small level-two sample size, however, there might have been too little power on this level in order for the coefficients to reach statistical significance (Snijders 2005, 2006). Future studies should test these relationships using larger samples of schools.

8. Conclusion

In sum, the results showed that the role of leadership capacity for educators' practice during the pandemic was altogether moderate in the schools of our sample. It remains unclear whether schools' leadership capacity is predictive

of other organisational practices, such as collaboration among staff, teacher motivation, or teaching practices during distance learning, or whether leadership practices underwent significant changes during the pandemic that played a larger role in teachers' practices roughly two years into the pandemic. Therefore, future research should take a closer look at other indicators of organisational resilience, and at the changing shape and role of leadership as a possible result of *'doing resilience*' (Barton et al. 2020, 118).

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