

# Adopting to the virtual workplace: identifying leadership affordances in virtual schools

Identifying  
leadership  
affordances

Sara Willermark

*University West School of Business Economics and IT, Trollhattan,  
Sweden, and*

Anna Sigridur Islind

*School of Computer Science, Reykjavik University, Reykjavik, Iceland*

Received 3 May 2022  
Revised 1 September 2022  
Accepted 7 September 2022

## Abstract

**Purpose** – This study aims to explore virtual leadership work within educational settings in the light of social disruption. In 2020, a global pandemic changed the way we work. For school leaders, that involved running a virtual school overnight. Although there is a stream of research that explores leadership in solely virtual communities, there is a gap in the literature regarding practices that transition from analog to virtual practices and the changes in leadership in those types of work practices.

**Design/methodology/approach** – The data gathering method constitutes a questionnaire to explore school leaders' experiences of virtual work and virtual leadership in light of social disruption. One hundred and five Swedish school leaders answered the questionnaire covering both fixed and open questions.

**Findings** – The results show that school leaders' general experiences of transition to virtual school have worked relatively well. We show how the work changes and shift the focus in the virtual workplace.

**Originality/value** – The author's contributions include theorizing about leadership affordances in virtual schools and providing implications for practice. The authors summarize our main contribution in five affordances that characterize virtual leadership, including a focus on core activities, trust-based government, 1:1 communication with staff, structure and clarity and active outreach activities. The results could be interesting for understanding the radical digitalization of leadership in the digital workplace.

**Keywords** Affordances, Virtual leadership, Virtual School, Digitalization of work practices,

**Paper type** Research paper

## 1. Introduction

With the outburst of the global pandemic, daily routines such as going to work or school were disrupted. In an educational context, the COVID-19 crisis changed the educational landscape, causing new working conditions for school personnel (Aktan and Toraman, 2022; Harris and Jones, 2020; Willermark, 2021b; Zhao, 2020) and students (Lucas *et al.*, 2020; Rabayah and Amira, 2022). In a Swedish high school context, school leaders faced a new situation that challenged established practice of the way they conducted work as the schools

---

© Sara Willermark and Anna Sigridur Islind. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licenses/by/4.0/legalcode>

*Statements and declarations.* The work has been financed by the Knowledge Foundation, Sweden. The authors declared no conflict of interest.



---

were moved to virtual settings (Willermark and Gellerstedt, 2022; Willermark and Högberg, 2022). The swift change caused “social disruption,” i.e. a radical transformation of social life, in which the old convictions are replaced, and something new is emerging (Vollmer, 2013). Although increased digitalization of school settings has been on the agenda for decades (Olofsson *et al.*, 2021), distance work is neither a mainstream element in primary nor secondary education in Sweden. Instead, the digitalization of schools has aimed at developing teaching and administration in the context of brick-and-mortar schools. The digitalization of schools has been described as a multidimensional and complex process spanning technological, pedagogical and administrative aspects of the organization (Lindqvist and Pettersson, 2019). However, these multidimensional aspects, especially related to leadership within such complex organizations, have not been researched to a large extent. Leadership within such a context can be referred to as virtual leadership. Virtual leadership is emphasized as crucial for the school’s digitalization. The importance of a clear vision, a systematic implementation plan and strategies for disseminating good pedagogical innovations have been highlighted as crucial aspects for achieving a successful digitalization (Islam and Grönlund, 2016; Shapley *et al.*, 2010). Nevertheless, little is known about the work involved in leading virtual schools and how the work of school leaders is affected by the way school leadership is carried out in practice (Agélii Genlott, 2020). As of today, there are some emerging insights about the work of virtual leaders within educational settings brought on by COVID-19. That new stream of research stresses that the principles of fruitful leadership, such as setting directions, building relationships and developing the organization, for example, by building a collaborative culture, remain vital (Leithwood *et al.*, 2020). Furthermore, because of the disruption, distributed leadership has gained ground to address the challenges by collaborating, learning and networking their way through different kinds of issues (Azorin *et al.*, 2020). From that, it can be gathered that different environments afford, i.e. offer, other possibilities of acting as a leader and the virtual and distributed leadership needs to be further examined. The purpose of this study is to explore the work of virtual leaders within educational settings in the light of social disruption. The research questions are as follows:

*RQ1.* How do school leaders perceive the transition to virtual school?

*RQ2.* What characterizes virtual leadership work in the virtual school?

## 2. Related research

Research on educational technology leadership has emerged since the 2000s (Yuting *et al.*, 2022). Still, recent literature reviews suggest that although the importance of digital leadership is highlighted, research on strategic leadership in schools is limited and needs to be further addressed as a field of research (Pettersson, 2018; Willermark, 2021a). Transitioning from conducting work in a brick-and-mortar to a virtual setting entails significant adjustments. For example, we know that there are fundamental asymmetries that are inherently embedded in video meetings. These observations even date back to 1992 (Heath and Luff, 1992), observations that are still valid today. The way the social and the technical interact and co-create an enabling environment is an essential aspect of furthering the knowledge of virtual leadership (Rüller *et al.*, 2021). The move from a physical brick-and-mortar organization to a virtual click-and-mortar organization is described in Bejleri and Fishta (2017). The virtual click-and-mortar organization, according to them, is an organization that provides its services online, through online representations and with the help of digital technology. Virtual organizations consist of virtual work. Virtual teams

perform the virtual work, but there has been a sizeable withstanding debate on synchronicity in such teams. On that note, [Burma \(2014\)](#) offers the view that it can either increase productivity or decrease productivity as virtual organizations, especially those working asynchronously, can enhance success in general. Still, it poses serious leadership challenges, and if the leadership deteriorates or is received as ill-structured, the staff can become disenfranchised and the team can more easily become dissatisfied. Independent of the technology configurations in place, the staff is the fundamental resource, and if the leadership is not well structured and delicate at the same time, the staff more easily fail to deliver their work ([Kohntopp and McCann, 2020](#); [Makarius and Larson, 2017](#)).

In a recent paper, [Rüller \*et al.\* \(2021\)](#) show that creating socio-technical interventions to support learning in any form can come with both challenges and wins. They show that it is vital to include the relevant stakeholders in educational intervention to facilitate an enabling infrastructure that can sustain over time and serve the people involved ([Rüller \*et al.\*, 2021](#)). In another study of virtual meetings, [Saatçi \*et al.\* \(2020\)](#) show that in distributed meetings, the interaction patterns are shaped by the social dynamics and the way interactions are formed between the participants within that meeting and enabled by the technical infrastructure that enables the virtual meeting on the one hand, and the technology that is weaved into the topic of the meeting on the other hand. They also show the importance of leadership within virtual meeting settings and show that turn-taking is a true, under-researched problem within the virtual meeting structure ([Saatçi \*et al.\*, 2020](#)). They do not, however, fully research the leadership role over time but instead focus more on leadership within a meeting.

Good leadership, whether virtual or face-to-face leadership, is often defined as the role of a person that influences a community and that the leader helps facilitate the members of a community to attain a high level of activity, quality interactions and attentive moral ([Huffaker, 2010](#)). The literature on traditional leadership is vast compared to the literature on virtual leadership, although there is some literature on virtual leadership. However, that literature is mostly in connection to online communities and the leadership of those ([McEwan and Gutwin, 2017](#)). Along those lines, within online communities, strong virtual leadership has been proven to be connected to a more satisfied crowd ([Ho and Huang, 2009](#)), and leadership in virtually and distributed group settings has been connected to higher motivation, more loyalty and increased cohesion within the group ([Yee, 2006](#)). Problems with leadership, again in online settings, have been connected with the distributed crowd failing to comply with their shared goals, leading to disruption within the group and a lower level of satisfaction for those that belong to the community ([Luther and Bruckman, 2008](#)). Furthermore, research has shown that for people to feel connected in an online setting, enthusiastic leaders are gatekeepers and less vocal leaders have a lower level of influence ([Koh \*et al.\*, 2003](#)). Again, this is from research on online communities and gameplay. Moreover, [Blanchard and Markus \(2004\)](#) suggest that for virtual settings to thrive and for research on virtual closeness to be further developed, the leader behavior and the role of the leader should be explicitly illustrated in research papers on virtual communities. Even though these aspects shown above are mostly connected to digital leadership in online communities, and although these papers originate from purely online settings, we would like to rely on those insights and extend the research on virtual leadership with novel research from the social disruption that COVID-19 brought through our study within Swedish schools. As we see it, the role of the leader and the nature of leading in an online or hybrid setting affords other aspects compared to the traditional leadership in a school setting. The pandemic changed life as we know it; it also changed the way schools are led and changed what the role of school leaders affords. Considering that, next, we would like to introduce the theoretical lens of affordances.

---

### 3. Theory

The theory of affordances is widely used to analyze changes in work settings (Bardram and Houben, 2018; Cabitza and Simone, 2012; Gross, 2013). Affordances were introduced by Gibson (1977) and refer to what the environment offers the individual. A classic example is a chair that affords sitting on, standing on, throwing, etc. The concept has engaged researchers in different disciplines (Gaver, 1991; Holmberg, 2019; Norman, 1988). According to Gibson, affordance constitutes the action possibility available in the environment to an individual, independent of the actor's ability to perceive it. Thus, the existence of affordance is independent of the individual experiences and culture, whereas the ability to perceive the affordance can be contingent on these, and an individual may need to learn to discriminate the information to perceive directly. Thus, Gibson makes a distinction between *affordances* which refers to the possibilities for actions that a specific environment offers an individual and the *perceptual information* that specifies affordance for the affordance to be directly perceived (McGrenere and Ho, 2000). Building on Gibson's work, Gaver (1991) explores the relationship between affordance and perceptual information about affordance by presenting a framework in which he identifies four possible combinations for the occurrence or lack of affordances. *False affordances* mean that an action is not possible, although perceptual information signals a possible action, e.g. placebo buttons in elevators. *Hidden affordances* mean that the affordance "is there" but the perceptual information is not available, e.g. a hidden door. *Correct rejection* means that neither affordance nor perceptual information exists. *Perceptible affordance* occurs when an affordance exists, and the perceptual information signals the possibility. The lens of affordances has been used to explore the relationship between people and their environment in various contexts. Affordances have also received critique for being too ambiguous to be analytically valuable (Oliver, 2005) and Evans *et al.* (2017) argue that there is a need for increased clarity in concept use to coordinate how affordances are conceptualized and studied to build upon previous findings. In an educational context, Willermark and Isind (2022) explored teachers' affordances of teaching in a virtual classroom and explored what activities, interactions and procedures the virtual classroom affords. The results showed that the virtual classroom afforded more structure, more one-to-one communication with students and more formalized reconciliations compared to the traditional classroom. Holmberg (2019) constitutes another recent example in an educational context, where affordances are used to explore how teachers use digital technology as tools for pedagogical purposes. It includes understanding how different digital technologies afford respective constrain on pedagogical intentions, choices and actions. The affordances of digital technology are often multilayered and *opaque* i.e. they are not immediately apparent. Different teachers, as well as students, will probably perceive different affordances in the same technology (Holmberg, 2019). Isind *et al.* (2019) introduce the concepts of two-sided and multisided affordances to theorize about the complexity when heterogeneous actors cooperate in a practice. From an empirical case in health care, they show how the affordances of consultation practice differed between nurses and patients. In the same way, the affordances of a virtual school could differ between school leaders, teachers and students. In this study, affordances are used to explore the school leaders' side, when schools transit from brick-and-mortar to virtual. Thus, when our environment changes, so do affordances, which means that an individual can have more or fewer opportunities for action.

### 4. Methodology

On March 11, 2020, the world health organization declared COVID-19 a global pandemic. To reduce the pandemic's damaging effect, entire communities shut down. Schools around the

world shut down, school leaders and teachers had to transition to working from home and students switched to distance learning. On March 17, the Swedish government decided to close Swedish high schools. On May 29, 2020, the Minister of Education announced that from June 15, 2020, schools should return to teaching in brick-and-mortar schools, to close again in December 2020 due to the increased spread of infection. This study explores school leaders' experiences from the first period of transition to virtual schools. Sweden is frequently positioned as a digital front-runner both in a European and a global context (Randall and Berlina, 2019), and it is reflected in the education system through policy reforms and development initiatives (Olofsson *et al.*, 2021). In the case of Sweden, digitalization initiatives are distinctive in several ways. The digitalization of schools has influenced policy since the 1960s (Olofsson *et al.*, 2021), and since then, many state and local initiatives have been initiated (Willermark, 2018).

#### 4.1 Data collection and analysis

A questionnaire was chosen to explore school leaders' experiences of virtual work and virtual leadership in light of social disruption. An online questionnaire was developed containing a total of 13 questions covering both fixed and open questions based on three themes (1) working and learning environment in the virtual school; (2) opportunities, problems and lessons learned; and (3) leadership in the virtual school. The questionnaire was available for two weeks, between weeks 20 and 22 of the year 2020. A strategic selection was applied, which meant a distribution of respondents across the country. The questionnaire was distributed via email to a total of 143 school leaders scattered around Sweden and received 105 answers, which means a response rate of 73%. The data analysis was carried out to make a rich analysis possible and was iterative. Initially, an overview of the data was created, which meant that statistics were compiled and reviewed, and the first reading of the free text answers was carried out in its entirety. Then, more analysis was carried out, with slightly different procedures for the two research questions. Overall, the analysis followed three major steps, as illustrated in Figure 1. To explore how school leader perceives the transition to virtual school, theme one and two from the questionnaire were used to explore the shift to a virtual school from a variety of perspectives. To interpret the descriptive statistics, the free text answers were repeatedly read and clustered according to emerging themes by an inductive approach (Järvinen, 2012). To explore what characterizes leadership in the virtual school, theme three was used, which consisted exclusively of free-text answers. In this stage, the analysis involved roughly clustering the free text answers to

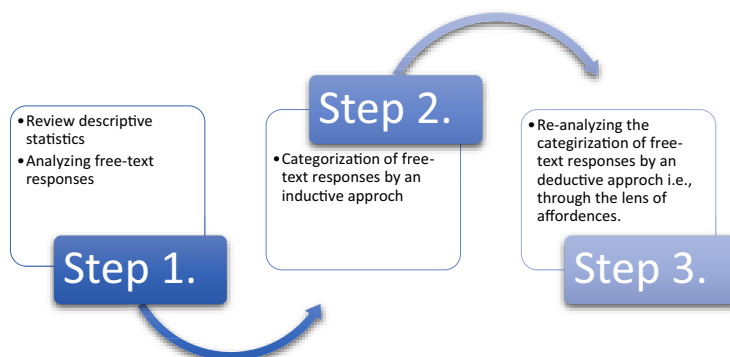


Figure 1.  
Data analysis

identify different perspectives on school leaders' experiences, i.e. different types of opportunities and problems linked to, for example, workload, control, etc. Thereafter, the clustered free-text answers were classified into emerging categories to identify the occurrence and type of response in the qualitative data. In this process, the analysis software MAXQDA, supporting computer-assisted mixed methods data, was used. The focus was on capturing the essence that characterizes the traditional and the virtual school based on the established categories. In this phase, the analytical lens of affordances was used to extract the leadership affordances of the virtual school on the one hand and of the traditional school on the other hand, from the school leader's perspective. In the results section, the quotes from the open-ended options are coded with R (=respondent) and the number of the school leader behind the quote.

### 5. Results

First, school leaders' general perception of the transit to running a virtual school is presented, followed by leadership characteristics in the virtual school.

#### 5.1 Transit to a virtual school

As for school leaders' general experiences of transition to virtual school, a total of 89% state that they perceive that the distance period has worked very well or pretty well (Table 1).

Among the free text answers, school leaders give different explanations. One important explanation is that although the upcoming situation was unexpected, the schools were relatively well prepared to handle the situation. Previous investments in digital

Question	Scale					Total
	Very well	Pretty well	Ok	Pretty bad	Very bad	
Overall, how do you perceive that distance education has worked?	38.7%	50%	10.4%	0.9%	–	100%
How do you perceive that your contact with staff, students and parents has worked after the transition to a virtual school?	28%	54%	13%	5%	–	100%
How do you feel that the collaboration between teachers and student health has worked after the transition to a virtual school?	39.6%	39.6%	16%	4.8%	–	100%
Question	Scale					Total
	To a Very Large Extent	To a Large Extent	To some extent	To a small extent	To a Very Small Extent	
Do you feel that you have designed processes and methods during this period that can support the school's continued development work when you return to regular activities?	34.9%	46.2%	17%	1.9%	–	100%
Do you perceive that you have strengthened your own digital competence during the shift to a virtual school?	16%	30.2%	39.7%	11.3%	2.8%	100%
Do you perceive that your employees' have strengthened their digital competence during the shift to a virtual school?	39.6%	36.8%	21.7%	1.9%	–	100%

**Table 1.** Distribution of results from fixed response options  $N = 105$

infrastructure, professional development initiatives and established virtual working methods are emphasized as important. Furthermore, school leaders refer to positive responses from employees, students and parents as proof of a successful transformation, as illustrated by:

I think it has worked very well given the circumstances. We receive very pleased emails from parents who are grateful that we arrange it so well for the students and that the information is good (R44).

School leaders who stated that the transition worked “OK” stress difficulties related to lack of interaction and communication with students and parents to some degree among staff, as illustrated by; “It works well for staff. As for students and parents, it often worked a little worse” (R55) or “The digital meeting cannot compete with the physical.” (R46). A respondent states that the distance period has worked “pretty bad” and provides a rather detailed explanation, as illustrated by:

We lose many students who are dependent on our presence and our support. Those who are unable to take responsibility on their own and motivate themselves/. Also, we see a clear increase in boredom, and depression-like conditions when students sit alone. Many students, including high achievers, lose motivation. As a collective, teachers have also suffered from a real lack of motivation. Several [teachers] express that one would not work as a teacher if distance education was a permanent or long-term solution (R12).

A clear majority of the school leaders (82%) state that their contact with staff, students and parents has worked after the transition to a virtual school has worked very well or well. Recurring school leaders describe how they have managed to establish good contact through structured arrangements via virtual meetings – both with teachers and with students and that it requires active and conscious work. In cases where difficulties have been stated in the interaction, it is usually a matter of having previously had difficulty establishing contact with students or parents and that the difficulties have intensified in the shift to a virtual school. Similarly, 79.2% of the school leaders perceive that the collaboration between teachers and student health has worked very or pretty well, which is they often relate to established routines and good structures. The free text answers show that student health has been given a clear overall support assignment around pedagogical issues together with the teachers. In some cases, student health has also supported calling and motivating absent students.

Most of the school leaders state that they have designed processes and methods that can support the school’s continued development work when returning to regular activities. Among the free-text answers, school leaders express that it will continue to be interesting to have virtual meetings with parents and with students who cannot participate in teaching or attend meetings. Furthermore, school leaders point out the possibilities of continuing to have distance education as an opportunity for teachers to conduct teaching, for example, in the event of a mild illness to avoid substitute or canceled lessons, as illustrated by: “not all meetings have to take place IRL [In Real Life], they work perfectly fine on Meet or other platforms, which saves time” (R37). As for the development of virtual competence in the transition to virtual school, school leaders estimate that teachers have developed more than themselves. Many school leaders describe that they had solid virtual competence before the pandemic and therefore do not experience a steep learning curve, as illustrated by; “We managed the rapid transition in the school system due to a high level of digital competence” (R18) and “High level from the start” (R51) At the same time, many school leaders describe an intensification of digitalization and that the threshold has been lowered to use digital tools and methods, regardless of their point of departure, as illustrated by; “As I said before,

---

we were already ‘on the track’ before the pandemic. But sure, I have found some new software and new applications” (R39). Similar patterns can be seen in the relationship to teachers’ development of virtual competence. School leaders state that their teachers already have good virtual competence, as illustrated by: “For some teachers, this has been a learning process, especially in terms of being creative with alternative teaching using technology. But overall, the school unit’s staff has worked with digital aids in teaching for a long period” (R92). Others describe how teachers who previously avoided digital tools have been forced to digitalize their teaching practice. Interestingly, in 18 cases, school leaders give examples of how the transition to virtual school explicitly has strengthened their leadership. For example, they describe how pedagogical leadership has come to the forefront; how they gained new competencies and perspectives as well as increased self-confidence, as illustrated by; “It has clarified how our organization works and I have gained better insight into my leadership” (R24) or “For the better, many people think that I acted very well, quickly and professionally, which provided me with security” (R104). In five cases, school leaders express that the transition means a weakened leadership with reduced motivation for their work as a result of lacking essential relational aspects of the leadership when it becomes technology-mediated, which can be illustrated by; “I did not feel comfortable in this situation, my leadership is based on good relations and to identify problems, which has now become much more difficult” (R81).

Some school leaders paint the picture of never-ending working days in the virtual school, with increased involvement in tasks of different dignity. In nine cases, school leaders expressed an increased workload due to the transition to running a virtual school. It can be traced both to the crisis management as such but also due to increased documentation and follow-up from authorities. However, school leaders also describe a less fragmented working situation and how they, for the first time in a long time, had the opportunity to reflect on their leadership and organization and be able to end the working day on time. In six cases, school leaders report a decreased workload with a less fragmented working day and fewer interruptions, providing more time to reflect upon their work and support the staff, and more cohesive working hours, as illustrated by:

[ . . . ] this period, I have been able to focus more on my staff and guide them more than before [ . . . ] In the daily work when the school is in a normal state, the days consist of very many student matters and there is a persistent knock on the door, but during this time more time has been spent on pedagogical discussions, supporting the teachers in their distance learning as I have a lot of experiences in that. We have had closer follow-ups, taking advantage of each other’s experiences [ . . . ]. No matter how strange it sounds, we have done something positive out of this and we have found time to support each other (R84).

## 5.2 Leadership characteristics in the virtual school

A total of five main categories are identified, which made it possible to analyze aspects of leadership affordances in the virtual classrooms from the school leader’s perspective (see [Table 2](#) for an overview of categorization).

**5.2.1 Priorities in virtual leadership.** In the virtual school, the focus and priorities of the task have shifted. School leaders describe how they have re-evaluated which activities are to be carried out and be part of the school’s everyday activities in the virtual setting. School leaders describe how they spend more time on operational work and focus on the core activities of the school, i.e. make sure that the teaching and learning activities run smoothly while putting long-term development work and strategic initiatives on hold, as illustrated by; “We work here and now. We are not talking about development work to the same extent



Category	Categorization of data	No. of excerpts
<i>Priorities in the virtual leadership</i>		
	Work that has received increased focus	7
	Work that has received reduced focus	21
<i>Control and trust in the virtual leadership</i>		
	Increased employee governance	2
	Decreased employee governance	15
<i>Interactions with staff and students in virtual leadership</i>		
	Increased interaction	9
	Decreased interaction	11
	New/other demands on interaction	37
	<i>Total</i>	<i>102</i>

**Table 2.**  
Categorization of  
data

right now” (R15) and “[It is] difficult to work with development work, it has stopped completely to cope with the current situation” (R28). When the work takes place virtually, the basic issues become more central and enable a stricter prioritization of tasks, both for school leaders and their staff.

*5.2.2 Control and trust in virtual leadership.* Control constitutes a recurring theme when school leaders describe their leadership in the virtual school. In two cases, school leaders describe how the new situation enables increased employee governance, including more detailed driven leadership. One school leader describes how the transition to distance education could be used as an “alibi” to apply increased control as illustrated by; “It was good to have a sharp situation to implement certain things that I was waiting for the right timing for. For example, to ask each teacher to submit their course plans and remaining elements/I had the opportunity to control more in the assessment structure and see what the teachers planned for teaching” (R44). However, in most cases, reduced control and employee governance are described as sometimes undesirable but also as a positive effect of unexpected situations. For example, school leaders describe that it is harder to lead the organization and that there are greater opportunities to neglect the school leader as illustrated by; “It is difficult to have insight into the work situation and performance of individual teachers” (67). At the same time, this reduced control is stressed as something positive by several respondents. For example, school leaders describe how students now need to solve their problems to a larger extent and that it is positive. To be able to let go of different tasks or processes is highlighted as something fruitful. Furthermore, school leaders describe how a new form of leadership is emerging, building on the distribution as illustrated by: “More Lean Leadership, greater confidence in employee responsibility, less poking on my side and more feedback/supportive approaches” (R32) or “More of leading through others” (R13).

*5.2.3 Interaction with staff and students in virtual leadership.* A recurring issue involves changes in the interaction between school leaders and staff, students and parents. The excerpts include experiences of increased interaction, decreased interaction and new/other demands on the interaction. As for increased interaction, school leaders describe more 1:1 communication in general and closer reconciliations with staff but also parents, as illustrated by; “I have more frequent reconciliations with the staff than before” (R88) or “more contact with parents” (R66) or “I am absorbed in everyday practicalities” (R61). Decreased interaction mainly refers to lacking contact with students, as illustrated by; “The

---

direct communication with students is almost zero” (R100). As for the excerpts linked to new/other demands on the interaction, many school leaders identify challenges of not being able to depend upon the usual ways of communicating, through informal conversations in the corridor and exchanging a few words ‘on the go’ as illustrated by; “[It is] harder to have informal conversations and meetings. It is more difficult to be seen in the organization” (R80). In the long run, it leads to uncertainty about whether information has reached the employees in the right way, difficulty for school leaders to confirm employees and unnecessary tensions or conflicts as illustrated by; “Several things work just as well, but just the social aspects of being “present” are more challenging. Most of the leadership depends on good relations, for which completely different conditions are now given” (R7) or “When you do not get the reaction immediately and can discuss a solution, it can lead to friction or dissatisfaction. What annoys me most is that this type of dissatisfaction is unnecessary and can easily be avoided in a normal situation” (R57). At the same time, school leaders express how they developed new strategies for interaction in the virtual school and new forms of dialog. First, the increased need for structure and clarity are emphasized, both in terms of communicating how and why different meetings, processes, etc., are carried out. In different ways, school leaders describe that they discover that they need to become more explicit in their communication and should not take for granted that others understand how or why certain things happen, as illustrated by: “I demand increased clarity towards both staff and students and not to take anything for granted regarding what people ‘understand or can calculate” (R9) or “I need to be clearer about meetings, their purpose, content, and implementation. This has made the meetings more efficient” (R75) and “I have had to become very clear in my communication about assignments and what I expect. I have been more straightforward in follow-up//. I have also been careful to tune in to employees’ moods and have been responsive and quick to answer questions” (R62). Increased demands for clarity and structure also mean increased documentation, both in terms of communicating the agenda for meetings and decisions made, measures to be implemented, etc., as illustrated by; “Clarity and documentation are even more important – you cannot just rely on oral communication” (R72). Second, there are increased demands on school leaders to engage in active outreach in the virtual school because of not “bumping into each other” during a working day, as illustrated by; “It requires more outreach activities as much of the spontaneous meetings are gone” (R42).

## 6. Discussion

The introduction of technology as an integrated part of work can often entail unpredictable changes (Ciborra, 2000). In our findings, we illustrate that there is no doubt that the transition to a virtual school was both sudden and disruptive. In the following discussion, we would like to start by focusing on our first research question of how school leaders perceive the transition to virtual schools and then move on to our second research question of what characterizes virtual leadership work in virtual schools and illustrate our findings through the theoretical lens of affordances.

### 6.1 Perceptions of virtual work

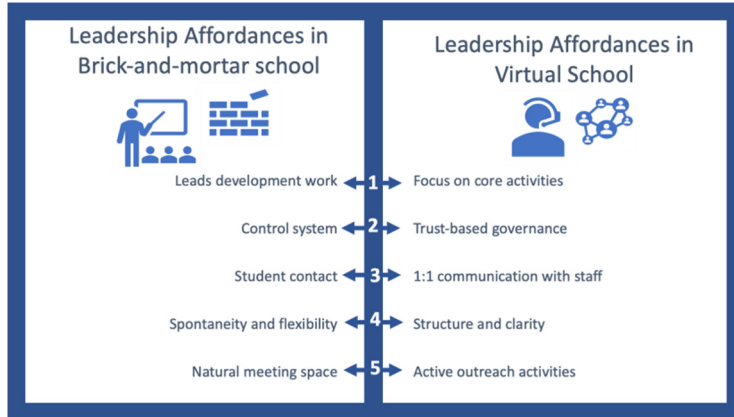
As for the way school leaders perceive the transition to virtual school, the answer is somewhat complex. Most school leaders thought that the transition to virtual school had been successful. However, the results must be seen in the light of schools’ digitization not being new on the agenda and that the digitalization of schools has influenced policy in Sweden since the 1960s. The significance of such conditions can hardly be overstated when looking toward an in-depth understanding of the transition to a virtual work of leaders. It is

visible from the findings that the transition was less disruptive for schools that already had an established digital infrastructure and were relying on digital technology for communication, administration and teaching earlier. In those cases, it was not an absolute transition from “analog” to “virtual” work, whereas for others, which had less previous preparation, the transition entailed a greater change. Brick-and-mortar schools are permeated by digitalization since school leaders, teachers and students have digitalized the school for quite some time, but there are still local differences to be seen. In general, there is a solid foundation to stand on, including (sufficiently) functional technology and a critical mass of staff who already had the necessary competence to be able to quickly adjust to distance education and “build the plane while flying”. These conditions outline an important part of the school leaders’ experiences of a relatively effective and successful transition. Still, there are differences within the data. For example, some school leaders describe a self-esteem boost in their leadership role, whereas others feel disoriented and less comfortable. The work has changed, and the leaders’ responsibility has changed with it. Furthermore, some leaders experience a never-ending working day while others experience a significantly decreased workload. It is consistent with previous research that shows that there is an inequality regarding access to and use of technology between schools (Willermark and Pareto, 2020). All the above variations constitute framework conditions that favor or hinder a transition to a virtual school and may also explain school leaders varied experiences of their transition to virtual work. From our findings, it is visible that virtual leadership does entail new features, and the work of the leaders has changed drastically. We would like to illustrate these changes and the characteristics of the changes here next through the lens of affordances.

### 6.2 *Virtual leadership affordances*

The theory of affordances is applicable when analyzing the emergent potential for action in changing work practices (Bardram and Houben, 2018; Cabitza and Simone, 2012; Gross, 2013). Moreover, the lens of affordances provides an interesting frame for understanding the way technology facilitates changes that can both be subtle and obvious. As for the characteristics of virtual leadership work, there are both differences and similarities in school leaders’ experiences which is consistent with previous work (Holmberg, 2019). There are common recurring statements about how leadership in the virtual school is shaped as school leaders are adapting to the changing environment, and it is visible that those changes bring both new tangible difficult challenges and new possibilities that allow for new types of interactions (Bejleri and Fishta, 2017; Burma, 2014; McGrenere and Ho, 2000). To sum up, the common characteristics that can be derived from our study of school leaders’ experiences of virtual leadership, we have identified five leadership affordances (Figure 2). The affordances consent to the categorization of the results in the following way; the first affordances originate from the category “priorities in the virtual leadership,” the second affordances originate from the category “control and trust in the virtual leadership,” the third, fourth and fifth affordances originate from the category “interaction with staff and students in virtual leadership”. To illustrate this, leadership affordances in the virtual school are contrasted with leadership in the brick-and-mortar school since it constitutes the way the school leader discusses and relates to the transition:

- *Affordances 1.* The brick-and-mortar school affords formal and parallel processes aiming at school development, where an important part of school leadership involves prioritizing initiating and leading that work. The virtual school affords school leaders to focus on the core activities, i.e. prioritizing teaching and learning.



**Figure 2.**  
Leadership affordances in the virtual versus brick-and-mortar school

- *Affordances 2.* The brick-and-mortar school affords control systems through government insights and participation. Being on-site offers constant insight into the activities of employees and students. The virtual school affords a more trust-based government, where school leaders realize the necessity of distributed leadership.
- *Affordances 3.* The brick-and-mortar school affords spontaneous and recurring student interaction “on the go,” for example, by bumping into students in the corridor. The virtual leadership role affords minimal student interaction yet frequently 1:1 interaction with staff.
- *Affordances 4.* While the brick-and-mortar school affords spontaneity and flexibility through open interactions and renegotiations, the virtual leadership affords structure, clarity and more formal meetings, with documentation of decision paths, clearer feedback and division of labor to proceed smoothly.
- *Affordances 5.* While the brick-and-mortar school affords a natural and physical meeting space for interaction with staff at the coffee maker, spontaneous lesson visits, etc., the virtual leadership affords active outreach activities via emails, phone calls and video meetings.

As defined at the beginning of this paper, both virtual leadership and face-to-face leadership refer to a person with capabilities that influences within a community, and the leader helps facilitate the members of a community to attain a high level of activity, quality interactions and attentive moral (Huffaker, 2010). What we have found is that the same applies to leadership in school settings. The qualities are similar, but the way the leadership work is performed and what it affords is what our paper contributes. Our results in this paper align with the literature within online communities (Ho and Huang, 2009; Koh *et al.*, 2003; Luther and Bruckman, 2008; McEwan and Gutwin, 2017; Yee, 2006), and our findings corroborate Ho and Huang (2009) and Yee (2006) since we also show that strong virtual leadership can be connected to a more satisfied crowd and leadership in virtually and distributed group settings has been connected to higher motivation, more loyalty and increased cohesion within the group. Furthermore, what we also illustrate in this paper is that for school leaders to feel connected to staff in a virtual school setting, there is a need for increased one-to-one interaction and active outreach between the staff and the school leaders. We also show how school leaders perceive the transition to virtual leadership through their reflections which

can, on a more general level, be summarized as a suggestion for virtual leaders. Furthermore, we show that in order for virtual leadership to become a flourishing leadership, the already established it is important to lean back on the already established connections from face-to-face interactions that can be strengthened in an online setting for the work to be further supported by the leaders. As we see it, the different schools that we studied pose different affordances and constraints. Pinpointing the affordances of a virtual school at an aggregate level is important for raising awareness of how school leadership is affected by different environments. The five-leadership affordance presented in this paper could be used as a basis for individual reflection as well as for discussion among colleagues on how to develop virtual leadership, both in school settings and also in leadership work in other types of organizations. Our leadership affordances infer a possibility to benefit various types of leaders and illustrate leadership characteristics that could help curb potential problems. In the virtual school, it could additionally include enabling meeting spaces with students or through student representatives or by carrying out virtual lesson visits for the leaders to feel increasingly connected and involved. The opposite also applies, i.e. to achieve more elements of structure in the virtual school, it could be good to formalize meetings and decision processes; this could also be true for virtual leadership in general. Since the affordances often are multilayered and opaque (Holmberg, 2019) and two-sided or multisided (Islind *et al.*, 2019), there is room to refine other affordances or refine the affordances posted herein.

### *6.3 Limitations and future research*

The study has limitations that should be addressed and that also can serve as areas for future research. First, the empirical data is limited to 105 school leaders. Second, the data is based on school leaders' self-reports. While it offers an opportunity of highlighting school leaders' perspectives, it is also associated with a risk of "socially desirable responding" (Nederhof, 1985) and giving an overly positive picture (Paulhus, 2002). Third, the data is bound to the context of high schools in Sweden during a unique situation that a global pandemic posed with the immediate demands for a transition to running a virtual school. Since Sweden (together with other Nordic countries) often is positioned as a digital front-runner, the conditions for virtual work and virtual leadership are particularly favorable in the study and do not correspond to the global reality of educational contexts. Thus, there are challenges regarding the transfer of results to other contexts or a (new) normal state. However, the central contribution is in the theorization of five leadership affordances in virtual work. A future area of research will be to validate the five leadership affordances in other contexts, involving virtual leaders in different contexts and by different approaches. Another area of future work that could be of interest would be to explore virtual leadership from the perspective of two-sided or multisided affordances where the school leaders' perspective is contrasted with staff and students and where hidden or opaque affordances could be further explored.

## **7. Conclusion**

This study explores virtual leadership work within an educational setting and school leaders' experiences of virtual leadership in the light of social disruption. We used survey data from 105 Swedish school leaders, and the survey included both open-ended responses and fixed responses, which we analyzed through a three-step analysis. We show that a large majority of the school leaders experience that the overall transition to a virtual school is experienced relatively successfully. Although the school leaders were unprepared, they perceived that they were relatively well equipped to handle the rapid shift to a virtual

school. We also show what characterizes virtual leadership work by summarizing our results into five leadership affordances that characterize virtual leadership. These five leadership affordances are as follows:

- (1) focus on core activities;
- (2) trust-based government;
- (3) 1:1 communication with staff;
- (4) structure and clarity; and
- (5) active outreach activities.

The results could be of interest for understanding the radical digitalization of leadership work in general through a virtual work discussion.

### References

- Agéllí Genlott, A. (2020), "Designing for transformational change in school-digitalizing the digitized", Diss, Örebro University.
- Aktan, O. and Toraman, Ç. (2022), "The relationship between technostress levels and job satisfaction of teachers within the COVID-19 period", *Education and Information Technologies*, Vol. 27 No. 1, pp. 10429-10453.
- Azorín, C., Harris, A. and Jones, M. (2020), "Taking a distributed perspective on leading professional learning networks", *School Leadership and Management*, Vol. 40 Nos 2/3, pp. 111-127, doi: [10.1080/13632434.2019.1647418](https://doi.org/10.1080/13632434.2019.1647418).
- Bardram, J.E. and Houben, S. (2018), "Collaborative affordances of medical records", *Computer Supported Cooperative Work (CSCW)*, Vol. 27 No. 1, pp. 1-36.
- Bejleri, E. and Fishta, A. (2017), "Toward virtual business", *Mediterranean Journal of Social Sciences*, Vol. 8 No. 3, pp. 275-275.
- Blanchard, A.L. and Markus, M.L. (2004), "The experienced sense of a virtual community: characteristics and processes", *ACM SIGMIS Database: The Database for Advances in Information Systems*, Vol. 35 No. 1, pp. 64-79.
- Burma, Z.A. (2014), "New organization structures: virtual organizations", *International Journal of Engineering and Applied Sciences*, Vol. 6 No. 2, pp. 18-27.
- Cabitza, F. and Simone, C. (2012), "Affording mechanisms: an integrated view of coordination and knowledge management", *Computer Supported Cooperative Work (CSCW)*, Vol. 21 Nos 2/3, pp. 227-260.
- Ciborra, C. (2000), *From Control to Drift: The Dynamics of Corporate Information Infrastructures*, Oxford University Press on Demand, Oxford.
- Evans, S.K., Pearce, K.E., Vitak, J. and Treem, J.W. (2017), "Explicating affordances: a conceptual framework for understanding affordances in communication research", *Journal of Computer-Mediated Communication*, Vol. 22 No. 1, pp. 35-52.
- Gaver, W.W. (1991), "Technology affordances", Paper presented at the Proceedings of the SIGCHI conference on human factors in computing systems.
- Gibson, J.J. (1977), "The theory of affordances", *Hilldale, USA*, Vol. 1 No. 2, pp. 67-82.
- Gross, T. (2013), "Supporting effortless coordination: 25 years of awareness research", *Computer Supported Cooperative Work (CSCW)*, Vol. 22 Nos 4/6, pp. 425-474.
- Harris, A. and Jones, M. (2020), "COVID 19 – school leadership in disruptive times", *School Leadership and Management*, Vol. 40 No. 4, pp. 243-247.
- Heath, C. and Luff, P. (1992), "Media space and communicative asymmetries: preliminary observations of video-mediated interaction", *Human-Computer Interaction*, Vol. 7 No. 3, pp. 315-346.

- 
- Ho, S.-H. and Huang, C.-H. (2009), "Exploring success factors of video game communities in hierarchical linear modeling: the perspectives of members and leaders", *Computers in Human Behavior*, Vol. 25 No. 3, pp. 761-769.
- Holmberg, J. (2019), *Designing for Added Pedagogical Value: A Design-Based Research Study of Teachers' Educational Design with ICT*, Department of Computer and Systems Sciences, Stockholm University, Stockholm.
- Huffaker, D. (2010), "Dimensions of leadership and social influence in online communities", *Human Communication Research*, Vol. 36 No. 4, pp. 593-617.
- Islam, M.S. and Grönlund, Å. (2016), "An international literature review of 1: 1 computing in schools", *Journal of Educational Change*, Vol. 17 No. 2, pp. 191-222.
- Islind, A.S., Snis, U.L., Lindroth, T., Lundin, J., Cerna, K. and Steineck, G. (2019), "The virtual clinic: two-sided affordances in consultation practice", *Computer Supported Cooperative Work (CSCW)*, Vol. 28 Nos 3/4, pp. 1-34.
- Järvinen, P. (2012), *On Research Methods*, Opinpajan Kirja, Tampere.
- Koh, J., Kim, Y.-G. and Kim, Y.-G. (2003), "Sense of virtual community: a conceptual framework and empirical validation", *International Journal of Electronic Commerce*, Vol. 8 No. 2, pp. 75-94.
- Kohntopp, T. and McCann, J. (2020), "Leadership in virtual organizations: influence on workplace engagement", *The Palgrave Handbook of Workplace Well-Being*, pp. 1-26.
- Leithwood, K., Harris, A. and Hopkins, D. (2020), "Seven strong claims about successful school leadership revisited", *School Leadership and Management*, Vol. 40 No. 1, pp. 5-22.
- Lindqvist, M.H. and Pettersson, F. (2019), "Digitalization and school leadership: on the complexity of leading for digitalization in school", *The International Journal of Information and Learning Technology*.
- Lucas, M., Nelson, J. and Sims, D. (2020), *Schools' Responses to COVID-19: Pupil Engagement in Remote Learning*, National Foundation for Educational Research, Slough.
- Luther, K. and Bruckman, A. (2008), "Leadership in online creative collaboration", Paper presented at the Proceedings of the 2008 ACM conference on Computer supported cooperative work.
- McEwan, G. and Gutwin, C. (2017), "A case study of how a reduction in explicit leadership changed an online game community", *Computer Supported Cooperative Work (CSCW)*, Vol. 26 No. 4, pp. 873-925.
- McGrenere, J. and Ho, W. (2000), "Affordances: clarifying and evolving a concept", Paper presented at the Graphics interface.
- Makarius, E.E. and Larson, B.Z. (2017), "Changing the perspective of virtual work: building virtual intelligence at the individual level", *Academy of Management Perspectives*, Vol. 31 No. 2, pp. 159-178.
- Nederhof, A.J. (1985), "Methods of coping with social desirability bias: a review", *European Journal of Social Psychology*, Vol. 15 No. 3, pp. 263-280.
- Norman, D. (1988), *The Design of Everyday Things*, Doubleday, New York, NY.
- Oliver, M. (2005), "The problem with affordance", *E-Learning and Digital Media*, Vol. 2 No. 4, pp. 402-413.
- Olofsson, A.D., Lindberg, J.O., Young Pedersen, A., Arstorp, A.-T., Dalsgaard, C., Einum, E. and Willermark, S. (2021), "Digital competence across boundaries-beyond a common Nordic model of the digitalisation of K-12 schools?", *Education Inquiry*, Vol. 12 No. 4, pp. 1-12.
- Paulhus, D.L. (2002), "Socially desirable responding: the evolution of a construct", *The Role of Constructs in Psychological and Educational Measurement*, Vol. 4959 No. 2, pp. 61-84.
- Pettersson, F. (2018), "On the issues of digital competence in educational contexts – a review of literature", *Education and Information Technologies*, Vol. 23 No. 3, pp. 1005-1021.
- Rabayah, K.S. and Amira, N. (2022), "Learners' engagement assessment in e-learning during the COVID-19 pandemic: nation-wide exploration", *Education and Information Technologies*, pp. 1-17.

- 
- Randall, L. and Berlina, A. (2019), "Governing the digital transition in nordic regions: the human element", Nordregio.
- Rüller, S., Aal, K., Holdermann, S., Tolmie, P., Hartmann, A., Rohde, M. and Wulf, V. (2021), "Technology is everywhere, we have the opportunity to learn it in the valley': the appropriation of a socio-technical enabling infrastructure in the Moroccan high atlas", *Computer Supported Cooperative Work (CSCW)*, Vol. 31 No. 2, pp. 1-40.
- Saatçi, B., Akyüz, K., Rintel, S. and Klokmose, C.N. (2020), "(Re) configuring hybrid meetings: Moving from User-Centered design to Meeting-Centered design", *Computer Supported Cooperative Work (CSCW)*, Vol. 29 No. 6, pp. 769-794.
- Shapley, K.S., Sheehan, D., Maloney, C. and Caranikas-Walker, F. (2010), "Evaluating the implementation fidelity of technology immersion and its relationship with student achievement", *The Journal of Technology, Learning and Assessment*, Vol. 9 No. 4, pp. 6-69.
- Vollmer, H. (2013), *The Sociology of Disruption, Disaster and Social Change: Punctuated Cooperation*, Cambridge University Press, Cambridge.
- Willermark, S. (2018), "Digital didaktisk design: Att utveckla undervisning i och för en digitaliserad skola. Högskolan väst, digital didactic design: to develop teaching in and for a digitalized school", Diss, Univeristy West, Sweden.
- Willermark, S. (2021a), "Understanding the meaning of digitally competent leadership in school: a review of research", Paper presented at the 15th International Technology, Education and Development Conference, Online.
- Willermark, S. (2021b), "Who's there? Characterizing interaction in virtual classrooms", *Journal of Educational Computing Research*, Vol. 59 No. 6, p. 735633120988530.
- Willermark, S. and Gellerstedt, M. (2022), "Facing radical digitalization: capturing teachers' transition to virtual classrooms through ideal type experiences", *Journal of Educational Computing Research*, Vol. 60 No. 6, p. 7356331211069424.
- Willermark, S. and Högberg, K. (2022), "Two faces of radical digitalization in education: an institutional logics perspective".
- Willermark, S. and Isind, A.S. (2022), "Seven educational affordances of virtual classrooms", *Computers and Education Open*, Vol. 3, p. 100078.
- Willermark, S. and Pareto, L. (2020), "Unpacking the role of boundaries in computer-supported collaborative teaching", *Computer Supported Cooperative Work (CSCW)*, Vol. 29 No. 6, pp. 743-767, doi: [10.1007/s10606-020-09378-w](https://doi.org/10.1007/s10606-020-09378-w).
- Yee, N. (2006), "Motivations for play in online games", *CyberPsychology and Behavior*, Vol. 9 No. 6, pp. 772-775.
- Yuting, Z., Adams, D. and Lee, K.C.S. (2022), "The relationship between technology leadership and teacher ICT competency in higher education", *Education and Information Technologies*, pp. 1-23.
- Zhao, Y. (2020), "COVID-19 as a catalyst for educational change", *PROSPECTS*, Vol. 49 Nos 1/2, pp. 29-33.

### Corresponding author

Sara Willermark can be contacted at: [sara.willermark@hv.se](mailto:sara.willermark@hv.se)

---

For instructions on how to order reprints of this article, please visit our website:

[www.emeraldgroupublishing.com/licensing/reprints.htm](http://www.emeraldgroupublishing.com/licensing/reprints.htm)

Or contact us for further details: [permissions@emeraldinsight.com](mailto:permissions@emeraldinsight.com)