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# fictional expectations and the constant taming of a spreading technology

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This essay argues that expectations about the future are a central category for understanding the paradoxical dynamics of the ongoing digitalization of schools. To do so, it outlines how to understand expectations about the future and which complementary concepts are particularly relevant. To illustrate the theoretical considerations, the essay uses empirical examples from a current research project focusing on the role of expectations in the debate on the digitalization of schools in Germany. The essay shows that looking at actors' expectations helps to understand the continuous spread of new technology, as well as its constant taming.

Keywords: digitalization, fictional expectations, future, school reform, technology

The ongoing digitalization of schools in Germany is a paradoxical process. On the one hand, it is fairly successful. For instance, the number of digital devices in schools has been growing for decades. At the same time, schools' IT infrastructure is being expanded, and subjects such as computer science and coding are becoming more relevant and/or are being discussed as potential compulsory subjects. In addition, data-driven learning analytics and instructional technologies are being researched and tested in schools around the world.

On the other hand, a persistent dissatisfaction with the process of digitalization can be observed, especially among those who have been particularly committed to the digitalization of schools. Even though digitalization in Germany is supported by a broad coalition of politicians, entrepreneurs, journalists and teachers, it is proceeding at a halting pace. To put it another way: it is being constantly tamed.

It should be noted here that the term "taming", under which this issue appears isn't an established term in the scientific debate on digitalization and can be understood in various ways. Speaking in general terms, taming can be understood as an action aiming to gain control over a situation perceived as threatening in an uncontrolled state. In a slightly different understanding, taming can be seen as an attempt to adapt something uncontrolled to one's own needs. In the case presented here, taming appears as a slowing down of digitalization, carried out by sceptical actors who perceive digitalization as uncontrolled and threatening. The fact that digitalization is perceived as uncontrolled and threatening is related—just like the rapid spread of technology—to expectations and visions of how the future will develop. Therefore, in this essay I argue that expectations about the future are a central category for understanding the paradoxical dynamics of constant expansion, constant dissatisfaction, and constant taming. To do so, I will divide the essay into two parts. The first part focuses on theory. In this part I will outline how to understand expectations about the future and which complementary concepts are particularly relevant. In the second part, I will

illustrate the theoretical considerations using a set of empirical examples from a current research project focusing on the role of expectations in the media debate on the digitalization of schools in Germany.

The research project covers the debate in Germany since 2000 in three leading quality newspapers (*Süddeutsche Zeitung, Frankfurter Allgemeine Zeitung, Die Zeit*). In addition to journalists, other actors including teachers, scientists, politicians, psychologists, pediatricians, and entrepreneurs have their voices heard in the approximately 300 articles analyzed, so that various perspectives are taken into account.

## Fictional expectations and their guiding role in a modern world

The temporal structure of modernity has been described as a linear model with an open and uncertain future (e.g., Koselleck, 1992; Rosa, 2012; Hölscher, 2016). In this model, actions are always oriented towards future outcomes. Therefore, ideas we have about the future are able to shape our evaluation of the present and our present actions. This becomes particularly visible in pedagogical or educational contexts. Teaching, for example, aims to ensure that students will be able to do something in the future, and educational policy programs are legitimized by the promise that they will prepare the next generation for anticipated societal changes. To explain the role of expectations, I draw on the concept of "fictional expectations" developed by economic sociologist Jens Beckert.[1]

Beckert assumes that a temporal orientation towards an open future requires actors to (be able to) imagine a future world that is different from the present. As such, these imagined futures provide orientation in the present and shape actors' actions (Beckert, 2013; similarly argued by Hölscher, 2016). Following Beckert, actions are based on the projection of a future world: "Before making a decision, actors use projections that take them into an imagined future in which the action will have been completed" (Beckert, 2020a, p. 73). Because expectations about the future are always contingent and can never be true beyond doubt, Beckert argues that expectations should be understood as fictions that are used to imagine both the future present and the causal mechanisms leading to that future (Beckert, 2017a, p. 1). Fictional expectations are thus "present imaginaries of future situations that provide orientation in decision-making despite the uncertainty inherent in the situation" (Beckert, 2013, p. 222). For Beckert, expectations have the status of "as if" statements (Beckert, 2013), meaning that one's expectations as well as the actions based on them can only pretend that the world will actually develop as expected. Expectations, however, are not sheer individual phenomena but rather constructs that emerge in social contexts and are shaped, for instance, by mass media coverage. Thus, expectation are not immutable but fragile constructions that are continuously evaluated and adjusted with reference to ongoing experiences. In terms of digitalization, this means that as technology develops and experiences change, so do expectations about the future.

## Plausibility and narratives

Beckert (2013) points out an important characteristic of fictional expectations which become socially effective: "[F]ictions do not have to be true, but they must be convincing" (Beckert, 2013, p. 222). That means that fictional expectations must appear plausible in order to become effective. While the term plausibility is frequently used in academia, precise definitions are rare (Böhnert & Reszke, 2015, p. 42). According to German educator Lutz Koch, "plausible" is that which is

"neither contradictory and absurd" nor "obvious" or provable by mathematical or natural science (Koch, 2002, p. 199, Translation by J.E.). Hence expectations of the future must appear as comprehensible and credible, i.e., as actually possible futures, in order to become effective.

The plausibility of fictional expectations is essentially generated via narratives (Cameron & Palan, 2004; Beckert, 2013, 2016, and in a similar argument Münch, 2016, p. 85). Expectations about the future emerge in social contexts and can be understood as stories or narratives. According to Beckert, these stories establish credibility and plausibility for expectations: "Stories provide causal links that show how the gap between the present state of the world and the predicted future state is actually closed, thus providing plausible reasons why one should expect the depicted outcome" (Beckert, 2013, pp. 226-227). In a parallel way, Cameron and Palan argue with regards to globalization:

> Globalization is not just a phenomenon. It is also a *story*. […] We know that policymakers, CEOs, NGOs, anti-capitalist protesters and new social movements do not react to 'globalization' as such. Rather, they react at best to a *mediating discourse which tells them what globalization is*, how it affects their lives and, most crucially, how it will affect them in the future. The aggregate reaction and response to the mediating discourse, in turn, is an important component shaping the 'reality' of globalization itself. (Cameron & Palan, 2004, p. 3; italics added by J.E.)

Just as Cameron and Palan (2004) highlight the role of the "story" of globalization in the field of economics and politics, one can also highlight the role of the "story" of digitalization in the field of education. Here, too, reactions to the "mediating discourse" play a very significant role in determining the "reality" of digitalization—including the expectations, hopes, and fears constructed within it.

## Fictional expectations and legitimacy

Fictional expectations are relevant for the legitimation of digitization policies. The concept of legitimacy originally goes back to Max Weber's sociology of authority (Uphoff, 1989) and is now used in a wide range of different meanings (Winter & Sorbera, 2016, p. 326). In a general sense, the legitimacy of a political actor or a policy means that it is perceived as "appropriate" and "acceptable" by its environment (see the overview in Tost, 2011, p. 688). Mark Suchman (1995) offers a more precise definition. He defines legitimacy as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995, p. 574). To be perceived as legitimate, actors can try to influence their environment through communication.

Fictional expectations are relevant to whether a project is perceived as "desirable, proper, or appropriate" or not. Beckert also links fictional expectations to the question of legitimacy (2020b). The answer to the question "Where will this lead us?" or "What will the impact be?" is of utmost importance for every project to gain legitimacy. Actors advocating for the digitalization of schools or for a specific digitalization endeavour must explain how and why their project will have a positive impact in the future, even if they cannot know what the future will look like. The process of digitalization thus draws its legitimacy not primarily from results achieved but to a large extent from future-oriented promises. In this sense, digitalization is based on good stories and imagination

rather than on rational calculation.

Only when an actor's narrative of the future is able to link a desirable future to current political decisions can it help gain legitimacy for the actor's agenda (Beckert, 2020b, p. 318). Hence, narratives of the future influence what is considered legitimate as well as how actors act in the present. Therefore, expectations are closely interwoven with issues of power. Expectations can have distributional effects, which place them in conflicts as actors have an interest in influencing the expectations of other actors. Power in the context of fictional expectations means that one's own expectations diffuse socially and become consequential (Beckert, 2017b, p. 10).

## Fictional expectation and the constant expansion of digital technology

Only what is perceived as uncontrolled needs to be tamed. Digitalization appears to be uncontrolled because it is successful and spreading rapidly. To understand the success of digitalization, fictional expectations are relevant in two ways. The first type of expectations that are relevant relate to the general development of society. The public debate is dominated by the assumption that the entire world will become increasingly digital. In this expected future, algorithms and robots are going to shape the everyday world as well as the economic sphere. This narrative moves between two dominant positions, one characterized by optimism and the other by a sense of urgency. In the first position, the future is characterized by positive developments. Algorithms improve medical diagnostics or facilitate global communication through intermediary translation programs. In these narratives, the benefit is inherent in technology. Thus, urgent calls to action are not a part of this narrative. The second position is characterized by urgent calls to action. Here, the anticipated digital development is a narrative of crises that contains numerous challenges. For instance, it is assumed that only those economies that are leaders in digitalization will be successful in the future. This implies that a future labour force needs (extensive) IT skills. To achieve this, it seems an appropriate step to strengthen computer science education in schools. Because the debate in Germany simultaneously states that German schools are at best mediocre in digital education, the fear of falling behind in the nation's economic competition arises.[2]

It is this fear of falling behind followed by adverse consequences for a nation's prosperity that lies behind numerous calls for more digitalization. The digitalization of and in schools, however, is largely legitimized by the fact that it would help to prevent a development that is perceived as probable but assessed as negative. From this perspective, the digitalization of schools is primarily a prevention program. In the educational debate, it is nothing new to see schools being addressed as a problem solver for societal problems (see e.g., Labaree, 2008). This highlights, that schools are not only intended to solve existing problems, but also to address anticipated future problems that do not yet exist.

The following short example is suitable to show how fictional expectations are integrated into the argumentation of actors. The example originates from an interview that the weekly newspaper "Die Zeit" conducted with two entrepreneurs.

> Die Zeit: Ms. Leibinger-Kammüller, Mr. Fehrenbach, you lead two of Germany's most renowned companies and are hiring thousands of new employees this year alone. Now you're calling for schools to undergo radical change. Why?
> Franz Fehrenbach: Germany is in a dangerous phase. We seem economically

> successful, but when I think about whether the country can still be successful in ten to twenty years, it sends shivers down my spine because we are not preparing ourselves sufficiently for the future.
> Nicola Leibinger-Kammüller: We are not achieving the necessary speed, that is also my concern. We need to focus more intensively on digitalization in schools. Every child must learn to code! If there are many more third graders who enjoy coding, we will gain later students of computer science. Without computer science, nothing works anymore. (Nienhaus et al., 2018; Translation by J.E.)

This short quotation contains recurring patterns of argumentation. It becomes clear that the deficit analysis that precedes the demand for reform does not refer to the present, for which economic success is stated, but to the future. The danger is invoked that economic success will be at risk if Germany does not prepare itself "sufficiently for the future".

The second response then contains a condensed fictional narrative of the future. First, Ms. Leibinger-Kammüller calls quite generally for schools to become more involved with digitalization. Then she names a concrete demand: "Every child must learn to code!" and sets out in a rudimentary causal chain that coding lessons can help to attract more computer science students.

This quote illustrates how expectations and assumed causal chains shape the narratives used to legitimize digitalization. The fictional expectation that school reforms will have broader societal effects is a central element of these narratives. In this case, it goes so far as to suggest that the introduction of coding classes will ultimately help save the German economy.

The quote shows that in addition to the fictional expectations concerning general social development, fictional expectations concerning assumed or hoped-for effects of specific programs are relevant to understand the constant spread of this technology as well. Actors drive digitalization forward because they associate positive expectations with it.

To gain support, actors who want to introduce a specific program need to be able to tell a compelling story about the future effects of the program in advance. Think of this as a start-up company that requires capital but neither has a market-ready product nor experience in selling that product. What makes investors invest in such a company is a good story and plausible expectations.

The fictional stories told about the impact of digital technologies in schools are quite diverse. The assumption that mandatory coding classes will increase the number of computer science students is as much a part of the chorus of expectations as the narrative that digitally driven education will help to combine mass schooling with a high-level education for all. Other narratives suggest that computer science classes contribute to people's empowerment in the digital world. These stories are an important foundation for the rapid spread of technology. Without stories that seem plausible to many people, we would not experience the digitalization of schools the way we do.

From this perspective, one can understand why the advocates of digitalization are permanently dissatisfied, despite their obvious success. They are dissatisfied because their ideas about the future are changing. What was considered adequate preparation for the future ten years ago is now considered inadequate. Thus, the solutions that were considered adequate a short time ago to prepare well for the future now appear to be insufficient. This shows that our assessment of the present changes along with our images of the future. Many programs and technologies might fit our

past expectations but just look grotesque in the mirror of current expectations. Because education systems change slowly, they rarely fit the ever-changing images of the future, which is one reason for the omnipresent criticism of schools.

## Fictional expectations and the constant taming of technology

Although digitalization is progressing steadily, it is nevertheless being consistently slowed down and proceeds more sluggishly than the advocates of digitalization would like.

This permanent delay can be understood as a taming that accompanies the process. To understand this constant taming, fictional expectations again become relevant.

In the debate, there is a broad coalition (mainly consisting of teachers and parents, but also psychologists, educational researchers, and paediatricians) that positions itself against the digitalization of schools. The reason for their position is grounded in fears—or in other words: in fictional expectations. Fear is logically always future-related. People are afraid that something might happen in the future, not that something happened in the past (Miceli & Castelfranchi, 2015, p. 20; Biess, 2020, p. 14/15). Fear can paralyze as well as motivate preventive action. Fear can explain why some teachers do not actively engage with new technologies. However, fear can also lead to active opposition. Both effects of fear are useful to explain why the spread of the technology is constantly delayed.

It should be noted here that fictional expectations change over time. Just as technology changes, so do fears. With the introduction of a new technology, new experiences emerge. With new experiences, some existing fears may dissolve, but new fears may emerge.

For a better understanding, it is worth taking a look at the details. Opponents of digitalization in schools also believe that the future will be shaped by digital technologies. However, this development is judged negatively. This becomes clear in numerous narratives that circulate and in which the anticipated negative consequences of digitalization are discussed. These negative expectations are often not a reaction to negative experiences, but a reaction to announced programs. They show that many actors fear unintended side effects following not as yet introduced digitalization programs.

The topics of these narratives are widely spread. For example, with reference to psychological research, it is argued that the constant use of digital devices will lead to a decline in children's ability to concentrate. However, narratives clearly go beyond experience and address the anticipated societal consequences if the ability to concentrate declines for entire generations. Other narratives warn that the digitalization of schools will increase the influence of corporations on schools. Still others fear motor damage for children or warn of child welfare risks from easier access to questionable content.

These examples illustrate that the calls for digitalization programs entail counter-narratives highlighting anticipated negative consequences. Critics of digitalization doubt the positive stories of digitalization and create their own narratives about the future. In their stories, digitalization does not induce a positive development but rather entails serious consequential problems.

How powerful are these narratives? It is difficult to draw clear causality here. On a theoretical level, it seems plausible that expectations influence actions. Furthermore, it can be stated that negative

expectations about digitalization are widespread, and that digitalization is not spreading as quickly as the apologists would like.

The digitalization process is constantly being evaluated by relevant groups of actors. The question guiding the evaluation is: Where will it take us? Many representatives of the sceptical perspective find negative answers to this question. It is therefore plausible to assume that these negative expectations shape how technology is used in schools. In this sense, negative evaluation leads to a constant taming of technology.

How effective the negative expectations of teachers and parents are can be seen on another level. In the media debate, we find numerous examples of politicians and entrepreneurs complaining about the resistance of parents and teachers. It is these groups that are held responsible for the slow expansion of digitalization in Germany. Presumably, this would not happen if the slowdown were not effective. This shows the complexity and conflict potential of a situation in which something is being tamed that other actors are actively trying to push forward.

## Conclusion

In this essay I have highlighted the role of expectations about the future to explain the paradoxical dynamics of digitalization. Digitalization, as we are currently experiencing it, is the result of a complex interplay of different fictional expectations. Expectations about the general development of society play a part as much as narratives about the future impact of programs. Based on sceptical fictional expectations, actors see problems they assume will result from programs that have not yet come to fruition. This clearly shows that the struggle over the future of technology and schools is also a struggle over expectations and power as different actors fight for the prevalence of their narratives. Fictional expectations influence how we judge technological development. Expectations thus contribute to the constant taming of digitalization.

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1. Beckert developed the concept to analyze the motivations of economical actions, but repeatedly emphasizes in his writings that the concept is transferable to other social domains (e.g., Beckert, 2020, p. 73).
2. The fact that this fear is based on a fictional expectation is particularly clear in the case of Germany – which is, after all, the leading economy in Europe.