

THE CONCEPT OF TEMPORAL AGENDAS IN EDUCATION

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ABSTRACT

Time and education form a complex relationship that reaches far beyond the trivial fact that education needs time. German discourse in adult and continuing education research rarely focuses systematically on aspects of time. To uncover underlying concepts of time in adult education in policy and practice through the analysis of temporalities, this paper introduces the concept of *temporal agendas* as an analytical term. Building upon a theory-based reception of temporalities in postmodern society, collective and individual temporal agendas are conceptualised. A methodological approach to the inquiry of temporal agendas is outlined based on a recent research example and highlighting the importance of sectoral temporal orders. Finally, a brief outlook into possible future research on temporal agendas in important educational developments is given.

KEY WORDS

postmodernity; temporal agenda; pre-emption; adult and continuing education.



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RESUMO

O tempo e a educação formam uma relação complexa que se estende muito para além do facto de que a educação precisa de tempo. O discurso alemão na investigação sobre educação de adultos e formação contínua raramente se centra sistematicamente em aspetos relacionados com o tempo. Para descobrir conceitos subjacentes ao tempo na educação de adultos nas políticas e nas práticas através da análise de temporalidades, este artigo apresenta o conceito de agendas temporais, enquanto termo analítico. A partir de uma receção teórica de temporalidades na sociedade pós-moderna, conceptualizam-se agendas temporais coletivas e individuais. Define-se uma abordagem metodológica da investigação sobre agendas temporais, baseada numa pesquisa recente, realçando a importância das ordens temporais sectoriais. Por fim, oferece-se uma perspetiva resumida sobre possíveis investigações futuras sobre agendas temporais em desenvolvimentos educativos importantes.

PALAVRAS - CHAVE

pós-modernidade; agenda temporal; preempção; educação de adultos; formação contínua.



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RESUMEN

El tiempo y la educación forman una relación compleja que va mucho más allá del hecho trivial de que la educación necesita tiempo. El discurso alemán en la investigación sobre educación permanente y de adultos rara vez se centra sistemáticamente en aspectos del tiempo. Para descubrir los conceptos subyacentes del tiempo en la política y la práctica de la educación de adultos a través del análisis de las temporalidades, este documento presenta el concepto de agendas temporales como un término analítico. Sobre la base de una recepción basada en la teoría de las temporalidades en la sociedad posmoderna, se conceptualizan las agendas temporales colectivas e individuales. Se esboza un enfoque metodológico para la indagación de agendas temporales basado en un ejemplo de investigación reciente y destacando la importancia de los órdenes temporales sectoriales. Finalmente, se ofrece una breve perspectiva de posibles investigaciones futuras sobre agendas temporales en desarrollos educativos importantes.

PALABRAS - CLAVE

posmodernidad; agenda temporal; *pre-emption*; educación continua y de adultos.



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The Concept of Temporal Agendas in Education

Jan Schiller¹

INTRODUCTION

Time and education form a complex relationship that reaches far beyond the trivial fact that education needs time. International discourse on this relationship is ongoing. However, Schmidt-Lauff has repeatedly stated that German discourse on adult education lacks a common basis of time-related research (Schmidt-Lauff, 2008, 2012, 2018; Schmidt-Lauff, Schreiber-Barsch, & Nuissl, 2019). In the field of continuing higher education,² German research mostly examines the usage of time as a resource with a focus on the marketing of programmes (Denninger, Kahl, & Präßler, 2020; Kahl, 2019; Rahnfeld & Schiller, 2015; Seitter, 2017; Seitter, Friese, & Robinson, 2018). Following and expanding Schmidt-Lauff's temporal terminology (2008, 2012, 2018), the aim of this research is to uncover the underlying concepts of time in adult education in temporalities as analytical terms and categories. For this purpose, I am introducing the key term *temporal agendas*.

The first section outlines the concept of temporal agendas and contextualises it within the broader time-related discourse. In the second section I describe several temporalities of postmodern society as the basis for temporal agendas as an analytical term. I observe the emergence of pre-emptive phenomena, which prioritise an increasingly speculative future over the present (Avanessian, 2018; Avanessian & Malik, 2016). These phenomena form complex patterns described and systemised as collective, organisational, and individual temporal agendas. This research contributes to time-related discourse in adult and continuing education. Methodological approaches to temporal agendas and how they can be applied to research in an exemplary field are laid out in the third section. In the final section, I briefly present an outlook into possible future research on temporal agendas in the future skills debate and machine learning-based decision making as important educational developments.

THE CONCEPT OF TEMPORAL AGENDAS

Originating in a descriptive idea of summarising the relation to temporal factors of education in policies and institutions (Schiller, Schmidt-Lauff, & Camilloni, 2017), the concept of temporal agendas has grown into an analytical term, applicable to empirical data, which reaches far beyond policy analysis (Schiller, 2022). The analytical term operates on the basic distinction between time (and the awareness of it) and temporalities (cf. Schmidt-Lauff & Bergamini, 2017) and includes (mainly German) theoretical approaches to time from the fields of (adult) education, sociology, and

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2 In the German educational system, continuing higher education is recognised both as part of tertiary higher education and as adult and continuing education in the quaternary education sector.



philosophy. The point of departure for the concept of temporal agendas is the relation between the individual, time, and society.

There are etymological differences between the German and English adaptations of the Latin word *tempus*. To avoid confusion, some German terms are given here to distinguish them. The most basic element of time for Schmidt-Lauff is individual awareness of time (*Zeitbewusstheit*), which results from an active process of temporalisation (*Verzeitlichung*), involving contextualising time and temporal ideas within structures (Schmidt-Lauff, 2018). The result of this process is temporality (*Zeitlichkeit*) (Schmidt-Lauff, 2012, p. 18). Through temporalisation, temporality (as *Zeitlichkeit*) relates to a temporal perspective on society that puts the individual's experience at the centre of its focus. For better differentiation, the result of temporalisation through individuals should be named individual temporality (*individuelle Zeitlichkeit*). The totality of all individual temporalities forms a collective temporality (*kollektive Zeitlichkeit*) that is reciprocally connected to the individual temporalities of others. Based on individual experience, individual temporalities are influenced by, but different from, a complex physical–scientific concept of time that is visible mainly through technologies that arise from it (cf. Schiemann, 2015, p. 207). Following Dux's (2017) idea of historical–genetic reconstruction, I argue that individual and collective temporalities serve as an indicator by which epochs as historical periods of different temporalities can be distinguished.

Leccardi (2013), Großklaus (1997), and Elias (1988) have perceived time as a social dimension dependent on its own historicity. They have agreed that our present perception of time is the result of an evolutionary route that tends towards increasingly abstract ideas of (measured) time, as society grows more complex. De Haan (1996) has argued that time is a human-shaped construct that societies use as a regulatory mechanism, depending on their degree of organisation. Collective temporality must be understood both as a result of and as an influence on individual temporalities, as it shapes the individual's perception and awareness of time.

Based on Koselleck's model of layers (or sediments) of time, collective temporalities as a concept can overcome the under-complexities of linear perceptions of time when applied to societal development (Koselleck, 2000, 2018). Koselleck has argued that historical sequences are both a succession of singular constellations and of "circular, recurrent elements" (Koselleck, 2000, p. 20, own translation). Through this lens of layers of time, collective temporalities mirror a simultaneous non-simultaneity of historical processes and events and are characterised by temporal inconsistency (Koselleck, 2000). This perception of time as a complex social construct characterised by inconsistency is crucial to the analysis of contemporary society using abstract categories, as intended here.

Building on individual and collective temporalities, *temporality as a category* (*Temporalität*) can be used as a semantic category to describe abstract metrical or topological properties of events and their quantitative and qualitative character regarding their temporality (cf. Schmidt-Lauff, 2018). Temporality as a category refers to "oscillating, changeable and shapeable phenomena of time" (Schmidt-Lauff, 2018, p. 322). As a category, temporality is an explanans of the historical process. This process is shaped by human intentional actions, which can be described as an attempt to give time a certain order or structure. The sum of these attempts is termed *temporal agendas* (Schiller, 2022). The mass of individual attempts at structuring time in a certain way is named *individual temporal agendas*. Their super-individual effects on collective temporality are named the *collective temporal agenda*. Temporal agendas express specific temporalities as categories in society within a certain epoch.

As an *analytical term*, temporal agendas analyse individual and collective temporalities as categories within a certain context in an epoch, for example, education in contemporary postmodern capitalism. For this purpose, it is necessary to first identify the important temporalities as categories of this contemporary postmodern society: space-time compression, present contradiction, totality of the present and speculative temporality with its chrono-political implications.

THE COLLECTIVE TEMPORALITIES OF POSTMODERN SOCIETY

SPACE-TIME COMPRESSION

The collective temporality of contemporary society can be understood as one element of its postmodern condition and may serve as a point of departure to the identification of its important temporalities as categories. In *The Condition of Postmodernity* (1990), Harvey describes the political and economic transformations that constitute the postmodern capitalist order of production. These political and economic transformations form the terminological and empirical basis of its temporal transformations, which are mainly characterised by acceleration and debordering. The main aspect of economic transformation towards postmodernity is the shift from Fordist production to flexible accumulation (Harvey, 1990, S. 141; also Schoenberger, 1988; Vargas-Cetina, 1999). Flexible accumulation is characterised, for example, by vertical disintegration, just-in-time production, and small series manufacturing, supported by technical innovation, especially microelectronics (Harvey, 1990, S. 284). From a temporal point of view, the reason for this shift lies in the striving of capital³ to reduce turnover time because of the 1970s growth crisis (Harvey, 1990, S. 285). In the three decades since Harvey's book, these trends have continued with some fractures ("dot-com bubble", "new economy", "financial crisis", "Covid-19 crisis"). A constant acceleration of the flow of goods and consumption (especially of digital goods and services) is visible in the globalised trade system, most noticeable in the growing economic importance of intangible assets to the value of many global enterprises (cf. Stoi, 2008).

Yet, according to Harvey, the two decisive categories for this development are the (individual and collective) judgement of time and space as the two basic categories of human existence, in which the nature of an epoch is represented (Harvey, 1990, p. 201).

While for Harvey, economic change is the driving force in this process, the character of the epoch most clearly articulates itself in the individual perception of time and space. Harvey bases his analysis of the postmodern condition on those influences from the order of production with the largest impact on postmodern thinking, feeling, and acting. Experiences of time and space are seen as parts of a larger system of society. He, therefore, asks: "How have the uses and meanings of space and time shifted with the transition from Fordism to flexible accumulation?" (Harvey, 1990, p. 284). He follows Jameson's hypothesis that the "postmodern shift" (Harvey, 1990, p. 201; from Jameson,

3 The subjectification of capital is visible throughout Harvey's work. This personification is already found in Marx's automated subject of value in relation to classical political economy (cf. Bonefeld, Gunn, Holloway, & Psychopaidēs, 1995). Honneth has recently described and critically reviewed the emergence of the figure of capital as a subject in Marx's works as a transfer of Hegel's concept of "Geist" (spirit) onto Marx's analysis of bourgeois society (cf. Honneth, 2018).



1984) shows itself in a crisis of experience of space and time, in which spatial categories are prioritised above temporal categories. Harvey continues to describe the 1970s and 1980s as an intensive phase of time-space-compression, which had a disorienting and disruptive effect on political-economic practices, on the balance of power between classes, and on cultural and social life (Harvey, 1990, p. 284). The main aspects of time-space-compression are the emphasis of volatility and ephemerality of fashions, trends, products, techniques, work processes, ideas and ideologies, values and established practices (Harvey, 1990, p. 285).

Time-space-compression describes the transformation of the order of production and its impact on individual temporality. It ultimately leads to a “temporariness” (Harvey, 1990, p. 286) of personal values. On the collective level of society, temporariness drives forward the fragmentation of society and value diversification, which Bourdieu later called the “unlimited rule of flexibility” (Bourdieu, 2015, p. 49f). On the individual level, temporariness can be understood as a destabilising momentum not only of society but also of individual biographies. An omnipresent impermanence imposes high pressure on long-term plans. Coping with this impermanence seems essential in the economic sphere. According to Harvey, impermanence offers two alternatives: “Indeed, learning to play the volatility right is now just as important as accelerating turnover time. This means either being highly adaptable and fast-moving in response to market shifts, or masterminding the volatility” (Harvey, 1990, p. 286f).

PRESENT CONTRADICTION

Lübbe (2000) offers the concept of present contradiction to describe the relation between knowledge and the temporal categories of past, present, and future. He states that

in a dynamic civilisation, in relation to the growing number of [technological, economic, social, etc.] innovations per unit of time, the number of years declines in which looking back means to look upon an outdated world regarding important life perspectives. (Lübbe, 2000, p. 11, own translation)

The present described mainly by the constancy of living conditions contradicts a smaller period. This is also true for the relation between present and future, as accelerated technological and societal advances reduce the years from now, “in which we can expect comparable living conditions” (Lübbe, 2000, p. 11, own translation). For the individual, past experiences are less and less suitable to serve as a basis for future decisions. An increasing emphasis on the present is visible, as distant past and future both decrease in relevance for present decision-making. Yet, present contradiction is a genuine historical process of modernity, opposite to periods of present-stretching, for example, during the Late Middle Ages (Lübbe, 2000, p. 11).

For the collective and individual temporalities as categories in relation to the production of knowledge, this means an increased obsolescence rate of knowledge. On the collective level, collective knowledge, technologies, and products become outdated at an increasingly fast rate. Lübbe has stated that the dynamisation of knowledge production comes with a massive expansion of overall produced knowledge and

outdated knowledge (Lübbe, 2000). For the collective and individual temporal agendas, the concept of present contradiction indicates the reduction of the temporal horizon for reliable planning. It raises the necessity for the individual to structure the present and nearest future. The obsolescence of knowledge must be expected at shorter intervals. The distant past becomes less and less relevant for future decisions.

TOTALITY OF THE PRESENT

Quent (2016) has argued that individuals experience not only an emphasis of the present, but a *totality of the present*. To Quent, the main question is “how do we relate to the present, how do we give shape to the present in our descriptions?” (Quent, 2016, p. 14, own translation). Quent’s totality of the present takes the individual perspective of “impression” (Quent, 2016, p. 7, own translation), which strongly resembles the perspective of experience from Harvey and Lübbe. To Quent, the basic element of the totality of the present is the loss of past and future. The past decays to “mere prehistory of the present” (Quent, 2016, p. 16, own translation). Meanwhile, the concept of the future is lost in the “inability to think about future differently from self-destruction or a continuation and conservation of the same” (Quent, 2016, p. 17, own translation).

During the 19th and 20th centuries, the future was “a decisive motor of social imagination ability” and a “culminating point of individual and collective desire”. Today, it has transformed into “a melting pot of insecurity and fear” (Quent, 2016, p. 11f, own translations). To Quent, collective historical experiences of catastrophes, disillusionment about politics, and radical technological changes have shattered the postmodern belief in progress (Quent, 2016, p. 11). Perversion of the modernistic future orientation is expressed in the slogan of “there is no alternative” (Quent, 2016, p. 12). The slogan is put forward by “a political elite, that blocks any discussion about the character of our living” to “secure prosperity” (Quent, 2016, p. 12, own translations). As temporal categories, ‘past’ and ‘future’ become hollow. The “unification of time that dissolves all experiences of alterity” (Quent, 2016, p. 17, own translation) devalues past and present as potential sources for a different present. In contrast to the conscious settlements of previous political ideologies, this unification today is “not so much the result of a settlement, but the consequence of the absence of any settlement” (Quent, 2016, p. 16, own translation). The lack of alternatives reproduces itself to the same degree that past and present grow unsuitable to inspire genuine thoughts and actions that question the existing present, leading to a *loss of the present* (Quent, 2016, p. 19). Harvey’s *playing the volatility right* from the experience of the late 1980s has transformed into an everyday constraint. Lübbe’s description of the individual’s need to structure the present and nearest future manifests in Quent’s description of a subject type who enjoys their own self-organised activity happily and are delighted by their own performance, while being tormented by lethargy and exhaustion (Quent, 2016, p. 20).

Even though Quent’s conclusions on the totality of the present seem partially exaggerated or too dystopian, the concept includes important elements for the concept of temporal agendas. The first element is the inversion of the future from modern orientation to postmodern possible threat. The second element is the loss of experiences of alterity that devalue past and present as potential sources for a different present.



Attempts to regain such a lost present can be found in some accelerationist theoretical approaches from the last decade. Originating in the basic idea of inverting the criticism of acceleration in contemporary capitalism to a massive expansion of acceleration in politics (and economy), some authors have contributed to temporal theory and to time-related political discourse (Avanessian, 2013, 2018; Avanessian & Mackay, 2014; Esposito, 2016; Srnicek & Williams, 2016). Avanessian and Malik (2016) have discussed the basis of central temporal-theoretical accelerationist thought. Their descriptions of *speculative temporality* (as *Zeitlichkeit*) and *the speculative time complex* are important here. According to Avanessian and Malik, the main hypothesis is that “time itself has changed its direction” from a linear past-present-future relation to an inverted relation between the future and the present, so that “the future happens before the present” (Avanessian & Malik, 2016, p. 7, own translation). Their understanding of the term “time itself” here is in line with Elias’ understanding of time as a social construct at a certain point in its evolutionary route (Elias, 1988) and De Haan’s understanding of time as a human-shaped construct (1996). These concepts are used by societies as regulatory mechanisms (de Haan, 1996), as described above. This seems contradictory in relation to the concepts presented above. In relation to Koselleck’s (2000) arguments, the temporalities of society become largely inconsistent. Historical and natural layers (or sediments) of time no longer aim in the same direction. Harvey’s (1990) postmodern condition describing a linear acceleration no longer seems applicable. The same applies to Lübke’s (2000) concept of present contradiction because, if time comes from the future, it has not lost its importance for the present. Effectively, temporal inversion can be grasped as a logical continuation of acceleration and Quent’s (2016) concept of the totality of the present if some steps in between are considered.

For Avanessian and Malik, irritation about the inverted relation between future and present arises from our inability to get used to living in a “speculative time” or “speculative temporality” (Avanessian & Malik, 2016, p. 7, own translation). Like Harvey (1990), these authors see the driving force behind this development as rooted in the order of production, but with a different outcome. The rising importance of systems, infrastructures, and networks for the social order devalues the importance of actors and personal experience. Personal experience of the present loses meaning as a temporal category in favour of experience being part of “complex formations” of society that “exceed phenomenological determination” (Avanessian & Malik, 2016, p. 8, own translation). Past, present, and future enter an economy in which “the future replaces the present as primary structuring aspect of time” (Avanessian & Malik, 2016, p. 8) in a speculative temporality.

Speculative temporality comes into reality in the phenomenon of pre-emption. Through pre-emptive intervention, a present is created, which legitimates a previously speculative future. The term is derived from the infamous Bush-era doctrine of pre-emptive strikes:⁴ “You drop bombs somewhere and afterwards you find the enemy that you expected. You produce a situation that previously has been a speculation” (Avanessian & Malik, 2016, p. 10, own translation). Pre-emption describes an *anticipatory deduction of the future* that affects the present. The future acts in the now, which indicates that the present is organised from the future (Avanessian & Malik, 2016,

⁴ For the doctrine of pre-emptive strikes, see the National Security Strategy (President of the United States, 2002). With reference to pre-emptive action as a military term, see Sofaer (2003) and Brown (2003).

p. 11). As an example, algorithmic pre-emption tries to offer custom-fit goods and services through personalised advertisements even before the person has searched for them. Another example given by Avanesian and Malik are markets for derivatives or futures that do not operate on “fixed capital” (like production sites) or on “variable capital” (e.g., human resources) (Avanesian & Malik, 2016, p. 13, own translations), but on what Harvey called “fictitious capital formation” (Harvey, 2013). These markets operationalise an anticipated, yet unknown, future to gain profits. This “future mining” (Avanesian & Malik, 2016, p. 14) shows an inverted profit relation between present and future as an “retroactive performance” (Avanesian, 2018, p. 78), as the anticipated future prices are yet to *happen*. But this “exploitation of the future in the present changes the present. This present is not the present that one started from” (Avanesian & Malik, 2016, p. 14, own translation).

Pre-emption produces a recursive logic, an anticipation of the future in the present that affects and changes this very present by doing so. If time is organised from the future in this way, the present enters a speculative relation to the past as well. Looking at the past from the viewpoint of the present, “we are in a future that has overcome the terms and concepts of the past” (Avanesian & Malik, 2016, p. 11, own translation). This relation of past, present, and future is described as the “speculative time complex” (Avanesian & Malik, 2016, p. 11, own translation).

PREVENTIVE AND PRE-EMPTIVE CHRONO-POLICY

The concept of chrono-policy (Kaiser, 2014) offers the possibility of specifying the speculative time complex in its political (and, thus, collective) dimension. Chrono-policy was intended to analyse political reactions to undesirable futures and describe the “management, governance or steering of the difference between future and present” (Kaiser, 2014, p. 49, own translation). Kaiser has stated that “Dangerous futures are constructed in the present as future facts and are used to control and govern the present” (Kaiser, 2014, p. 14, own translation). In many policy documents, this is carried out by “time travel” (i.e., applying the recursive logic of the speculative time complex). By declaring future developments to be a certainty, the reaction must take place in the present (Kaiser, 2014, p. 50). This reaction can be preventive or pre-emptive. Preventive chrono-policy tries to reach a desirable future through conservation and normalisation, and aversion to undesirable influences. “In the case of prevention, the ‘normal course of things’, if untouched, leads to a normal or regular future. Only if we breach the normal chain of events, do we expose ourselves to the danger of a future catastrophe” (Kaiser, 2014, p. 51, own translation). Prevention seems positioned against any form of intervention in the present. ‘Seems to be’ because every policy represents a decision and thus an intervention regarding the future (Kaiser, 2014, p. 52). In contrast (and in line with Avanesian and Malik’s definition, 2016), pre-emptive chrono-policy

commits itself to the opinion that the normal course of things leads to a catastrophe if nothing is done. Only if we determinedly and proactively, sometimes violently, alter the course of things, can we possibly escape the threatening harm in time. (Kaiser, 2014, p. 52, own translation)



Kaiser has called this pre-emptive settlement of the catastrophe as a future fact “the metaphysic of pre-emptive chrono-policy” (Kaiser, 2014, p. 53, own translation). This metaphysic means nothing other than the speculative time complex of Avanesian and Malik (2016). The future is set, while the present is a “place of radical contingency” (Kaiser, 2014, p. 53, own translation).

For the collective temporal agenda, the recursive logic of the speculative time complex described above can be categorised with aspects of pre-emptive chrono-policy: a) setting catastrophes as future facts, and b) arguments to alter the present accordingly. The anticipatory deductions can be categorised similarly in c) proactive interventions to prevent undesirable futures. Yet, the categories “catastrophe” and “undesirable future” and their translation into political and personal strategies remain sketchy and indistinct.

ALGORITHMIC ANORMALITY

To draw analytical conclusions from political and personal strategies to collective and individual temporal agendas, a comprehensive understanding of the rationality based on which pre-emptive chrono-policy operates is still lacking. A starting point for this understanding is provided by Kaiser’s metaphysic of pre-emptive chrono-policy (2014). Pre-emptive chrono-policy creates an artificial linearity (or chronology) between temporal incidents. This development is reinforced by the appearance of a new type of *algorithmic catastrophe*, whose causality eludes human capacity (Avanesian, 2018, p. 31). The (metaphysic) main problem is that algorithmic catastrophes resemble an “algorithmically produced (...) unpredictability” (Avanesian, 2018, p. 32, own translation). They are not identified as catastrophes because their identification depends largely on the individual’s own perspective. This identification could trivially fail due to an incapability of temporally grasping these phenomena on a society-wide scale. The phenomena unfold exponentially, both spatially (e.g., globally) and temporally (cf. Avanesian, 2018, p. 66). Algorithmic catastrophes are “wicked problems, whose complexity makes it impossible to differentiate between cause and effect, the traditional requirements to determine causality” (Avanesian, 2018, p. 30, own translation). This condition can be called “*anormality*”, in which intended functions of a system and occurring anomalies within a system can no longer be divided into substantial or accidental parts of the system (Avanesian, 2018, p. 38). The temporal categories of present and future leave their causal relationship towards the speculative time complex described above. The present is brought more and more into a state of *fundamental uncertainty about future developments*. As Avanesian has concluded, this circumstance fosters the emergence of dataist quasi-religious beliefs, especially in economics. Statistics and probabilities are seen as salvation from uncertainty “by replacing causality with correlation in never-ending streams of data” (Avanesian, 2018, p. 118, own translation). The rationality of pre-emptive chrono-policy is evident in the attempt to overcome anormality and the fundamental uncertainty of future developments by selecting the most probable (catastrophic) future as a certainty and acting accordingly in the present.

Algorithmic anormality relates to the indifference of the totality of the present that Quent (2016) had laid out: From the viewpoint of the present, the indistinguishability of intended functions and occurring anomalies in the state of anormality makes it impossible to construct a substantially different future preventively in terms of chrono-policy. Nevertheless,

catastrophic outcomes of wicked problems are widely visible, e.g., climate change. In his latest work, Avanesian consistently has postulated the need for collective willingness to address present conflicts from the viewpoint of the future (Avanesian, 2022).

A METHODOLOGICAL APPROACH TO TEMPORAL AGENDAS

BASIC CHARACTERISTICS

To gain an empirical grasp on the concept of temporal agendas laid out up to this point, I propose a particular methodological approach. The collective temporal agenda allows for a different set of methods than the individual temporal agenda. In the research undertaken on temporal agendas to this point (Schiller et al., 2017) and especially in the recent study *Bildung for an uncertain future* (Schiller, 2022), the point of departure was the collective temporal agenda, acknowledging that it subsumes the totality of temporalities in society in a given epoch, as discussed above. The reciprocal connection between collective and individual temporal agendas indicates a hierarchy of both regarding their empirical analysis. While the collective temporalities of a society are a product of the interaction of individual temporalities, collective temporalities also influence individual temporalities. As the capitalist order of production (and its collective temporalities) was identified as the major driving force behind the collective temporal agenda, I assumed that the collective temporal agenda represents the most influential or dominant temporalities in the social negotiation process. Thus, I considered the collective temporal agenda to be the best place to start an analysis of temporalities as categories.

To operationalise the concept of temporal agendas in the recent study (Schiller, 2022), qualitative categories were derived from theoretical considerations through the application of two different models: The aforementioned heuristic model of time by Schmidt-Lauff (Schmidt-Lauff, 2012) and the model of policy analysis for adult education by Lima and Guimarães (Lima & Guimarães, 2011; Lima, Guimarães, & Touma, 2016). Lima and Guimarães' model for policy analysis in adult education was used to deduct descriptors and indicators for several temporalities as categories from the collective temporalities of postmodern society summarised in the second section of the article. Schmidt-Lauff's model was used to further systematise assumptions about collective and individual temporal agendas.

This methodological approach differs from other time-oriented perspectives in educational and sociological research. For example, some topologist perspectives seem to relate to temporalities in a similar way, yet their application as an analytical tool is quite different. As Decuypere, Hartong, and van de Oudeweetering (2022) have outlined, the perspective of social topology on education

explains times and spaces as relational, dynamic, and continuously unfolding yet, at the same time, as manifesting in powerful agential *forms* [...], understood as heterogeneous and differentially enacted compositions — *spaces and times* — that are made, produced, and (de-)stabilised in and through relationships, exchanges, and interactions. (Decuypere, Hartong, & van de Oudeweetering, 2022, p. 2, italics in original)



A constructivist understanding of time as a social concept similar to the concept of temporal agendas is followed. This notion of time overcomes the topography of linear past, present, and future by moving away from chronological time and Euclidian space into topological spacetimes. The abstraction of temporal phenomena results from inductive empirical inquiry. Discussion of findings is carried out retrospectively with abstract categories, rather than starting from a certain idea or condition of spacetime (Decuyper et al., 2022; Lewis & Hartong, 2021).

Alhadeff-Jones' rhythmanalytical approach (Alhadeff-Jones, 2019) focusses on individual experience as well. This approach is based on Lefebvre's (Lefebvre, 2004) understanding of space, time, and embodiment that centres around the experience of rhythms as lived temporalities. By adapting Lefebvre's rhythmical concepts, Alhadeff-Jones examines "the influence that the experience of space and time has on learning and development" (Alhadeff-Jones, 2019, p. 172). Temporal phenomena can be determined and interpreted from the viewpoint of different rhythmical categories, for example, "rhythmic dissonance, alternance and resonance" (Alhadeff-Jones, 2019, p. 176). In this sense, he focuses on the present in relation to the past and future, like the concept of temporal agendas. Furthermore, "[a]s a method, rhythmanalysis suggests that we pay attention to rhythms and more specifically to the relations between rhythms" (Alhadeff-Jones, 2019, p. 177). It is similar to the importance of the relationship between collective and individual temporal agendas. Analogous to the reciprocal relationship between collective and individual temporalities as categories beneath the concept of temporal agendas, "[r]hythms express not only a medium through which people relate to space and time, it is also the medium through which power and agency is exerted" (Alhadeff-Jones, 2019, p. 179). Yet, Alhadeff-Jones has emphasised the performative character of rhythmanalysis that, when applied, affects the people involved in the analysis. The concept of temporal agendas as an analytical tool does not imply such a performative character. The strong relation between time and (social) space in the concept of rhythm is not prevalent in temporal agendas.

Other authors have proposed abstract concepts of time only in relation to concepts of *social spaces*, such as Lindemann's spacetime of actors (Lindemann, 2017), Weidenhaus' social spacetime (Weidenhaus, 2017), or Delitz's societal times and spaces (Delitz, 2017). Even though temporalities as categories are always related to categories of space in their existence in society, the concept of temporal agendas is not oriented towards the social dimension of spaces.

Many (German) analyses or diagnoses of present society lack elaboration in terms of temporalities. Prisching's thorough overview of contemporary sociological analyses of society shows that many identify late modernity as a "chaotic, confusing, inconsistent, disoriented society" (Prisching, 2018, p. 16, own translation), marked by pluralisation, flexibilisation, and fragmentation as elements of disintegration. The relationship to abstract temporalities as categories remains rather scarce and is mainly focused on the present (Prisching, 2018).

SECTORAL TEMPORAL ORDERS

In order to analyse the collective and individual temporal agendas within a particular sector of society (see next section "Analysis of temporal agendas"), for example education, I would first like to emphasise the importance of the dominant temporalities



as categories in this sector. For this I would like to introduce the term 'sectoral temporal orders'. The term describes the temporal regime in a sector of society that is formed by its dominant temporalities as categories. This sectoral temporal order can differ from the collective temporal agenda of society. Within the logic of temporal agendas, the sectoral temporal order is a sector-specific, collective temporality as a category. Collective and individual temporal agendas within this sector are largely influenced and shaped by it. To illustrate this influence, I examine two sectoral temporal orders in relation to the collective temporalities of postmodern society. The two orders are IT security, one of the most accelerated industry sectors in society, and continuing higher education within this sector. These two orders have been the subject of empirical inquiry in the recent study *Bildung for an uncertain future* (Schiller, 2022).

The sector of IT security is even more accelerated and volatile than the digital industry as a whole. More than in every other sector, time plays a crucial role in IT security, for example, in the pace of cyber-attacks as a factor on the technical level. It is a crucial factor on the tactical level as well, for example, considering the timespan between the occurrence of a cyber-attack and its detection. Time is imperative at the strategic level of competence development of the 'human factor' through continuing education (Reinhold & Schulze, 2017). Civil and military public authorities around the globe acknowledge that the temporal stability of IT security is short and ephemeral (Bundesamt für Sicherheit in der Informationstechnik (BSI), 2021; *Joint Force Quarterly*, 2019).

It could be assumed that, in this setting, temporalities as categories of contemporary society should be visible in the sectoral temporal order in increased intensity. Examples of preventive and pre-emptive chrono-policy (according to the distinction made in previous section "Preventive and pre-emptive chrono-policy") can be found. Future developments, such as threats, are predicted based on current knowledge. Efforts are made in the form of competence development at critical points to influence the future in a positive way. This can be described as preventive chrono-policy. Pre-emptive chrono-policy plays an important role in the sectoral temporal order as well. Continuous advancement in IT security is imperative or an undesired future with successful cyber-attacks is likely to happen *in the normal course of things*. The driving forces behind cyber-attacks, such as espionage, manipulation, destruction or disruption of infra-structure, and capabilities, by state or criminal actors have proven to be persistent in all sectors of society. This prediction is, therefore, reasonable. This aspect has an effect much stronger than the preventive aspect of competence building in guiding technological advance in a desired direction. Thus, IT-security is a chrono-politically, highly pre-emptive sector, in which undesired futures are catastrophic due to the potential impact of attacks, for example, on critical infrastructure, such as energy, traffic, or food. This pre-emptive character is not only valid as a theoretic description, but manifests visibly in organisational structures and can be verified in security strategies and operations. These strategies include pre-emptive competence development through continuing (and continuous) education and training, and strategies to "pre-empt, defeat, or deter malicious cyber activity" (United States Department of Defense, 2018, p. 4).

For the sectoral temporal order in education, the first of both is of primary importance. The expansion of education and learning is imperative for the largely knowledge-based economy visible especially in the IT security sector. This is also true (at least to some extent) for the knowledge-based society proclaimed in Europe. Yet, exact quantifications about the required expansion of knowledge and, thus, education and training depend on multiple uncertainties, such as global economic developments, technological advances, or events of global impact, such as the Covid-19 pandemic and,



therefore, are hardly possible to reliably predict. When examining the state of *fundamental uncertainty of future developments*, which is a premise for pre-emptive chrono-policy, this relation between knowledge, education and training and predictions of future development is of major importance. As future knowledge and technological developments have become impermanent and largely unplannable (especially in the IT security sector) due to volatility and acceleration, educational policies and strategies must recognise that predictions about the future have become increasingly speculative. Short-term, continuing (higher) education seems to offer a fitting solution to avoid at least the obsolescence of employment-related knowledge. Continuing education fulfils the purpose at Point A to prevent the obsolescence of knowledge at a future Point B, making it an instrument for the adaptation of knowledge to uncertain future labour market needs. Near- to mid-term predictions of labour market needs are barely feasible. The predictions made point to a highly undesirable future that, for example, threatening shortages of skilled labour for the overall economic development if no action is taken immediately. The chrono-political mode of relating to the uncertain future in this way is highly pre-emptive. To avoid this future, the education system must be adapted in the present to provide for necessary education and training options. The recursive logic within the argumentation becomes clear. Only setting the predicted developments as facts legitimises the required adjustments in the present. The range of possible futures is reduced argumentatively, and only one conclusion remains credible. One outcome of this pre-emptive chrono-policy is an understanding of education as a tool of labour market policymaking, with its own line of implications towards the relationship between the education system and economic interests.

ANALYSIS OF TEMPORAL AGENDAS

To conclude these methodological considerations, I outline how temporal agendas can be applied as an analytical tool. Depending on the field of research and the level of analysis, different methods can be employed. For an analysis of the collective temporal agenda in a certain context, methods of qualitative document analysis can be helpful in identifying dominant temporalities as categories within different materials, for example, policy documents, legal texts, or research publications. Established models from the field of research can help as heuristic or analytic frameworks to construct categorial relations between the temporalities as categories and the field of research, for example, adult and continuing education (cf. Schiller & Guimarães, 2022). As methods of analysis, different forms of document analysis or content analysis can be applied (cf. Guimarães, 2017; Keller, Hirsland, Schneider, Viehöver, & Gerhards, 2003). Statements can be made about the sectoral temporal order of the research field, for example, continuing higher education in IT security as described above, and collective temporal agendas at the political or legal macro level can be described. In the example of *Bildung for an uncertain future* (Schiller, 2022), qualitative content analysis (cf. Mayring, 2015) was used for the analysis of one central policy document (Wissenschaftsrat, 2019).

OUTLOOK: TEMPORAL AGENDAS IN FUTURE EDUCATION RESEARCH

I have outlined several intentions, benefits and limitations of temporal agendas as an analytical concept: While temporal agendas are suitable as an analytical tool to identify chrono-political features of policies or strategies, their analysis remains dependent on categories derived from temporalities as categories relevant to the field of research. Nonetheless, identifying, for example, a pre-emptive temporal agenda within a policy can help to better understand its implications for the present. I would like to highlight two relevant ongoing discourses to which the concept of temporal agendas could contribute.

In the debate on future skills for a digitalised world (OECD, 2018; Stifterverband für die Deutsche Wissenschaft e.V., 2021), Ehlers has pointed out that although the distant future is unpredictable, education systems must find ways to prepare students (in higher education) for this future (Ehlers, 2020). Most empirical approaches to this requirement use linear projections to predict future skill needs from the emergence of new occupations or the pace of technological development. However, it seems more plausible to expect an operating context that is changing at an “accelerated and non-linear” (Ehlers, 2020, p. 6) pace and is therefore unpredictable. Temporal agendas as an analytical tool can help to understand the implications of strategies that try to deal with this unpredictability, providing answers to questions such as: How are sets of 'future skills' constructed chrono-politically? What are the implications for temporalities in the respective educational sectors? Or even: How could a concept of education be shaped that also retains emancipatory aspects? What would an appropriate temporal agenda look like? A sustainable and emancipatory future in education would seem to require a preventive chrono-policy based on values, rather than pre-emptive market-oriented predictions. However, a sustainable preventive chrono-policy must be accelerated into the speculative time complex and the abnormality (Avanessian, 2018) that surrounds us. Both are here to stay due to the pace of technological progress, especially in artificial intelligence, and its impact on education.

With the emergence of decision-making based on machine learning, new temporalities of technical systems arise as well. Originating from the interpretation of correlations within vast amounts of data, the topological explorations of data supported by artificial intelligence sometimes resemble the dataist religions described by Avanessian that replace causality with correlation in never-ending streams of data (Avanessian, 2018). Recent developments in artificial neural networks and language models have highlighted these issues by making technologies such as ChatGPT and DALL-E (OpenAI, 2023) accessible to a wider public. Predictions on the future of, for example, learning or qualification requirements, are highly dependent on the models that machine learning algorithms are based on. Identifying the temporal agendas of these models can help to identify temporalities that are induced into educational settings by digital technologies like artificial intelligence-based learner evaluation and guidance. Apart from that, identifying temporal agendas in policies for digitalisation in educational systems and settings can remind us that the future is not the already-completed process that the recursive logic of some pre-emptive policies might want us to believe it is. The future is still an open process that depends on various premises, and the future reality (when it has become the present) must not be confused with the present future constructed in predictions (Esposito, 2019). The more future reality evades prediction, the more educational policies should argue chrono-politically preventive, based upon



shared values in society. Temporal agendas as an analytical concept can help to better understand the temporalities as categories in these values and help to support a critical, even emancipatory approach to education.

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