Article

Revitalizing Eastern and Western Online Communication: A Micro-Meso-Macro Link of Temporal Digital Change

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Abstract

This paper explains in a de-westernized sense (Gunaratne, 2010) how internet-mediated communication changes the way we deal with and plan time both individually and culturally in Germany and China. Therefore, it blends Western and Eastern culture and media theories. The paper focuses on two distinct phenomena: temporal change due to social media, and Online journalism, as the core of Internet-mediated communication (for Germany 39% communication, media use 24% Projektgruppe ARD/ZDF-Multimedia, 2016; for China 90.7% instant messaging, 82% Internet news China Internet Network Information Center, 2017), with other temporal change via smart devices touched upon (Ash, 2018). General research on time in post modern societies, recently more focused on media's temporal change phenomena (e.g. Barker, 2012; Barker, 2018; Castells, 2010; Eriksen, 2001; Hartmann, 2016; Hassan, 2003; Innis, 2004; Neverla, 2010a, 2010b; Nowotny, 1995; Rantanen, 2005; Wajcman, 2010; Wajcman and Dodd) has not yet linked the different societal and cultural levels of temporal change.

Thus, we suggest the following to fill this research gap: For a micro perspective the notions of network theories (e.g. Granovetter, 1973; Schönhuth, 2013), media synchronicity (Dennis, Fuller, and Valacich, 2008) and the idea of permanent connectivity (Sonnentag, Reinecke, Mata, and Vorderer, 2018; van Dijck, 2013; Vorderer, Krömer, and Schneider, 2016) are linked. On a meso level, institutional change in Online journalism with a focus on acceleration is modeled (Ananny, 2016;

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Bødker and Sonnevend, 2017; Dimmick, Feaster, and Hoplamazian, 2011; Krüger, 2014; Neuberger, 2010). On a macro level, mediatization theory (Couldry and Hepp, 2017; Krotz, 2001, 2012) and recent acceleration theory (Rosa, 2005, 2012, 2017) is discussed. The levels are systematically linked suggesting a micro-meso-macro-link (Quandt, 2010) to then ask if and how many of the dimensions of the construct temporal understanding (Faust, 2016) can be changed through Internet-mediated communication. Temporal understanding consists of nine dimensions: General past, general future, instrumental experience (monochronicity), fatalism, interacting experience (polychronicity), pace of life, future as planned expectation and result of proximal goals as well as future as trust based interacting expectation and result of present positive behavior. Temporal understanding integrates the anthropological construct of polychronicity (Bluedorn, Kalliath, Strube, and Martin, 1999; Hall, 1984; Lindquist and Kaufman-Scarborough, 2007), pace of life (Levine, 1998) and temporal horizon (Klapproth, 2011) into a broader framework which goes beyond Western biased constructs through the theory driven incorporation of Confucian notions (Chinese Culture Connection, 1987). Finally, meta trends are laid out.

Keywords: *Time, Communication, Media, China, Germany*

Introduction

In the era just prior to the 2020s, digital media has become ubiquitous in life, with numbers as high as 90.2% Internet usage in Germany in 2018 (Frees and Koch, Wolfgang 2018). Whereas the West increasingly shifts towards full Internet saturation, countries of the Global South such as China are steadily catching up with 55.9% Online users, mainly located in urbanized areas (China Internet Network Information Center 2018). Due to the enormous normalization process of digital media use in everyday life, both scholars and the general public have become increasingly aware of shifting notions of temporality. So far, the field is dominated by mainly Western approaches, to outline and grasp the process of temporal change. De-westernized conceptions and cross-cultural, indigenous, emic and non-simplifying approaches are missing. Finally, the usually laid out trends on one societal level e.g. the macro level, typically look at sociological temporal studies. Here, we seek to fill this research gap:

This paper explains in a de-westernized sense how Online communication changes the way we deal with and plan time both individually and culturally in Germany and China as a different-system design (Anckar 2008). Therefore, it blends Western and Eastern culture and media theories, and models a link between the micro, meso and macro levels in order to quantitatively research the issue suggesting cross-cultural survey designs. The paper focuses on two distinct phenomena: Temporal change due to social media (e.g. WeChat, Weibo and Douyin in China, Whatsapp, Instagram etc. in Germany) and Online journalism, as they are at the core of Internet-mediated communication (for Germany 87% communication, media use 82% (Frees and Koch, Wolfgang 2018), for China 93,3%

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instant messaging, 83,8% Internet news (China Internet Network Information Center 2018)). Moreover, algorithmic temporalities and temporal change via smart devices are touched upon and systematically included (Ash, 2018; Lei and He, 2010). So far, general research on time in post modern societies that have focused on temporalities of (digital) media has not yet linked the different societal and cultural levels of temporal change, which this paper seeks to address. Therefore, the following research question arises: Which communication, media and cultural theories may help to systematically model temporal change through digital media in Germany and China?

The relevance to the investigation of temporal change is multi-fold. First, temporal change is highly related to stress and individual well-being (Reinecke et al. 2018; Bradley 2017). Thus, slow media movements are no coincidence (Rauch 2018). Moreover, time politics must increasingly recognize the effects of digital labor (Gregg 2011, 2018) and the effects of industry 4.0 in organizational settings. This research here can be beneficial in looking at this phenomenon. Finally, researching the condition of late or post modernism needs more thorough and explanatory approaches, which includes empirical perspectives on temporal change, with particular emphasis on countries of the Global South.

The structure of the paper proceeds as follows: First, the construct of temporal understanding, which is a specific form of cultural temporality, is briefly specified for German and Chinese cultural contexts. Eventually, sorted by level of theoretical abstraction (micro, meso and macro), we briefly introduce temporal change theories, and eventually link their core arguments per level of abstraction. Such theories will be taken both from a Western (German) background in particular and a Chinese background. This will support both de-westernization and indigenous theory building. In the final step, the levels are systematically linked, suggesting a micro- meso-macro-link, to then ask if and how many of the dimensions of the construct temporal understanding can be changed through Internet-mediated communication. The conclusion will briefly summarize and reflect the findings and will critically examine how this paper will benefit quantitative cross-cultural research.

Model of Temporal Understanding

Much has been said about social time resp. temporalities, with a multitude of works on cross-cultural dimensions of social time (Hofstede 2001; Hofstede and Bond 1988; Chinese Culture Connection 1987). The most distinguished cross-cultural temporal notion was developed by Helfrich-Hölter (2011), differentiating between four layers: Image of time, time horizon, dealing with time, and time perception. In the context of this article, we focus on her model, yet restrict it to a temporal horizon dealing with time, as these are the notions where societal shifts are measurable empirically within shorter time frames, and moreover, do not refer to perceptional issues of seconds-intervals. Faust (2016) drew on the work of Helfrich-Hölter (2011), and developed a model of temporal understanding, explicitly referring to the Chinese and German cultural contexts. Faust thus defines temporal understanding based on Elias (2005) and Helfrich-Hölter (2011) as a human category of time which is

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individually undertaken but socially constituted. It encompasses the act of standardising two or more events of which at least one must be progressing and is used as reference system in order to relate the other event(s) to it. This relation constitutes the interdependent levels of time horizon and dealing with time (2016, 9)

Moreover, she explicates that both the Germans and the Chinese differentiate between past, present and future (Faust 2016). The latter two factors fall into six sub-dimensions incorporating emic and etic notions theory wise. A temporal understanding consists of eight dimensions: General past, general future, instrumental experience (monochronicity), fatalism, interacting experience (polychronicity), pace of life, future as planned expectation and result of proximal goals, as well as future as trust based interacting expectation and a result of present positive behaviour. Temporal understanding integrates the anthropological construct of polychronicity (Bluedorn et al. 1999; Hall 1984; Lindquist and Kaufman-Scarborough 2007), pace of life (Levine 1998), and temporal horizon (Klapproth 2011) into a broader framework which goes beyond Western biased constructs through a theory driven incorporation of Chinese notions (Chinese Culture Connection 1987). The whole model is visualized in figure one.
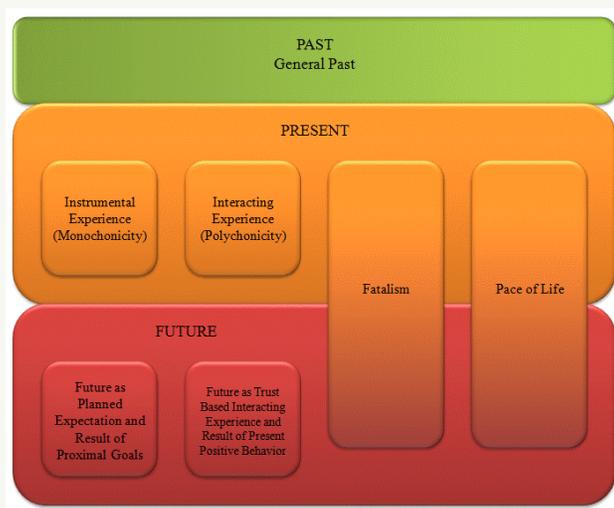

Figure 1. Model of Temporal Understanding (Faust 2016, 9)

The dimensions and sub-dimensions were defined in the following way (Faust 2016, 9):

- Past defines as classifying personal and social events as former and relation towards these events.
- Present defines as classifying personal and social events as ongoing and dealing with these ongoing experiences to help to give order, coherence and meaning to those events.
- Future defines as classifying personal and social events as prospective and relating these to the current situation through different means to help to give order, coherence and meaning to these events.

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- Instrumental Experience (Monochronicity) is based on classification acts and implies the extent to which people in a culture prefer to do one task at time and believe their preference is the best way to do things
- Interacting Experience (Polychronicity) is based on classification acts and implies the extent to which people in a culture prefer to be engaged in two or more tasks or events simultaneously; and believe their preference is the best way to do things
- Fatalism is based on the classification act but lacks active engagement in tasks or events as future is predestined and not influenced by individual action and has thus be accepted
- Pace of Life is based on classification acts and implies the extent to which people prefer tasks or events to be close together i.e. immediate follow-up events
- Future as Planned Expectation and Result of Proximal Goals is based on classification acts and implies an either transactional relationship between present ideas and envisioned long-term tasks and events or a focus on proximal goals in the believe they add up to long-term goals
- Future as Trust-Based Interacting Expectation and Result of Present Positive Behavior is based on classification acts and implies positive outcomes of tasks and events due to balanced interaction in the present.

The model presented in figure one will eventually lay the foundation on which to elaborate, and on whose dimensions or sub-dimensions temporal change occurs. The novelty in this approach lies in the fact that the general assumption of changing temporalities or change in social time rarely specifies which dimensions of time are altered. Here, we overcome this lack of specification in order to lay the foundation for empirical, quantitative-oriented research. In a next step, we will explicitly focus on theories of temporal change – regardless of whether they incorporate one, two or even three micro, meso, and macro levels that help to systematically link these theories to a micro-meso-macro-model.

The Micro Level

With the works of Granovetter as early as 1973, the empirical investigation of networks in social sciences started (1973). Later, Castells' works on network society (2010, 2005) was the first to contextualize temporal change on the backdrop of networks during the emergence of the Internet and with it digital media. While Castells remains highly unspecific, and does not introduce ego-centered networks with strong and weak ties as Granovetter (1973) did, his argument stems from the network structure of the Internet and the relationships that unfold with it. Castells argues:

> …the definition, if you wish, in concrete terms of a network society is a society where the key social structures and activities are organized around electronically processed information networks. So it's not just about networks or social networks, because social networks have been very old forms of social organization. It's about social networks which process and manage information and are using micro-electronic based technologies
>
> (University of California 2001)

In this setting, Castells elaborates, that in modernity, time was context specific, local and linear,

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irreversible, measurable and calculable (2010, 460–63), a construction which has now vanished. Here, it is plausible to assume that instrumental experience (monochronicity) vanishes. This new "timeless time" however is induced as a dominant form of social time and triggered by communication technologies (Castells 2010, 460, 465). Castells' main argument refers to "timeless time", i.e. compressing that falls in line with interacting experiences (polychronicity), and blurring which constitutes a mix of past, present and future (2010). On the contrary, he argues that time horizon in communism is long-term through idolization and in capitalism short-term through monetary time, i.e. the sped up transactions of financial markets to other life domains (Castells 2010). Thus, it remains vague if we can apply the notion of blurring tenses and temporal horizon changes to our model elaborated in figure one. What is more plausible is that Granovetter's (1973) approach of ego-centered networks applied to the Internet may prove fruitful for investigating temporal change in the sense of compression, i.e. interacting experience. This is underlined by the fact that similar efforts have been made by Dennis et. al. (2008) when they looked team synchronicity: According to them, pace of feedback and level of parallelism in virtual teams are central when opinion building is mandatory. Pure information processes do not require a high level of parallelism. Finally, Hassan who explicitly devoted his works to temporality in the network society, makes the general claim of acceleration in a network society against a backdrop of neoliberal capitalist market forces. Clock time is smashed, whereas network time is a connected asynchronicity (Hassan 2007: 51). Not real-time responses dominate an information and network society, and networked time undermines and displaces the time of the clock. He also speaks of 'potentiality' (Hassan 2007: 15). Such digitally compressed network time oriented towards pure speed colonizes all other realms of life.

Unexpectedly, the arguments on the Chinese side are fairly similar: Chinese scholars also explicitly adopt Castells' approach of a network society and introduce them to Chinese social sciences with little to no differentiating between China and the West. Mostly, the scholars frame the argument within Western discourses and even draw on Western literature or Chinese research arguing along Western scholarly discourse. This is particularly interesting as Qiu's joint work with Castells (Castells et al. 2006) on mobile communication introduced this notion to the Chinese context. Two years later, Jin (2008) argued in a similar direction: First he identifies reasons for the emergence of new social time patterns due to electronic i.e. digital media; diversification of timing tools and with it the influence of electronic media on people's perception of time. According to Jin, the characteristics of this new social time are; time-conscious disorder, fragmentation of time utilization, immediacy of time conduction, personalization tendency of time concept. He also sees risks such as communication barriers and alienation of time (2008). This implies an increase in pace of life and short-term thinking, i.e. decrease in future as planned expectation and result of proximal goals. Lei and He (2010) eventually characterize temporal change through mobile media with increasing flexibility, instantaneity and synchronicity, i.e. similar to interacting experience (polychronicity). They add the compression and superposition of time, the latter implying a similar more multi-tasking oriented behavior. They eventually turn to the three levels of society; individual, group and society. Here, we will look at the micro level. Personal time is

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dependent on mobile media and characterized by instantaneity and flexibility with unpredictable time and "anything goes" (Lei and He 2010). They conclude with four kinds of temporal change; the reuse of time that has been realized in the past, compression of time, superposition and extension of time (Lei and He 2010). Here, we can conclude that particularly the pace of life accelerates and that there is an increase in polychronicity. The later works of He (2014) support this argument.

The Meso Level: Journalism and News Platform Induced Temporal Change

On the meso level, acceleration phenomena are a relatively recent phenomenon of discussion. Temporal change is here most apparent in journalism and news platforms. In 2005, Neuberger states that the Internet enables both acceleration and deceleration (2010, 204) just from a technical level. Whilst his further argument is based on Rosa's threefold acceleration (2013) he eventually concludes with a framework of both tendencies (see figure two below, translated to English):

Phase	Acceleration	Deceleration
Transfer to newsroom	local production, faster transfer from each space	-
Production/Offer	permanent actualization	Archiving, Additivity
Transfer to Audience	faster online-transmission	-
Reception	permanent access of up-to-date information	on demand
Further communication of audience	synchronous communication (Chat)	Asynchronous communication over longer periods of time (Forum, Blog, etc.)

Figure 2. Acceleration and Deceleration in Journalism (Neuberger 2010, 220)

Neuberger eventually concludes that acceleration prevails. His arguments therefore bring particularly an increase in two dimensions to the fore; increase in interacting experience (polychronicity) and pace of life. What is really important in his argument though, is that archiving and additivity may lead to deceleration, which should enhance the past and falls in line with memory, nostalgia and archiving studies both in Western and East Asian contexts (Niemeyer 2014; Keightley and Schlesinger 2014; Mizukoshi 19.05.2018, 19.05.2018). However, here with the omnipresence of smart phones such archiving processes may lead to a ubiquitous computing, i.e. such information can be accesses anywhere and anytime, which was shown earlier in the statistics for mobile news consumption and falls in line with Dimmick et al.'s (2011) argument of news in the interstices and for interpersonal communication with Görland's idea of media-in-situ use (2018). All three authors' arguments certainly underline the idea of acceleration, and therefore, we argue that there is a decrease

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in past tendency.

A few years later, the German researcher Krüger based his arguments also on Rosa with the threefold mechanism of acceleration (Krüger 2014, 2009). Krüger argues that there are firstly, technical acceleration defined as an increase in actuality, secondly, social rates of change as rotation in journalism staff, and thirdly, shortening, i.e. increasing of social action episodes with the compression of working days and products and shortened issue cycles (Krüger 2009, 4–5). He elaborates on his arguments through literature and through qualitative, explorative interviews of 17 journalists, and highlights the risks that go along with these three trends. He sees the underlying factors clearly in the Internet but also in competition (Krüger 2009, 17). Similar to the Neuberger (2010), according to Krüger (2009) there is an increase in interacting experience (polychronicity) and pace of life. This argument was later undermined by a thesis Krüger supervised, which found that the journalism profession is accelerating with "an increase of multitasking, time pressure and distractions at work" and "a slightly lowered level of job satisfaction to an increased level of psychological stress" (Gröbel 26.07.2016).

Finally, the notion of critical time studies has entered journalism research as well. Annany proposes the concept of temporal assemblage in order to investigate slow journalism with a critical notion (2016). He sees temporal change in journalism routed in labor routines, platform rhythms, computational algorithms, and legal regulations. The third one is of particular interest as the first two causes have been extensively discussed before and the last one is only discussed in the US-American context. The author states: "No single algorithm governs news time. Algorithms both inside and outside of newsrooms are sustained by a largely invisible set of real- time computational relationships: code talking to code nearly instantaneously and often without close human oversight (Annany 2016, 10)." This process is driven by bot journalism and "entails negotiating with non-journalists and their code (Annany 2016, 10)." So whilst Annany does not conclude on temporal change more specifically, recent research shows an association between media exposure and fatalism with no direct explanation for causal direction. The authors assume though, that social media use including news reading on social media may cultivate fatalism (Ramondt and Ramírez 2017). It remains speculative, if the rising debate of fake news may further this process. Finally, research in the field of temporal change in journalism is on the rise in the Western world as the special issue of Bodker et al. (2018) on speed, acceleration, immediacy, contradictory temporalities, intermediates becomes salient.

It can only be speculated if this issue of journalistic acceleration will also be worthwhile to discuss in China in the future. So far, only Lei and He (2010) look at the meso level. According to them, family time and working time are embedded in each other. The emergence of wireless and mobile media, with people using their digital media to work implies that the synchronization of personal and other working hours is greatly reduced (Lei and He 2010). However, journalistic acceleration remains not looked at presently.

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The Macro Level: Between Tyranny of the Moment, Mediatization and Acceleration

In this part, we focus on societal and cultural change. The works of different authors on macro level temporal change (Eriksen 2001; Krotz 2001; Couldry and Hepp 2017; Rosa 2005) are therefore particularly relevant. Even though all three research strains encompass elements of micro and meso levels, they exceed this notion through thoughtful incorporation of macro level change. Therefore, we explicitly focus on such tendencies in their works.

Eriksen argued as early as 2001 in the rise of the 21st century that society faces a "tyranny of the moment" (2001). Information is framed as the scarcest resource of society and "slow, continuous time" (Eriksen 2001, 3) in particular. Whilst his argument applies to both interpersonally mediated communication and Online news consumption (Eriksen 2001, 59, 66) he specifically identifies three macro level trends: exponential growth, stacking and the tyranny of the moment triggered by information technology. The first trend is referred to as tasking multiple things at the same time with an ultimate threshold value. The author explicates:

> One may do three things at the same time and do three things well. One may do six things at the same time and do six things well. Some may even do twelve things at the same time and do twelve things well. Then they get a thirteenth task, and suddenly they perform thirteenth tasks badly. This is the essence of the transformation of quantity into quality. Even growth takes place for a long while without dramatic consequences, but suddenly a threshold value is reached, and as a result the entire system flips into something different, changing character completely
>
> (Eriksen 2001: 86)

His argument underlies the shift towards interacting experience i.e. polychronicity, where the density of time increases and the gaps are being filled (Eriksen 2001, 21). Second, we turn towards the phenomenon of vertical stacking. Eriksen explains that "more of everything is stacked on top of each other rather than being placed in linear sequences (2001, 6)." So rather than tidy rows he speaks of de-contextualized signs which are randomly connected to each other (Eriksen 2001, 109). Here, we can clearly identify a loss of the present as categorized in figure one as he moreover speaks of a lack of internal integration (Eriksen 2001, 111). Finally, the tyranny of the moment comes into play:

> Indeed, even the 'here and now' is threatened since the next moment comes so quickly that it becomes difficult to live in the present. We live with our gaze firmly fixed on a point two seconds into the future. The consequences of this extreme hurriedness are overwhelming; both the past and the future as mental categories are threatened by the tyranny of the moment
>
> (Eriksen 2001: 3)

According to Eriksen in the information revolution "the fast version wins" with a loss of context, understanding and credibility" (2001, 70) and "acceleration in the media (and) news coverage" then lead towards a dominance of media initiatives and a lack of "long-term thinking" (2001, 65). He

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concludes that there "are limits as to how many pieces one can partition time into before it ceases to exist as duration, and the only time in existence is a single, manic, hysterical moment which is continuously changed, but which does not point any further into the future than the next moment (Eriksen 2001, 47)." So, according to Eriksen, and transferred to figure one, we see an acceleration in pace of life due to a new "restlessness" (2001, 66) and a lack in future as planned expectation and result of proximal goals.

In a next step we turn towards the German discourse of mediatization. In the early works of Krotz, the author defines mediatization as a current, long-term (meta) change process of culture and society on different levels that roots in the changing media (Krotz 2012a, 26). This processual change takes place on different levels. People and their everyday life media communication (micro level), organizations and institutions (meso level), and culture and society as a whole (macro level) are included (Krotz 2012b, 37). Here, it is important to note that he sees this alteration process on all three societal and cultural levels. This process brings temporal, spatial and social change with it (Krotz 2001, 22), and in the realm of society, culture, economy and democracy on a macro level. As Krotz regards media as agents of cultural homogenization, it may be assumed that convergence tendencies occur (Krotz 2001 260: 204). First, media as used means a change in time quantitatively and qualitatively. Temporally, media offering content evince an increasing availability at all times and are used more often. Furthermore, each individual medium is available more often for a longer period of time. And finally, the Internet as an integration medium allows simultaneous communication vertically. Vertical integration means the simultaneous usage of standardized communication (i.e. mass communication), interpersonal communication and interactive communication (Krotz 2007, 91–114). What is more, Krotz speaks of cultural homogenization effects (2001, 204). During his first publication this was mainly concerned with audiovisual means (2001) whilst these days Hepp and Couldry speak of deep mediatization with the Internet at the fore (2017). Now this may lead to the inquiry if we can find such homogenization process between Chinese and German cultural contexts in terms of temporal change. Besides the increase in duration of use, much of his argument falls in line with an increase in interacting experience (polychronicity) through a temporal ongoing network of also interactive relations and an active, mediated, non- planned get-together (Krotz 2007, 2012c, 33).

Hepp and Couldry go into more detail in their 2016 book. Drawing on structuration theory and figurational sociology, they examine the alteration of time through deep mediatization. Whilst they argue that the time of digital media depends on clock time (Couldry and Hepp 2017, 102) they place more emphasis on the communicative enactment of time and the time pressure that goes along with it (Couldry and Hepp 2017, 103). So whilst they draw on Rosa (2005) and Wajcman (2015) and foster the argument of acceleration, such "intensified flows of communication" also lead to a breakdown of figurations and "new forms of inertia and or slowed-down reaction" (Couldry and Hepp 2017, 107). These figurational orders on the meta level are moreover connected with constraint connectivity and 24/7 living, but more than mere acceleration they refer to meaningful interdependence through the

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embedding of norms from social media platforms (Couldry and Hepp 2017, 108–9). The authors then highlight temporal change as following time deficits i.e. through multi-tasking. They also highlight an increase in fatalism of temporal understanding: When "the volume of 'signals' increases, perhaps to an arbitrary high level, social actors may have a problem, and may lose the capacity to react   to communications" (Couldry and Hepp 2017, 111). With regards to the past, they refer to digital media archiving. An increase in storage is required but also a critical reflection that digital media do not 'forget'. Hepp and Couldry state: "The wider implications are complex: greater institutional capacities of memory require improved means for interpreting and sorting the now vast piles of information that accumulate (2017, 112–13)." The authors refer to it as time- deepening that implies to react adequately and on time. So whilst the past becomes enhanced, it also turns into the future implying that it reacts on time to "keep all channels open" (Couldry and Hepp 2017, 113). This in turn affects work, leisure, political activism, news journalism and even sleep patterns to "respond whenever a message comes in" (Couldry and Hepp 2017, 119) and leads to an increase in tempo, i.e. pace of life.

Finally, Rosa, the most prominent time scholar in Germany these days argues that late modernity is characterized by acceleration. According to him (2005, 113–14), acceleration phenomena are threefold: They become visible through technical acceleration of processes, through increasing social rates of change and through shortening/increasing of social action episodes. Technical acceleration as the first driver is defined as "intentional, technical, and above all technological (i.e. machine based) acceleration of goal-directed processes" (Rosa and Trejo- Mathys 2013, 77–78). Transportation, production of goods and communication are the core drivers here with the Internet as a core driver (Rosa and Trejo-Mathys 2013, 72). This logic of "time is money" (Rosa and Trejo-Mathys 2013, 161) is inherent to the capitalist economic system. Increasing social rates of change can be defined as "increase of the rate of decay of action- oriented experiences and expectations and as a consequence of the time periods that determine the present of respective functional, value and actions spheres" (Rosa and Trejo-Mathys 2013, 76). He speaks of a contingency of practices and inter-generational alterations in contrast to a previous more stable lifestyle setting of former generations. Lastly, shortening and increasing of social action episodes is explicated as "the increase in episodes of action per unit of time" (Rosa and Trejo-Mathys 2013, 78). This last tendency of an accelerated pace of life is driven by a cultural motor, i.e. an ethos that dictates that wasting time is a sin whereas acceleration is a promise of eternity (Rosa and Trejo-Mathys 2013, 202). So far, Rosa's arguments refer to a capitalist society and in his earlier works, it remains open if in China as a communist culture the same tendencies occur. His works have been translated to Chinese, and the sociologist Rosa expands from his 2018 travels in China: Whilst the cities are characterized by an enormous speed and on the verge to modernity and with it acceleration, the rural areas are characterized by an "in-between-time" and waiting for the migrant workers from the cities and the arrival of modernity (Rosa 2018). Rosa states that the Chinese state and with it the communist regime are a core driver to such critical acceleration processes (Friedrich-Ebert-Stiftung 2018). Overall, in response to Rosa, a Beijing-based professor sees the advantages of modernity and acceleration for China in growth and development (Rosa 2018).

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Conclusively, the argument of Rosa falls in line with the research on the time of migrant works of Qiu (20.05.2018). Even though media activism time is not dominant in society, Qiu (20.05.2018) highlights one very important aspect about the different modes here: "'times of revolution' are disruptive, collective, anti capitalist, forward-looking, heroic and hyper-historical" whereas 'times of production' are "continuous, individualistic, neoliberal, presentist, profane and ahistorical" (Qiu 20.05.2018, 1). Thereby the Chinese author gives a clear indication: whilst Chinese time is seen as Marxist and therefore revolutionary in the literature. Everyday life in China has many tendencies of the West and therefore 'times of consumption' dominate (Qiu 20.05.2018, 2). The state, however, and this falls in line with Rosa's experience, proclaims a modernist notion of time with linear and forward-looking features which according to Qiu is not dominant though (Qiu 20.05.2018, 2). Other than other Western and Chinese thinkers, he (Qiu 20.05.2018, 3) does not see temporal change firstly initiated through digital media but as a story of continuity of temporal transformation through industrialization. He concludes, that the rise of 'times of consumption' i.e. flat time is a global phenomenon (Qiu 20.05.2018, 5) enacted not through the state but businesses like CCTV and Tencent (Qiu 20.05.2018, 6). This is undermined by the fact that China can be described by the phrase "socialism with Chinese characteristics" (中国特色社会主义), which refers to the increasing turn towards marked economy under Deng Xiaoping. This may point towards an acceleration of society as a whole in China as long as the ideal Marxist state is not yet reached. Wajcman states: "Such discussions of acceleration typically invoke Karl Marx's analysis of capitalism and the constant need to speed up the circulation of capital (2015, 17)."

On the Chinese side, Wang's (2000) arguments are also largely based on the relation between work and leisure and the hegemonic production mode of the society. According to him (Wang 2000), information society not only has a new social structure, but also has new temporal morphological characteristics compared with industrial society. These features include: Fuzzification of time boundaries, flexibility of time structure, and instantization of time systems. These time characteristics will dramatically change the social behavioral norms and people's entire lifestyle. Lei and He (2010) undermine this when they analyze the social level: Cyclical time becomes irregular through digital media. Mobile media has not only changed a lot of personal and group time, but it also affects the periodicity of time at the social level with increasing irregularities in natural work-life-generational cycles (Lei and He 2010). Wu (2010) also bases her dialectical analysis of time and space on the structure of labor and historic times. Influenced by the writings of Marx and Lefevbre, there is one particular point sticking out: The creation of a time and space for human free development with positive interaction practices with communication as an important form of this practice. Moreover, he writes that the value of the relationship of communication contains the factors that determine the present in the future (Wu 2010). He argues, that transnational working class must eliminate the opposition of space with positive interactions (Wu 2010). This shift towards this indigenous Chinese dimension reminds one of the notion of Qiu's (20.05.2018) 'spiky' time – the ultimate annihilation of

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classes with interactions based on mutual trust and an ideal Chinese state.

The Micro-Meso-Macro-Link with Meta Trends of Temporal Change

Derived from the aforementioned model in figure one and the theoretical discussion, the following Meta trends are laid out for both Germany and China according to Krotz' idea of homogenisation (2001):

If not explicitly stated otherwise:

1. There is a decrease in the sub-dimension past (contrary to Couldry and Hepp (2017), Niemeyer (2014), Hsiao (19.05.2018), but the argument is undermined by Neuberger (2010), Görland (2018), Dimmick, Feaster, and Hoplamazian (2011)

2. There is an increase in the sub-dimension present (Couldry and Hepp 2017; Castells 2010).
3. There is a decrease in the sub-dimension future (Castells 2010; Rosa and Trejo-Mathys 2013; Jin 2008).
4. There is a decrease in instrumental experience (monochronicity) (Castells 2010).
5. There is an increase in interacting experience (polychronicity) (Castells 2010; Lei and He 2010; Dennis, Fuller, and Valacich 2008; Couldry and Hepp 2017; Rosa and Trejo- Mathys 2013; Krüger 2009; Granovetter 1973).
6. There is an increase in fatalism (Couldry and Hepp 2017; Ramondt and Ramírez 2017).
7. There is an increase in pace of life (Neuberger 2010; Krüger 2009; Annany 2016; Eriksen 2001; Rosa and Trejo-Mathys 2013; Couldry and Hepp 2017; Jin 2008; Lei and He 2010).
8. There is a decrease in future as planned expectation and result of proximal goals (Castells 2010; Rosa and Trejo-Mathys 2013; Jin 2008).

9. There is an increase in future as trust based interaction and as a result of present positive behaviour in revolutionary times (Wu 2010; Qiu 20.05.2018).

But how can we conceptualize this micro-meso-macro-link of the temporal change theories we explicated earlier on? The following processes are essential: Habit formation according to Koch (2010) on the micro level, Institutionalization on the mesa level (Berger and Luckmann 2010) and objectification and legitimating on the macro level (Berger and Luckmann 2010; Faust 2016). This process of cultural change therefore starts with a communicative encounter, i.e. a communication situation, shifts towards rules and pattern interpretation and then changes the symbolic order of the society as a whole (Averbeck-Lietz 2010). A similar change argument has been made by Hepp and Couldry (Couldry and Hepp 2017), explicated earlier in their works on deep mediatisation which underline the link between the levels here. Moreover, this argument here is well-situated within a cultural stream of theories (Esser 2010) which we have also discussed before (for e.g. crossing of levels through figurational sociology or for e.g. van Dijck's (2013) arguments).

Discussion and Conclusion

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The laid out Meta trends may support quantitative empirical research as a hypothesis driven-endeavour. Whilst these trends are not concise in clear causal attribution in the sense of independent and dependent constructs, they may serve as a framework to start, e.g. data analysis of cross-cultural research from. As to our knowledge, time use research has started to incorporate the use of such temporal change theories (e.g. the works of Georgios Papastefanou, Jorge Rosales or other scholars affiliated with International Time Use Research Association), with communication and media studies lagging behind. If Krotz' (2001) and Qiu's (20.05.2018) assumption of homogenisation and globalization is correct, only cross-cultural empirical research can approve this. Of course, future research must show if such trends apply for all regions alike, e.g. rural China in contrast to capital cities. Thus, we deliberately called these Meta trends, and not hypothesis, in order to open up to other influential factors. In addition, future empirical studies should not stop at description and explanation. Critical questioning, e.g. in the lines of temporal techno-critic scholar Armen Avanessian (2018), the power-chronographer Sarah Sharma (2014) or Neverla's polychronic future (2010) must follow and undermine the thus far theory driven arguments.

Second, whilst algorithm studies are still uprising (Ash 2018), we see the potential of artificial intelligence and machine learning ever more indulged on (in) all three societal levels. Social media platforms such as Facebook or WeChat drastically rely on such filtering algorithms, journalism is on the verge of algorithm-driven clickbaiting, investigative stories set to go viral, and generally a mediated society that becomes engulfed in industry 4.0 can all no longer be seen as mere artifacts beyond everyday life and cultural change. Human-computer-interaction as is on the rise in Japan and its sense of temporal change (Katsuno 19.05.2018) may eventually spread out to the Western and more rapidly to the Chinese world, highlighting the importance of such research endeavours. With these interwoven algorithms, a fabric of temporalities is produced, where we have highlighted nine more concise meta trends. Future social time research must ask how such intermediaries affect these meta trends in more detail.

We would like to give some critical remarks on the research in this paper and to provide an outlook: Whilst the strength of the paper clearly lies in an interdisciplinary and systematising approach of digital temporal change theories, the theories elaborated on are not complete for both German and Chinese cultural contexts. As of 2018, temporal change through digital media has been underway and has spawned a research field in flux with ever more emerging publications (e.g. recent works on audiovisual communication (Barker 2018)). The future will show if more theories of the Global South on temporal change will emerge. Finally, it remains open as to what prospects society faces if such meta trends prove to be empirically correct.

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