When a One-Hour Time Difference Is Too Much: Temporal Boundaries in Global Virtual Work

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Abstract

Coordinating across several time zones has been considered challenging in global collaboration, whereas small time differences have not received much attention in the literature. In this paper, we argue that instead of focusing on the time zone differences per se, temporal boundaries in global virtual work should be studied in terms of discontinuities and continuities. Drawing from organizational discontinuity theory, we argue that temporal boundaries are not symmetrical to global collaborators and, furthermore, that small time differences can sometimes be even more challenging than large time differences in global virtual work. Based on interview data from 93 participants from four different organizations, we show that the visibility of a temporal boundary (i.e., magnitude and direction of the time zone difference) and the physical, administrative, categorical, and individual characteristics related to temporality play important roles in how discontinuities emerge and how continuities are constructed in global virtual work.

1. Introduction

Global virtual workers in multinational organizations face challenges related to geographical distance [6, 15] and temporal distribution of coworkers [5, 22, 19]. There is a common understanding that the more distributed or virtual the collaborations are, the more boundaries the collaboration partners have to cross, and the more challenging the virtual collaboration is [see, e.g., 2]. Therefore, it would seem likely that teams operating across small time zone differences (e.g., Sweden and Finland) would not face similar challenges as would organizations with operations spanning large temporal boundaries (e.g., between India and the US) (see also [10]). Hence, many of the studies investigating temporal coordination in global virtual work have focused on examining collaborations that occur around the globe and around the clock (e.g., [5]).

However, recent studies have suggested that boundaries in global virtual work are not always perceived in similar ways and that there are discrepancies in findings related to the effects of boundary crossing. Watson-Manheim, Chudoba and Crowston [26] propose that these inconsistencies may result from researchers not having separated the boundaries from the effects that they cause when working across them. Organizational discontinuity theory operationalizes these boundary-crossing effects as “discontinuities” and “continuities”. Discontinuities emerge at a boundary when information and communication flows require conscious effort and attention to handle, whereas continuities exist when these flows are as expected and, hence, working across boundaries requires minimal attention to coordinate. Although boundaries are similar across various situations [26], it is through discontinuities and continuities that they can have different effects on collaboration. This mechanism is useful in understanding global virtual workers’ different experiences in collaboration across boundaries.

Prior research has rarely scrutinized time differences in global work based on the magnitude and direction of temporal boundaries. Only a few studies have examined small time zone separations or the direction of time differences and their effects among employees collaborating across temporal boundaries [13, 9, 12]. Although this work is informative for team coordination, it does not compare the effects of different types of time zones on individual workers. Our study builds on the organizational discontinuity theory [26, 8] and aims to uncover the consequences of small and large time zone differences and the direction of the time difference (forward or backward from one’s own time zone) for global workers. Based on a qualitative analysis of interview data from 93 global workers at four Finland-based global organizations, we argue that very small time differences (such as a one-hour
time zone separation) may result in disruptive discontinuities in collaboration when overlooked as a boundary. We also argue that large time zone separations may result in continuities, especially if the direction of the time zones in cross-boundary collaboration is well aligned with an employee’s personal work preferences, cultural norms and values in the local organization and society. Our results challenge the conception of the minor role of small temporal differences in distributed collaboration and show that small time zone differences compounded by different societal and individual rhythms may create even greater discontinuities than does large temporal separation in global work. Our analysis reveals that constructing continuities across small time zone differences is crucial for successful collaboration, although it is more difficult than when time zone differences are large and boundaries more visible. We focus on individual global workers as a unit of analysis, thereby including cultural and societal aspects in the discussion of global work requirements. Furthermore, we show how the rhythms of society and culture play crucial roles in the emergence of discontinuities and the construction of continuities in global collaboration.

2. Literature review

2.1. Temporal boundaries in global work

Boundaries help individuals distinguish one domain from another and simplify one’s environment [1]. Boundaries were introduced to the research of global virtual work as a way to identify areas in which differences between global employees are salient and potentially problematic [26]. Some researchers have distinguished geographical boundaries from temporal and configurational boundaries [19], whereas others have focused on multiple boundaries, such as geographical, temporal, functional, and organizational [10] as well as structural and cultural boundaries [12]. According to Watson-Manheim and co-authors [26], what is common to these various different boundaries is that each is physical, administrative or categorical in nature. In this study, our focus is on temporal boundaries in global virtual work, and we investigate temporality as a physical, administrative and categorical boundary.

Physical temporal boundaries are relatively stable borders of time, such as global time zone differences. We analyze the visibility of physical temporal boundaries, i.e., the magnitude (number of time zones crossed) and direction of the time zone differences (forward or backward from one’s own time zone) [see 26], and its effects on individuals. The literature on global virtual work has paid little attention to the effects of small time differences and the direction of time zone separation in global collaboration. Only a few studies have discussed the differences between small and large temporal time differences [9, 13] and their different effects on collaboration [11]. Based on Espinosa and colleagues’ findings in these studies, a greater time separation between the collaborators may, in some cases, increase communication delay and decrease communication quality but may, in other cases, increase the teamwork speed compared with small time separation [11]. Individual, societal, or cultural explanations for these contradictory findings are not known.

Administrative temporal boundaries are legitimized by authorities, such as organizational procedures and practices, and national rules of law. These boundaries are usually apparent and commonly understood by those working within the administrative boundaries [26]. We apply the notion of administrative temporal boundaries to global work research from the perspective of national working time legislation, national holidays, and culturally accepted values related to the length of the workday. Only a few studies have explored the role of administrative temporal boundaries or “time visions” in global virtual work [20, 22] and have suggested that time-related challenges may arise from holidays, different summer seasons between two hemispheres, and other activities scheduled by administrative boundaries (e.g., workday schedules).

Furthermore, a temporal administrative boundary in global work may also emerge from societal practices and employees’ family-related obligations, such as children’s daycare and schooling timetables. These practices are bound to secular calendar times [20] but vary across nations and cultures. These societal practices may set administrative temporal boundaries to the daily work schedules of employees with young children that are not always compatible with the global work requirements.

Categorical temporal boundaries are distinctions made by individuals to classify other people, for example, based on cultural beliefs and perceptions, such as cultural conceptions of time, work time preferences, and abilities in keeping to schedules (see also [22, 20]). Categorical temporal boundaries may become apparent only after discussing or exchanging information with people and hence are less obvious to people from other cultures or groups, thus making it more challenging to proactively work to address potential discontinuities in global collaboration [26].
2.2. Discontinuities and continuities related to temporal boundaries in global work

Although the research on geographical, temporal, and cultural boundaries has helped identify different dimensions of global virtual work and distinguish the effects of these boundaries from one another [see, e.g., 12, 19], the same boundaries do not always cause the same effects [26]. Hence, it has been suggested that the boundaries themselves should be separated from the effects that crossing the boundary might cause. According to organizational discontinuity theory [26], “a discontinuity is created at a boundary when an individual perceives a change in information and communication flows that requires conscious effort and attention to handle” [26, p. 36]. If the flows of information and action are as expected when working across boundaries or require minimal attention to coordinate, discontinuities do not exist [26].

We build on organizational discontinuity theory and investigate how global workers perceive temporal boundaries and their effects in global work. Although physical temporal boundaries are the same for all global collaboration partners, we argue that the magnitude and direction of the time zone difference may make these boundaries more or less visible to workers and may therefore create discontinuities in collaboration. The empirical research in this area is scarce, but one study of a global team across the US and India [21], for example, showed that the US managers felt pressured by the many emails that they received from their Indian team members at night, whereas the Indian members did not report similar challenges. These findings suggest that the visibility or invisibility of the same temporal boundary may affect how global collaborators experience the physical temporal boundaries.

Furthermore, the administrative and categorical boundaries related to temporality may also play a role in the emergence of discontinuities in global collaboration. Variations in administrative temporal boundaries, such as societal requirements and preferences regarding the length and timing of the workday, may create discontinuities in global virtual work. Administrative temporal boundaries may require that in some organizations, employees always begin and end their workday at a specific time, whereas in other societies or organizational cultures, employees may be valued and compensated based on their flexibility in extending workdays according to global collaboration needs. In a case study between India and England [18], it was found that Indian team members ran personal errands during the workday and compensated for this by working later in the evenings and on weekends, whereas English team members worked punctually from 9 to 5 and separation between work and leisure time was encouraged. These differences related to administrative temporal boundaries created discontinuities between global collaboration partners.

Our research is conducted in Finland, where a long Nordic tradition of formal childcare and dual-earner families [7, 16] sets administrative temporal boundaries for employees’ work schedules and family responsibilities. As research on Finnish daycare systems and family structures suggests, the supply of formal childcare services outside formal office hours is often limited. In Finland, where heavily subsidized formal childcare is widely used, parents who work during non-standard hours are found to experience challenges in arranging childcare outside office hours [25]. These discontinuities may be emphasized if both parents need to work during unconventional hours.

Categorical temporal boundaries, such as cultural perceptions of working hours, and time in general may also play a role in the creation of discontinuities. Research on perceptions of time in different cultures has revealed that issues such as language related to schedules and deadlines and the norms in time estimation and adherence to a schedule may differ among countries [14], which can create discontinuities for global work. Furthermore, a study on global virtual collaboration [21] showed that using asynchronous technology was perceived as problematic in some local sites but not in others because it accentuated the discontinuities caused by temporal boundaries in these locations.

Finally, the discontinuities emerging from physical, administrative or categorical boundaries related to temporality can occasionally be worked out to construct continuities in global collaboration [26]. Because the discontinuities caused by temporal boundaries are often asymmetrical, which means that only some of the collaborators experience them in global work, collaboration partners need to be aware of the perceived discontinuity and make active and repeated efforts to change their expected behaviors. In this paper, we aim to uncover the specific conditions and processes that play out in global virtual work crossing temporal boundaries and thus pose the following research questions:

RQ1: How visible are different types of temporal boundaries to global virtual workers, and how is the visibility or invisibility related to collaboration?

RQ2: When do different types of temporal boundaries create discontinuities in global work and when do they not?
RQ3: When can temporal boundaries be used for constructing continuities in global work?

3. Methods

3.1. Research sites

Organization Alpha is a Nordic-based network and communication services company that employs over 26,000 employees worldwide. All of the informants (N=26) worked at the national headquarters of the company in Finland in various roles and at various levels in the organization. They worked in varying degrees across time zones, mostly with sites in other Nordic countries, and had different amounts of collaboration with other global sites.

Organization Beta is a Finland-based multinational company that operates in engineering and the service industry and employs more than 50,000 employees worldwide. The informants (N=34) worked in engineering positions at the company’s headquarters and at the R&D center located in Finland. They collaborated regularly across time zones, mostly with sites in Europe and Asia.

Organization Gamma is a global transportation company headquartered in Finland that has approximately 7,000 employees worldwide. All informants (N=26) were located in the headquarters and worked in various positions at different levels of the organization. Although many operations of the company were centralized in Finland, several informants also worked in cross-border roles and operated with sites in Asia and the US.

Organization Delta is a Finland-based multinational telecommunications company that employs more than 40,000 employees worldwide. Our informants were R&D engineers (N=48), located at the headquarters and R&D center in Finland who worked in globally distributed projects composed of members from Asia, the US and Europe.

3.2. Data collection

Data were collected with in-depth interviews from the four organizations for various research purposes. However, all interviews had a common set of questions related to typical working hours, collaboration practices across time zones, flexible work times, and experiences and perceptions of work-related collaboration during non-work time. The first author participated in conducting interviews in organizations Alpha and Gamma with another field researcher, whereas the second author conducted the interviews in organization Delta and the third author in organization Beta. All interviews were 45-90 minutes long, were conducted face-to-face on the organizations’ premises, and were recorded with the informants’ consent. Although all collected interviews informed our initial framing and analysis of the data, not all of the informants worked in global roles or engaged in collaboration across different time zones. Therefore, our analysis in this paper focuses mainly on the 93 informants from these four companies who reported that they collaborate across time zones in their work. In organization Alpha, eleven of the informants mentioned collaboration across Nordic countries and Europe (one-hour time differences), and one informant was collaborating across the US and Asia (over 2 hours’ time difference). In organization Beta, 30 informants collaborated across small time differences within Europe (1-2 hours) and 23 informants across large time differences (over 2 hours; mainly the US and Asia). In organization Gamma, five of the informants worked across small time differences within Europe (1-2 hours), and seven informants collaborated across larger time differences, e.g., with the US and Asia (more than 2 hours’ time difference). Finally, there were 16 informants in organization Delta who operated across small time differences within Europe (1-2 hours’ time difference) and 39 informants who worked across large time differences, for example, with the US and Asia (over 2 hours’ time difference). The full description of the case companies and the magnitude and direction of the time differences involved in informants’ global collaboration are presented in Table 1.

3.2. Data analysis

We analyzed the collected in-depth interviews using thematic qualitative analysis methods [3, 4]. In thematic analysis, the researcher encodes qualitative information according to a specific list of themes, indicators and qualifications that may be both inductively derived from the data and deductively generated from theory and prior research [3]. Through thematic analysis, it is possible to identify, analyze and report patterns within qualitative data in detail [3, 4].

First, the recorded interviews were transcribed verbatim, uploaded to the Atlas.ti qualitative analysis program, and read carefully. Second, after discussing the interview themes with the research team, a thematic coding was begun by focusing on one theme related to our research questions: temporal issues in global collaboration (see also [4]). We discussed the occurrences related to this theme several times during the coding process to ensure the thematic cohesion of
Table 1. Case Organizations, Informants and Collaboration Across Time

<table>
<thead>
<tr>
<th>Case Organization*</th>
<th>A</th>
<th>B</th>
<th>G</th>
<th>D</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Interviewees</td>
<td>26</td>
<td>34</td>
<td>26</td>
<td>48</td>
<td>134</td>
</tr>
<tr>
<td>Small Time Differences (1-2 Hours)</td>
<td>12</td>
<td>30</td>
<td>6</td>
<td>16</td>
<td>64</td>
</tr>
<tr>
<td>Large Time Differences (Over 2 Hours)</td>
<td>1</td>
<td>23</td>
<td>8</td>
<td>39</td>
<td>71</td>
</tr>
<tr>
<td>Direction of Time Difference: Forward</td>
<td>1</td>
<td>22</td>
<td>8</td>
<td>35</td>
<td>66</td>
</tr>
<tr>
<td>Direction of Time Difference: Backward</td>
<td>12</td>
<td>30</td>
<td>8</td>
<td>26</td>
<td>76</td>
</tr>
<tr>
<td>Total Number of Informants</td>
<td>12</td>
<td>31</td>
<td>9</td>
<td>41</td>
<td>93</td>
</tr>
</tbody>
</table>

* A=Alpha, B=Beta, G=Gamma, D=Delta

our findings. Third, while all data were being analyzed and coded, we began to map our findings in tables and compare the findings across the four different cases. The final thematic categories were built iteratively [24] based on the data and theory, and representative quotes were extracted from the data to provide rich descriptions. All data presented have been anonymized with pseudonyms.

4. Findings

4.1. Visibility of temporal boundaries

Our first research question asked how visible the different types of temporal boundaries are to global virtual workers and how the visibility or invisibility is related to their collaboration. To address this question, we compared our informants by varying in the magnitude and direction of their temporal boundaries based on their perceptions and experiences of discontinuities in global work. We found that large time differences were often perceived as visible boundaries that were managed with proactive behavior to create continuities. When time differences were sufficiently large, these physical temporal boundaries were visible to all and could be proactively managed to address the potential discontinuities. As one of the informants from organization Beta stated: “At least when collaborating with China, the rhythm is convenient for me. We basically use email for communication, and if I send a message during my workday, I’ll have a reply waiting for me next morning. Moreover, if I answer that message directly, I might even get a new response during the same workday” (B2). The informant was aware of the large time difference, and a reply to one’s email during the same day from a collaboration partner across the large time separation was perceived as a positive surprise, not something that was expected to occur regularly. Another informant from Organization Delta reported similar advantages resulting from the visible temporal boundaries in large time difference collaborations: “In terms of testing, it’s great that if you give some tasks to the Chinese, they are done by the next morning. Our time difference works really well in that regard. And if they have some problems, our Finnish team can help them. So, in principle, working time increases when collaborating with the Chinese” (D9). Large time differences created visible boundaries that were easy to address, and especially, informants working behind the time zone of their collaborators (westbound) reported that the temporal boundary was visible and potential discontinuities were easy to address.

On the contrary, small time differences were much more hidden and therefore went unnoticed by those working on the other side of the boundary. Discontinuities emerged from the fact that small time differences were not expected to affect working and hence were not proactively addressed. Interestingly, the direction of the temporal boundary also affected the visibility of the boundary: the boundaries seemed to be more visible eastbound than westbound. Those who worked in a time zone ahead of their collaborators (eastbound) noticed a discontinuity, of which their westbound collaboration partners did not seem to be aware. A small time difference, such as one hour, caused many complaints among collaboration partners ahead of time. As an informant from Alpha describes: “We have a one-hour time difference with Sweden. As such, it sounds like a short time, but there is this challenge that we start working an hour before and leave an hour before... And very often, colleagues call when I’m already going home or even cooking dinner” (A10). Another Finnish informant from Beta stated the following: “As funny as it may sound, the one-hour time difference with Brussels is sometimes difficult. ... Many times, at 9 a.m. I’m like, I would need this information right now, but I have to wait an hour because they won’t come to work before that. And the lunchtime in Brussels is 1 p.m. our time, and we
often would like to have our meetings during that time... and they prefer to book meetings during our lunchtime... So, surprisingly, only a one-hour time difference creates interesting challenges in coordinating our schedules” (B6).

The notions regarding small temporal boundaries in organization Alpha were accentuated with references such as their collaboration partners across small time differences “did not care” or “did not notice” the short temporal boundary and its consequences for them: “Often, our days are stretched; we can have meetings from four to five. If someone from Sweden schedules meetings to start at 5 p.m. in Finnish time, they can do it without even realizing that the time is later here” (A13). Another informant from Alpha used even stronger discourse: “I’m mostly irritated by the fact that the Swedes still don’t get it [the time difference]. I think it’s because of their arrogance. They couldn’t care less. They just book [the meetings]. If it’s their five to six, they are not willing to see that it’s six to seven here. […] My supervisor and other team members are from Norway, Denmark, and two are from Sweden. They are all within the same time zone. They are not interested in my time zone” (A2). This type of discourse uncovers the asymmetry in the physical temporal boundary that the global collaborators experience and shows the discontinuities created by the invisibility of the temporal boundaries. As with large temporal boundaries, the visibility of the boundary seemed to be clearer to the collaborators located eastbound than those located westbound, one hour behind their time zone.

Our findings indicate that the magnitude and direction of the time difference plays a role in how visible the temporal boundaries in global collaboration are. Large temporal time differences are more visible and often are better addressed. On the contrary, not all global virtual employees may anticipate discontinuities due to a hidden temporal boundary, and asymmetries thus arise. Hidden temporal boundaries are also not proactively addressed (e.g., sending emails in time, scheduling meetings at right time of the day). When boundaries are not visible, the discontinuities become even more abrupt for those whose schedules are more bound to the hidden temporal boundary.

4.2. When boundaries do and do not create discontinuities

Our second research question asked when discontinuities emerge and when do they not emerge due to the different types of temporal boundaries in global work. In addressing this question, we looked at the instances when informants described challenges related to the temporal boundary and which type of temporal boundary they were referring to. Our analysis revealed that discontinuities did not emerge when the collaborators had a clear global mindset and values related to working across physical temporal boundaries. These administrative boundaries related to temporality helped them manage the flow of information and action across physical temporal boundaries. Such situations and experiences were abundant in organizations characterized by global operations (especially in Beta and Delta) and among employees who worked in global, cross-border roles. In these types of working environments, administrative temporal boundaries did not create discontinuities; rather, it was a part of the discourse and common understanding that working outside traditional work hours and adjusting to global schedules came with the territory of working in this type of organization and role. As an employee of organization Beta described: “It [Global role] means that I am accountable for the company’s SAP development and IT operations, so my global duties begin in my morning with China and end with the west coast of the USA in my evening. We also have some operations in Australia. We are active if not 24 hours, then at least 18 hours a day” (B5).

Another informant working in a global role in organization Delta stated: “When you need support in problem solving, you can always get it from someone in a company [like ours] that works 24/7” (D22).

On the contrary, when there was no common mindset regarding the administrative temporal boundaries, such as one’s organization being a global entity, working across temporal boundaries was not something employees expected. When the organizational mindset was local and around-the-clock type of operations were not desired or valued by the employees, even small physical temporal boundaries created discontinuities. One of the informants from Alpha who had previously worked at case organization Delta interestingly compared his current organization with Delta: “We are not in any way a global organization, like Delta, for example, which is operating 24/7. There is always someone working” (A24). He continued by describing the challenges that a one-hour time difference created for his work schedules: “However, we have this one-hour time difference, and the Swedes seem to have a little bit of this problem that some of them are working long days, until five, which is already six here. Then, you might get emails. So you kind of think, can I leave home yet or should I stay later? There might still be something coming from them [by email].” The one-hour time difference created
discontinuities because challenges related to time separation were not expected in an organization that was not considered a globally operating company.

Administrative temporal boundaries also created discontinuities when the societal rhythm was not aligned with the global virtual work requirements. An employee who had four children described the situation: “The small time zone difference [one hour] affects us, so that they [in Brussels] still have couple more hours of working time left at the time I have to leave to go home. We can’t utilize that time for collaboration. […] I have to set a time when I’ll leave from work because my children’s daycare closes at 5 p.m.” (B4).

Finally, physical temporal boundaries did not create discontinuities when employees’ individual temporal boundaries (such as their intrinsic working rhythm) matched with the schedule of their global collaboration partners. Again, this had to do with the direction of the time zone differences, in a way that some informants reported that their natural working rhythm was well suited to collaboration partners ahead of their time (westbound): “I’m happy because I work more toward Asia, I like to wake up early and work early... And I’m happy that I don’t have so much to do with America, just because I think that I’m more efficient in the mornings than I’m in the evening, so it fits quite well for me” (B31). Other informants reported the opposite direction regarding their work rhythm: “If I need to have a conference call with someone in India, I need to come here quite early; if I want to make a conference call to the US, I don’t need to be here as early, but I probably need to stay later... However, the personal thing really is that I’m not a morning person” (G22). When the individual rhythm matched with the global collaboration rhythm created by the temporal boundaries, discontinuities did not emerge.

4.3. When boundaries are used to construct continuities

Our last research question asked when temporal boundaries can be used to construct continuities in global work. In addressing this question, we looked at the strategies that the informants used to overcome the discontinuities caused by various temporal boundaries in their work. We found that continuities were constructed in situations when global virtual employees were willing and able to adjust their individual temporal boundaries, such as work rhythms, according to the other partners. In these situations, distributed workers addressed the discontinuities created by the physical or administrative temporal boundaries and developed continuities by changing their working practices related to individual temporal boundaries, such as individual preferences and values in timing of work, preferred communication media (asynchronous versus synchronous) and individual practices of scheduling work days. An informant from organization Gamma described how he adjusts his routines regarding the workplace to match his family duties whenever there is a virtual meeting with global collaborators later in the afternoon: “Sometimes, if I have to get my child from daycare and I know that I must take a call from the UK at such a time [in the afternoon] that I won’t have time to drive to the daycare after that, I do it this way, where I drive to the city center and take the call from there and then I walk to the kindergarten” (G27). Such an adjustment enabled him to construct continuity out of potential discontinuity. Several informants with large time zone differences reported that they adjust their individual work rhythms so that the physical temporal boundaries related to time zone differences do not disrupt their personal life too much: “I can participate in meetings across time zones, as my children are still small. I schedule evening meetings at such times when my kids have gone to sleep and morning meetings before I have to take them to kindergarten. When you have the possibility to adjust your schedules yourself, collaboration across time zones works pretty well” (D8).

According to the informants, continuities could be created proactively when distributed members were aware of the physical and administrative temporal boundaries they were facing and the potential discontinuities they may cause and were willing and able to adjust their individual temporal boundaries accordingly. By proactively aligning the work schedules with more flexible work times or with an earlier or later rhythm, collaborators could adapt new practices (e.g., starting their work days later than they are used to doing) and repeat these practices to construct continuities from the temporal boundaries. A Delta engineer who worked in Finland explained how he adjusted his work schedules to be better in sync with his Chinese and US-based colleagues: “Today, for example, I started at 7 a.m. with my colleagues in Peking and San Diego. At 6 p.m., I ended the last meeting of the day. I read and reply to emails during the evenings in case the guys (in San Diego) need my help” (D20).

Constructing continuities across temporal boundaries in global work was also related to managing the individual work-life boundary of the informants. In particular, constant availability through different communication media in global work was a potential discontinuity that global
collaborators needed to address, and they had different strategies for this. Other informants reported that they monitor their email during the evenings so that the work does not pile up for the next morning: “Yesterday evening, I just looked at my emails on the fly, and my Norwegian colleague had sent me email, so I thought, okay, I’ll reply to him. And he replied back, so then I provided another comment to his question. […] And then I started to clean my other emails. […] I get peace of mind when I do such things beforehand [in the evening]” (A14). Others contemplated that they intentionally do not open their email after a certain hour to manage their temporal boundaries. Another strategy for using individual temporal boundaries to construct continuities from potential discontinuities was to set one’s status in the company’s internal instant messaging program as offline in the evenings, as one informant from Beta described: “I just realized that I need to set my status as offline in Lync so that others don’t see I’m online [in the evenings], because otherwise it’s like ding, ding, ding, constant questions that they should find answers for by themselves” (B3).

By adjusting individual temporal boundaries, global workers were able to construct continuities from potential discontinuities created by the temporal physical and administrative boundaries in global work. These strategies, such as adjusting preferences for work schedules and adopting practices related to certain communication media, helped global virtual workers to manage their personal and work lives and overcome potential challenges that would have otherwise created discontinuity for them.

5. Discussion

This study examined discontinuities and continuities related to temporal boundaries in global virtual work and aimed to shed more light on the scarce and somewhat inconsistent findings in previous research. Contrary to prior studies [9, 11], this study showed that small temporal boundaries can play a critical role in the coordination of global virtual work. We applied organizational discontinuity theory [26] to explain the differences in global virtual workers’ perceptions related to small and large temporal separations. Our findings indicate that from the perspective of physical temporal boundaries, the magnitude and direction of the time difference are critical in how visible these boundaries in global collaboration are. A large time zone separation is more visible and is often better addressed. On the contrary, not all global virtual employees may anticipate discontinuities due to a hidden temporal boundary, and asymmetries arise. Especially when working across small time zone differences, the boundaries may be invisible, but can cause discontinuities by decreasing shared working hours in mornings, afternoons and during lunch hours (see also [14]). Our empirical analysis showed that the direction of the time difference (eastbound or westbound) is also important for the visibility of a temporal boundary in global virtual work.

Furthermore, we found that administrative temporal boundaries include not only societal regulations regarding work time and childcare schedules but also organizations’ global versus local mindset and culture. If organizational culture supports a global way of working, discontinuities do not emerge as easily as when a global mindset is not prevalent in the organization.

Compared with the administrative temporal boundaries that are strongly evident in our empirical data, the categorical temporal boundaries, such as cultural conceptions of time, were not as commonly reported by our informants. Instead, our findings extend organizational discontinuity theory by distinguishing categorical temporal boundaries from individual temporal boundaries, thus identifying the latter as a fourth level of the theory. Individual temporal boundaries, such as individual employees’ preferences concerning their work and non-work schedules and their preference for asynchronous or synchronous communication technology, were important in the emergence of discontinuities and the construction of continuities. When administrative and individual temporal boundaries can be aligned with physical temporal boundaries, discontinuities do not emerge, even though global virtual employees need to cross time zones in their collaboration. However, when the organizational mindset is locally oriented and the individual working rhythms are different between the global collaborators, the perceptions of discontinuities are much more common.

The findings of our study advance the theorizing of global virtual work by bringing together diverse theoretical components on organizational discontinuities and temporality and analyzing them on physical, administrative, categorical and individual levels. The administrative temporal boundaries related to company culture and societal rhythm played an especially critical role in the emergence of discontinuities. The Finnish working time legislation strongly regulates the length of working hours, and although flexibility can be agreed upon between an employer and an employee (Finnish Working Hours Act 605/1996; https://www.finlex.fi/en/), the legislation does not acknowledge global virtual work and the time-related requirements that it may impose on employees.
working in global roles. Furthermore, a strong municipal day-care system in our case country presented an administrative temporal boundary to global virtual workers, which helps explain some of the discontinuities that emerged in our study. In Finland, there were altogether 67% of children aged 3–6 who were in municipally organized day care in 2011 [17, 23]. Hence, the daycare schedules affect many employees in Finland and may make working across physical temporal boundaries challenging.

Finally, our study contributes to theory development by adding knowledge on how global virtual workers construct continuities from temporal boundaries. We found that it was the individual temporal boundaries in particular (such as employees’ preferences for work schedules and use of asynchronous or synchronous communication media) that the global virtual workers adjusted to overcome some of the discontinuities created by physical and administrative temporal boundaries that were much more stable and difficult to change.

One of the important managerial implications of our study is that the construction of continuities is possible only with organizational support. Adjusting schedules according to global collaboration is not an option if one cannot be flexible in his or her work times. Flexibility should not mean the same as overworking, and organizations should have ways to empower those employees who work across physical temporal boundaries to work in flexible ways. Furthermore, embracing a global mindset within the organization is important when employees work in global roles that cross temporal boundaries. The discourse surrounding one’s work and organization matters when discontinuities are potentially emerging from temporal boundaries. A global mindset in the organization can help global virtual workers overcome these discontinuities and construct continuities from the temporal boundaries.

Our findings also indicate that leaders of global virtual teams should be interested in the local conditions of their team members to develop practical improvements to their teams’ work practices and policies. Global virtual team leaders could emphasize that even small time zone differences can create challenges in a global team and encourage the members to discuss these challenges such that everyone on the team would be aware of the potential discontinuities caused by the crossing of various temporal boundaries.

However, a global virtual employee may occasionally be surrounded by such strong administrative and categorical temporal boundaries (e.g., societal requirements, cultural values, gender roles and family issues) that the construction of continuities is difficult. For example, there may be situations when children can be taken home from daycare only at a certain time and only the other parent can do it (e.g., single parents). In these situations, the construction of continuities in global virtual work (which often requires temporal flexibility) may be challenging or even impossible. Hence, it would be important to study the construction of continuities in detail to identify the minimum conditions under which continuities can still be constructed and how they could be co-constructed in collaboration. Furthermore, if the construction of continuities occurs against one’s intrinsic preferences or rhythm, these continuities may not be long-lasting to the individual but may cause other effects, such as stress and burnout. Longitudinal studies on the construction of continuities from temporal boundaries and their effects would be needed.

This study is not without limitations. We examined only individuals doing global virtual work in one country, Finland, and did not analyze the perception of temporal boundaries and emerging discontinuities or the construction of continuities from the perspective of their collaboration partners. Future studies should focus more on the global collaboration partners and their potentially asymmetric discontinuities and the shared construction of continuities. Because some of our informants worked across both small and large time differences, this might have influenced their discontinuity perceptions. However, the analysis of our case organizations reveals that discontinuities were prevalent even when employees were working only across small time differences. Still, further research is needed to study the differences between small and large temporal time differences in detail.

6. References


