Blurred Boundaries:
An Examination of Learning and Working in the Home During the COVID-19 Pandemic

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The unprecedented social disruptions resulting from the COVID-19 pandemic have resulted in rapid change within the family and home. This paper uses semi-structured interviews with parents around the globe to examine the following research questions: 1. How have the spatial and temporal organizations of learning and working in the home been altered throughout the COVID-19 pandemic? 2. What are the alterations in the educational processes and the role of the family in response to the changes caused by the COVID-19 pandemic? We found that typical boundaries, those between the roles of family members, between work or school and home, and between leisure time and work time have been fundamentally blurred. While some of these boundaries are more porous than others, families report fundamental shifts, temporary and permanent in the way they organize their home and family, spatially and temporally, and the roles they take on within the family.

Introduction
Since the onset of the COVID-19 pandemic, society has experienced tremendous social, economic, and cultural deviation. The societal changes that emerged as a result of the pandemic have demanded profound alteration in the overall social system that humanity has built over the past 100 years. With the rise of remote work and schooling came the need for a radical change with regard to the ways in which we use our living spaces, and for families with school aged children, this meant rearranging space and parental responsibilities in order to facilitate children learning at home and becoming more flexible in the way we use our time. This reconfiguration, supported by technology, has created massive changes in the organization of learning and living within the home and for this reason, observations regarding the needs of families with school age children throughout

the pandemic have provided an opportunity to focus on new possibilities for education. Education, which has experienced relatively slow transformation in the pre-pandemic era, has undergone major changes in terms of the shifts in the perception of educational stakeholders and the heightened awareness of the structural vulnerability of the traditional education apparatus.

The effects of the virus on education and family life are being felt differently in different locations based on public health and policy realities. In the U.S., there is public sentiment and government support attached to the notion that humanity must 'learn to live with' endemic viruses. This means families and schools can experience unexpected shifts to remote schooling when the number of infected cases rises as a response to the various ebbs and flows of the virus. This too is resulting in the need to shift back and forth between remote work and schooling.

Correspondingly, as society contemplates COVID-19's potential evolution from pandemic to endemic, families and households have assumed roles beyond the typical functions of a traditional homestead (Kong, et al., 2021). In this period of time when social distancing — the public health practice of physically distancing oneself in social contexts to prevent the transmission of contagious diseases — has led to the mandated, at times erratic, closure of institutions such as schools, libraries, and workplaces, the dependence on information communications technology and hybrid models for adaptive solutions to the pandemic have transplanted these traditionally external roles into the home. With this in mind, this study captures a snapshot of the blurring of spatial and temporal boundaries and familial roles and relationships experienced by families living and working together during the public health crises. Hence, in evaluating educational responsibilities, we are focusing on academic education that has shifted to the home, as well as the socialization and enculturation that takes place in the home where children and families live, work and learn together.

This research study has been organized around the following research questions: 1. How have the spatial and temporal organizations of learning and working in the home been altered throughout the COVID-19 pandemic? 2. What are the alterations in the educational processes and the role of the family in response to the changes caused by the COVID-19 pandemic?

Boundaries
Lifestyle changes attributed to the pandemic have blurred boundaries of relationships, space and time, necessitating a discussion of the concept of boundaries. The academic recognition of boundaries as margins or demarcations across differing spheres has been developed by an array of scholars in diverse fields who have discussed themes related to perceived interruptions or violations of them, their degrees of permeability, and their spatial and temporal influences on roles (Cho, 2020; Kossek et al., 2021; Hunter et al., 2017; Ashforth et al., 2000). For instance, Löwy (1992) argues that boundaries can be discovered through the analysis of cognitive and social mechanisms for correlations in adjacent academic fields via an emphasis on collaboration and ideological exchange within and between groups. Star and Griesemer (1989) discuss boundaries in terms of "boundary objects", or objects which may take on a different identity within the paradigm of multiple social worlds, yet manage to facilitate contact between them as their areas of convergence are negotiated between social contexts and communities of practice. At times, boundaries have even been designated as the specific borderline or branch of a single concept or pre-completed structure (Bunge, 1992).

However, as set forth by Ashforth and his colleagues' (2000) boundary theory, boundaries and the blurring of roles across psycho-social domains, as a result of the micro and macro transitions undergone in daily life — such as those experienced on the commute from one's home to the workplace, a promotion at a job, or retirement — serve to illustrate the fragile and dynamic nature of boundaries as social constructs and their interface with their carefully maintained schemas in their various iterations and forms. These boundaries are then characterized by the delimitations of cognitive roles inextricably linked to space-time and their relation to their at times institutionalized, other times idiosyncratically, manufactured environmental partitions. Boundaries are identified by the level of their perceived permeability, or susceptibility to intrusion, and their degree of flexibility, or the level of restriction that dictates when and where a role is free to be enacted upon at any given time and in any given setting (Hunter et al., 2017; Ashforth, 2000). The permeability, or degree of porosity between boundaries, whether intentional or unintentional, exhibits perceived allowances for interference, disruption, and role violation between domains (Cheon & Su, 2018; Nippert-Eng, 1996).

Literature Review
This section will examine some of the existing literature around the ways education has happened in the home typically, factors that affect the spatial and temporal organization in the home, typical roles that family members take on. It will also examine previous relationships between families and schools.

Family Roles Within the Home
There is no single way to define "family." The meaning of this word varies from person to person, making it somewhat amorphous to study. For the sake of this discussion, we will focus on two conceptual framings of family. Cohen (2017) describes families as being defined by boundaries and the presence of an "out group". In order to know who is in the family, it must be clear who is outside the family. This flexible, inclusive definition of family is beneficial for this discussion as we seek to honor all family constellations.

Cohabitation is one metric that can be used to describe family (Becker, 1991). When considering the lockdown phase of the pandemic, all social, educational and professional activity shifted to within the home, defining family by cohabitation is particularly useful. This allows our discussion of role boundaries to include all members of a cohabiting family unit, which may include extended family members or exclude members of the nuclear family who are living away from the home.

In any given household there is a typical division of labor for various jobs maintaining the household and caring for children. Gender plays a role in this to some extent, as do other factors such as level of education, relative income, and whether or not there are children in the household (Fuwa, 2004). This varies from household to household and also, importantly, according to cultural trends predictable by country. Regardless of family constellation, once established this division of household labor and carework is fairly static (Moore, 2008). Members of a household take on their specific tasks and continue to perform roughly the same tasks over time (Yavorsky et al., 2015).

There is also a traditional separation of functions between the school and family (Getzels, 1975). Although they have typically both taken on the roles of socialization and education, the way they address these goals can form a disconnect in behaviors and expectations between the home and school (Getzels, 1975). With schooling taking place in the home,

the boundary between these two spheres has effectively disappeared. As an unmitigated side-effect of the public health crises, the blurring of roles and boundaries at the onset of the pandemic across contexts is the result of the disruption of work-family and schooling arrangements (Desrochers et al., 2005; Kossek et al., 2021). This blurring of perceived roles seems to have emerged out of the need to redefine the function of institutions — traditionally characterized by Getzels & Guba (1957) as purposive, peopled, structured, normative, and sanction-bearing — and the reconfiguration of roles and expectations attached to the family's mediation of educational experiences and their relationship to the school (Leichter, 1979). Parents and families have traditionally been expected to undertake the responsibilities attached to child-rearing, which include the maintenance of physical health, socio-emotional and cognitive development, and enculturation, alongside a slew of other duties that vary contextually (Ceka & Murati, 2016).

Spatial and Temporal Organization of the Home
The pandemic has led to an acceleration in the transformation of the existing traditional social structure with regard to work and school, which is best considered in terms of the heightened pressure to extend further the use of communications technology for teleworking and distance learning purposes within infrastructures unprepared for such large-scale digitization (Kerimova, 2020; Yeremenko et al., 2020). The result was a radical dependence on video conferencing platforms such as Zoom, and GoToMeeting, among others, which not only complicated the temporal and regulatory dimensions of learning and telework but changed the spatial organization of activities that once took place outside the home and placed them in close proximity to others in the household (Cho, 2020; Riedl, 2021; McNeilly & Reece, 2020). This movement of all activities into the home has perpetuated a shift in the way time is allocated and perceived, resulting in the creation of rituals as temporal markers in timeless days. Therefore, the implications of these shifts in time and space on boundaries remain to be understood and are the foundational concern of this research design.

Increased use of technology for both work and entertainment has led to a shift in the way we understand physical and spatial boundaries. Michael Bull's (2005) concept surrounding the conscious separation of physical and conscious space illustrates how features of boundaries in the digital dimension function, which has ramifications for online work and school. From the ensuing disruption of school, work and non-work-related boundaries emerged a perceived lack of physical space experienced by families during the pandemic which reflects a pattern similar to the individual separation of meanings for space created by members of urban structures in the pre-pandemic era and associated with contemporary mandates for social distancing (Bull, 2005; Hall, 1963; Holt et al., 2021; Nia, 2021). Social distancing requirements have impacted perceptions of personal space so that they are now more closely attached to *perceived* rather than *actual* risk of infection due to a hyper-awareness of privacy and space attributed to new standards for pandemic proximity which have in turn, resulted in a conspicuous enlargement of both the boundaries of personal space in the metaphysical realm and in virtual environments (Holt et al., 2021; Mehta, 2020; McNeilly & Reece, 2020; Welsch et al., 2021). Therefore, these shifts in the spatial and temporal organization of the home point to a reconfiguration of family roles that have further blurred the boundaries between technology and the work-family context (Schieman & Badawy, 2020; Leichter, 1979). This can also be interpreted as Bull's solitary movement (2005, p. 343) and Simmel's (1997) sense of privacy, defined as a metaphysical divergence of physical space where divergence occurs around the shared space. In this process, the physical structure is deviated to form a space in which they co-exist simultaneously.

As indicated by previous scholars who have studied the effect of technology on the lived experiences of families and drawn attention to the spatial and temporal dimensions of said impacts, this convergence of virtual work and nonwork roles attributed to the voluntary and nonvoluntary transition to schooling at home, when considered contextually, attests to the supposition that the organization of space throughout the course of the pandemic is tied to perceived notions of personal spatial sovereignty (Gubina & Kirillova, 2020; Kossek et al., 2021; Leichter et al., 1985; McNeilly & Reece, 2020; Schieman & Badawy, 2020).

Methodology

The purpose of this study is to gain a deeper understanding of this issue by reviewing, assessing, and exploring how learning and social interaction has changed within families as "a setting in which education invariably takes place" (Leichter, 1975) during the COVID-19 pandemic and focuses on the additional educational responsibilities that are now based in the home by focusing on the spatial organization of the home and the use of technology to create learning spaces for children and families.

To address this purpose, this study employs qualitative research methods, namely, individual ethnographic interviews, which were conducted between February and September 2021. Morse (1991) posits that one characteristic of qualitative research is "...a need exists to explore and describe the phenomenon" (p. 120). Individual interviews were used to explore and focus on the COVID-19 phenomenon, collect individual experiences, and narrate perceptions towards the COVID-19 home-work situation. The semi-structured interview offered an instrument to collect data and contents. The semi-structured interview has been suggested as the "best method to explore perceptions" (Barriball and While, 1994, p. 334).

Participants

The study draws from parents, caretakers, and guardians 18 years and over in order to focus on the adaptive response of the adults' educational responsibilities for children having been or currently engaged in distance learning during the pandemic. Participants were recruited through a combination of random samplings and convenient samplings. Recruitment advertisements were distributed at numerous social media platforms, including Facebook, Instagram, and WeChat. There was no financial compensation provided to participants.

There were 14 interviews with parents or caregivers of (at least) one child under the age 18, who attended school outside the home before the pandemic. Ten mothers and four fathers were interviewed. Parents were informed of the purpose of the study and their potential contribution. All the participants received higher education at different levels, and nine (9) out of them received advanced degrees, Masters, or Doctoral degrees. Most of the participants are working professionals, and their education level and employment status benefit for the understanding of the research focus.

The interview lengths ranged from 30 minutes to 60 minutes, during which time themes related to the focus of the study (additional educational and work home-based responsibilities as a result of the Public Health Emergency) were examined.

The following table showcases the list of participants, each given pseudonyms.

Table 1
List of participants

Participant Pseudonym	Location of participant	Gender	Education Level	Number of Children	Employment status	Employment in or out of the home
Yeong-Hwan	USA, Korea	M	Doctorate	2	Yes	Working from home
Joseph	USA	M	Masters	4	Yes	Working from home since last spring, now working outside the home
Jeremy	USA, Canada	M	Doctorate	2	Yes	Stay at home parent
Natalia	USA	F	Associates	1	Yes	Working outside of home
Dangyang	China	F	Masters	1	Yes	Worked from home last year, now working outside the home
Weijia	China	F	Bachelors	1	Yes	Worked from home last year, now working outside the home
Eric	USA	M	Masters	2	Yes	Working from home
Jessica	USA	F	Masters (IND)	3	Yes	Working from home
Laura	USA	F	Bachelors	3	Yes & No (Lost job during the pandemic)	Stay at home parent
Chikako	Japan	F	Bachelors	2	No	Stay at home parent
Qifeng	China	F	Masters	2	Yes	Working from home
Xinyuan	China	F	Masters	2	Yes	Working from home
Nuo	China	F	Bachelors	3	No	Stay at home parent
Yao	China	F	Bachelors	1	No	Stay at home parent

Data Collection
At this stage, semi-structured interview protocols (Robson, 1995; Mckernan, 1996) were researched, designed, and developed from a review of literature on the family as educator and family education (Leichter, 1975, 1979). We also formulated our protocols based on preliminary data we had collected through digital ethnography before the interview,

which relied on the analysis of publicly available posts on social media platforms that brought the insight of the societal impact and temporal change due to COVID-19 within each family. These social media posts allow researchers to view aspects of the tiniest details of people's lives (Hine, 2011) or at least those details they choose to share. The researchers took advantage of this unobtrusive method (Lee, 2000) to gather initial found data from social media websites including, but not limited to, Twitter, Instagram, Tiktok, and Weibo.

Interview questions were open-ended to generate a dynamic exchange and enhance participant's confidence and engagement to reduce the potential for bias and increase accuracy in the data. Interviews were conducted in either Chinese or English at the request of the interviewee. The semi-structured audio interviews were conducted internationally and remotely on video conferencing platforms, such as Zoom, due to the requirement of the IRB during pandemic. Questions related to how responsibilities and execution of children's and family members' academic education shifted from the traditional school environment to home, the changing nature of social interactions in the home due to COVID-19, and the shifting perception and reaction towards the change of family education experiences. As Creswell (2003), Rossman and Rallis (2016), and Veltri (2019) all emphasized, qualitative research is "emergent" rather than "tightly prefigured."
In tandem with the interview, participants during the research phase were asked to photograph their family's work and living spaces. Adult family members showed us their photographs during their interview and were asked to elaborate upon the instructional space, where learning and working took place in the home, and any challenges presented. These images were used to add context when analyzing interview data. Our analysis phase revolved around coding collected and transcribed data using inductive and deductive codes that had emerged during the data collection phase (Bogden & Biklen, 2007). The following conceptual frameworks were generated during group discussion: 1) Concept of Boundary in general; 2) Physical Boundaries; 3) Relationship boundaries; 4) Boundary out of the home and in the home.

Emerging themes include changes in home life spatial organization, technological accessibility and adaptation challenges, and parental assumption of the primary responsibility for childhood education. Further concerns as to the socialization of children with other children, inability to access outside spaces, misuse of technology, disruptive changes in children's behavior over extended time, behavior management, and subsequent transition to a post-pandemic 'new normal' were raised.

Findings and Discussion
Family boundaries have seen significant functional alterations during the COVID-19 outbreak. As a period of unprecedented social change, the existing integrated social structure has converged, and therefore, peripheral family functions have seen an overlap with those of the family. The heavy reliance on new media platforms and information communications technology has changed boundary management practices and converted nonwork spheres into multidimensional physical spaces where the porosity between boundaries has become normative. This 'new normal', a result of the public health crises and the increased permeability between roles and boundaries, has directly influenced how families have experienced transitions between roles and adapted to interruptions. The ambiguity of the boundary between family and society brought about by the pandemic, the online/offline boundary where the asymmetry of time is reinforced, and the overlapping of social roles between individuals has shown degrees of permeability across social roles. Restrictions attached to the composition of physical space and

communicative practices had to be reassessed and viable solutions for said challenges had to be found to ameliorate concerns associated with the perceived effectiveness of distance protocols and their real-time effects on the functions of the family dynamic. In this context, as the basic unit of society, the family has been expected to not only maintain its traditional dynamics, such as those functions attached to emotional socialization but to support the integration of remote learning in the home. Therefore, this discussion will focus on the following three ways in which boundaries within the family have blurred: interpersonal boundaries (structured by social relationships), spatial boundaries (structured by space), and temporal boundaries (structured by time).

Interpersonal Boundaries
One effect of the increased togetherness that came from everyone working and learning in the home was the need to negotiate and renegotiate roles. Additional responsibilities in the home, such as education and the need for care-work were increased due to the unprecedented degree of augmented proximity within the household. We found that some boundaries between family members were highly porous, resulting in shared or shifting responsibilities, while others remained more rigid and, therefore, less permeable.

Families as Educators
In the existing social structure, the value of education, arguably one of the most distinguishable indicators of social capital, has been concentrated within schools. However, before the pandemic, the family played only an ancillary role in the educational function as a socialization process. These changes heightened the educational function of the family.

During the pandemic, when children's primary space for the carrying out of daily routines in traditional schools was transferred to the household, the main responsibility of academic education shifted from teachers to parents. Acute pressure was placed on parents to differentiate and merge their work roles and caregiver responsibilities on account of the reconfiguration of space during periods of quarantine and mandated shutdowns. The role of parents as educators expanded and became broader during the pandemic as it included, but was not limited to, the aforementioned addition of academic responsibility caused by the disruption of in-person schooling.

The need to act as a teacher, IT technician, or mediator for distance learning led to an expressed increase in family engagement or involvement in academic affairs that was brought up in each of the interviews. Whether families chose to supplement remote learning through the use of external resources or by increasing communication with school actors, it was evident that in order to help ameliorate the educational needs of their children, due to the shift in the locus of responsibility away from professional educators, families were tasked with developing alternatives for engaging in pre-pandemic leisure activities and pedagogical functions. Some families divided the labor of at-home education between the two primary caregivers, while in others, one parent remained solely responsible. For instance, Yeong-Hwan and his wife present an example of a joint-division of labor between two primary caregivers when he says, "If I focused on social studies, my wife [becomes] a math teacher. Especially after the first child [has] done his homework, our main job [is] to check before submitting it online". Essentially, the distribution of educational activities between Yeong-Hwan and his wife are divided according to their relative strengths. On the other hand, Jeremy, a stay-at-home parent, remained primarily in charge of his children's education while his wife worked from home. He viewed his role as an educator as one more aligned with that of a secretary's or

teaching assistant's based on an article he had read advising parents on how to help their children through the pandemic.

> *[I] try to help them keep organized with all the technology that's been thrown at them all of a sudden, right? They're going to get lost, they're gonna have assignments left and right. If [I] can keep track of it for them, just tell them "hey, you know what — have you looked at English?"*

Furthermore, in an effort to facilitate the adoption of Learning Management Systems and digital platforms used for emergency remote and hybrid schooling, many other parents also expressed the need to familiarize themselves with educational technologies that at times required high levels of parental support. Chikako, a stay-at-home mother who also considered herself the primary caregiver responsible for accommodating her children's at-home learning experience, goes on to express how even though the school was in charge of managing platform subscriptions and the creation of digital accounts for educative purposes, she still had to learn "how you can get logged in and see all your work and how you should respond to the activities you are given, too" in order to better supervise and help support her children's learning. Meaning that not only did she have to familiarize herself with the technology, but, in doing so, she also had to learn how to troubleshoot it due to the emergence of technical difficulties. Like Jeremy, Chikako's work as a stay-at-home caregiver also required her to transition between what used to be "clean[ing] the house and then pick[ing] up the kids at 2:45 PM" and her role as a facilitator of online learning.

This perceived shift in roles attributed to the increased permeability between macro and micro boundaries illustrates the abrupt reconfiguration of the school-home interface and, as exhibited by Yao, the inter-role conflicts attached to them. Like Chikako, before COVID-19 Yao mostly took care of her son's daily schedule and aspects of his daily life, such as taking him to school, cooking meals, and completing other household chores. However, at the onset of the COVID-19 outbreak, alongside the sudden repositioning of all in-person classes to remote models, her role as a primary caretaker had to append an academic function to that of her pre-pandemic parenting role. The subsequent technological issues during the online learning process only served to further complicate this shift.

Nevertheless, in spite of the complications, Yao goes on to describe how she developed study goals alongside her son to help him meet his school's curricular benchmarks and, upon settling on a strategy and compiling their extracurricular resources, they actually surprised themselves by accomplishing in two weeks the goals they planned to accomplish in one month. Yao relates how "through the combination of teaching and guidance, his learning self-discipline and listening skills have both been improved and developed, while his study habits have also been established." Yao's description encapsulates how, though not a professionally trained academic educator, increased parental involvement in children's educational activities has yielded a more critical evaluation of compulsory schooling programs on behalf of the parents. Parents also had to try a number of measures to better prepare themselves for such a sudden role change. For example, Yao read self-help books regarding how to 'handle' her son and help him develop good habits. At the same time, she sought help from other parents who could share with her their own real-life experiences when it came to child-rearing. The subsequent need to reevaluate schoolwork and learning outcomes was also disclosed by many other parents in the study, such as Natalia, who chose to use external digital platforms and learning applications to help "reinforce" her daughter's learning.

Furthermore, parents were also charged with accommodating classes that were, ultimately, difficult to replicate online, such as physical education. They did this in a variety of ways. Joseph's strategy was to get the kids outdoors, to the beach if possible. Yeong-Hwan, on the other hand employed the use of video games to help support his children's physical education during the pandemic. Yao mentioned that the pandemic allowed her to notice that her son "has many shortcomings in sports" and was "reluctant to do physical exercises". She used positive reinforcement strategies, among them a fiscal allowance, to encourage the habit of regular exercise.

As parents took on the role of educator during periods of remote learning, many expressed some of the perceived benefits attached to having their children learn from home. For example, Natalia, with regards to her daughter, goes on to express how it is "easier" for her daughter to learn with her "than it actually is with the teacher at school" because she can give her daughter "that one-on-one attention." Xinyuan relates how she was surprised by her daughter's progress while teaching her English through reading books, "She felt online learning was very boring, so she always stayed next to me. I can't help with her homework but read books with her... She read it with me in those two months, and her English improved a lot". All in all, though the accelerated reconfiguration of the pre-existing structure of society brought with it many challenges, the role of the family as educator is one whose influence has changed the dialogue on the implementation of family engagement and involvement strategies.

Building New Habits Together
Character-building, the breaking and creating of habits, and behavioral changes among parents and children alike could be seen during and after the pandemic. In light of this, the role of parents in the strengthening and development of character through modeling, moral education, and guidance, upon being cut off from outsourced childcare, led to alterations in behavioral patterns that stemmed from efforts to adapt to the 'new normal'.

For instance, Chikako and her family invested in a gaming console in order to dedicate time as a family to strengthen their communication skills and familial bonds by playing together. Other parents, such as Dangyang and her husband, also disclosed how they needed to take of the role of friend due to the closure of schools. Their son, an only child, had no other children in the home to socialize and play with. Though online gatherings may have temporarily abated the issue, technology could not fully solve the problem. Owing to this, Dangyang and her husband became worried about their son's mental health and the development of his social skills due to his inability to interact with his school friends in person for a couple of months. Through play, they took it upon themselves to see if they could fulfill the roles attached to those typically realized by his friends.

Another example of social education by parents can also be found in Nuo's interview. Her son was diagnosed with mild autism and goes on to recount how the pandemic gave her a chance to support his social skills.

> *Because he used to get along with other children on his own, and we were not with him. This time I have the opportunity to be with him. When he is getting along with other children, if there are conflicts or other situations, I can provide him with some assistance and support him.*

Negotiating Care Work
While some families, such as Yeong-Hwan's, who had a fairly equitable division of care and housework, did not much alter their care-work habits, others were altered due to an increase in the presence of adults in the house.

Jessica points to this modification of parental roles when her male spouse is present in the household when she says, "We can do the night routine together for kids and all those things are really helpful in that I loved him being at home, even though he's — he wants to travel".

Jeremy indicated a reduced care-work load. Before the pandemic, he was primarily responsible for the cooking, cleaning, and household chores in his household. However, when he and his family moved in with parents, his mother maintained total control of the kitchen, and thus cooking because "She likes her kitchen her way". Moreover, because his kids were spending much more time at home, they became involved in vacuuming and laundry in an effort to learn the responsibility of cleaning. He even had his children help with shoveling snow in the driveway: a novel and unpopular task for New York City natives who happened to spend a portion of their time in Canada during the pandemic.

In Weijia's case, her parents and sister stayed with her family of three during the quarantine. Due to the increase in the number of family members, while the educational responsibilities still mainly fell upon her husband, other household chores were altered, such as cleaning and cooking, on account of the presence of others willing to reduce Weijia and her husband's traditional care-work duties.

Spatial Boundaries
The changes brought on by the pandemic resulted in an increased number of activities, from working to exercising, being moved inside the home. This necessitated the reimagining of the use of household spaces, a theme that emerged in several of our interviews. Spatial boundaries that used to distinguish the dining room from the bedroom suddenly became less clear. Although the spatial boundary of each room played an atypical role before the pandemic, the convergent and divergent transformation of said boundaries and the expansion of digital technologies provided new functions for pre-pandemic spaces.

During the pandemic, many of the households interviewed used their living room or kitchen spaces as a place for school classroom activities. This seems to have changed how the shared space is internalized by excluding the bedroom, the most personal space for relaxation. For example, in Joseph's home, family members required modifications to their spatial rearrangement. Joseph said,

> *It was tough first. So I would work in the bedroom mostly. The older boys did their schooling in their own bedrooms. The twins did their schooling at our dining table with [my wife] there. And then, if [my wife] needed to have a meeting, usually she would go to the bedroom.*

The division of space and drastic readjustment of personal proximities not only overlapped standard functions of physical space but repurposed the use of digital spheres for the sake of transforming the space writ large. In light of this, problems attached to architectural spatial restrictions were also identified. In Yeong-Hwan's case, his complaints revolved around the overall lack of perceived personal space he had while living in a condominium, a typical city-dwelling type.

> *Everyone had to be quiet when the first child was teaching online. In particular, there were many times when I told my second child, who is not going to school, to be quiet. One time, I covered the door gap with a towel because it was too noisy.*

Qifeng further expounds upon this phenomenon throughout her description of her need for an extra study room. Qifeng goes on to say,

> *The second issue of [boundaries] is the space — because my current apartment does not have a study room … When I have a meeting, for example, if I have a meeting at 8 am, and — due to the time difference with New York — and the family [haven't] gotten up yet, I would work in the living room. When my children [get] up, then I [run] to their room for meetings… Then we said, afterwards, that we must bring a study room.*

For this reason, Qifeng presents a case of entering an entirely new space and using the existing spatial arrangement. The spontaneous change of personal space into multi-purposed space illustrates this reliance on the permeability of the spatial boundaries in the home. Alternatively, in her home, Jessica's spatial modification was developed to accommodate the spatial composition of the house and reflect the needs of family members. For example, Jessica goes on to say,

> *My second daughter, we put her in the bedroom [on the second floor], but then she did not want to be so far away from everybody, and then she wanted easy access to the kitchen. So, we moved her down to the first floor and then we put her desk in the master bedroom.*

In this case, even if their second child decides to continue her online school in the master bedroom, the interviewee could accept it. This deliberate micro-management of space accounts for the subtler shifts in family dynamics.

These reimaginings of family space were not always welcome, as described by Laura, whose family transformed their living room into a universal non-family activity center. Laura described her pandemic rearrangement experience as "a crazy idea". Specifically, Laura makes a point to express that the living room (the second living room in this case) should be her private space and, therefore, makes a conscious effort to regulate access to it in order to avoid any potential disruptions or boundary violations. On account of this, a piano was used to partition the living room and the connecting to the kitchen. Laura then goes on to detail how her two kids say that "nobody plays the piano" and how, as a result, her younger son wants to "put his desk against the piano" and responds by "getting rid of one old chair". This mitigation of space to uphold Laura's perceived boundary satisfaction touches upon the compartmentalization of physical space for the maintenance of boundaries.

The need to address boundary violations, whether aggravated by perceived disruptions of privacy or auditory interferences, within family members' recognized personal space parameters also attested to the cross-domain effects of boundary violations. For example, Natalia, a working mom, and a student, describes how the spatial organization of her home during the standard Monday through Friday school-work week highlights some of the more permeable boundaries. When discussing the transition between roles and her work-home interface, Natalia says,

> *So we bought [my daughter] a desk that we have on one side of the living room and she will do her schoolwork there if it's something that she can do by herself…. And then — I have*

a computer. I tend not to listen to any of the videos because I have to put a headset on. So, it's a little bit harder for me to study if the professor gives any videos to watch because I can't focus on the video and her at the same time. But, my desk is on the opposite side of the living room, but we're [Natalia and her daughter] kind of like 10 feet away from each other.

On the one hand, the reconfiguration of space allows her to more closely supervise her daughter's education activities. On the other, it decreases productivity due to an increase in spatial boundary permeability and porosity between her role as a parent and her role as an educator.

Though Natalia's case presents an example of how the blurring of spatial boundaries may have led to a perceived decrease in productivity and, therefore, disadvantage, Jeremy sheds light on how the convergence of spatial boundaries also had the potential to be advantageous depending on the context. While his wife worked upstairs in one of the bedrooms, he had his preteen son and daughter working on the dining room table. He uses the limited separate spaces to check the behavior of his children and help them stay on task. "I purposely kept them together so, in a sense, they could kind of keep an eye on each other. [laughs] Someone's always willing to rat out the other person." To minimize social and environmental disturbances tethered to their close levels of proximity to one another, while one of the children must wear headphones so that the competing sounds of the child not wearing them during class time does not disrupt the other's learning. In Jeremey's words, "Whoever is not paying attention at that time, I usually try to hear their lesson so at least I can tell why they're not listening." In this way, he uses his access to his children's learning space as an academic orientation tool.

Temporal Boundaries
Another effect of the pandemic has been the blurring of the temporal organization of activities within the home. The need to transition school and workspaces to the home facilitated the blurring of temporal boundaries. For instance, Jeremy describes the way his son's school and leisure time have integrated.

My son has fully integrated between the two and leisure is somehow intertwined now with school time.… I look over and I don't see him in science class, I see him on YouTube I think. …They were doing class presentations and… he's not paying attention to the other people's presentations. …You know, so he takes advantage of the time to do what he wants to do. That's his leisure time, in a sense.

Since children were spending more screen time on online classes, some parents controlled their children's leisure screen time to make it shorter because they were worried about their eyesight being affected and did not want them to stare at the screen for too long. For example, in Weijia explains,

Actually, I let her watch TV a little less than the other kids. The original is basically about 1~2 times per week to watch TV, and we do not watch TV at home either. During the pandemic, first of all, she took online classes, so she had to look at the TV. At first I didn't do the screen sharing, she was looking at the laptop… And the time of watching cartoons at noon was controlled at about 15 minutes.

A few of the families we interviewed were negotiating schedules on multiple continents. At the time of the interview, Yeong-Hwan was located in Korea while his son was attending virtual school in New Jersey. This involved adjusting their sleep schedules so his son could attend school from 10 pm-3 am local time in Korea. This meant adjusting

his whole sleeping and eating schedule to allow his son to attend school while juggling local Korean time as well. Meanwhile, Qifeng also raised an issue regarding the working parents rather than her kids that she encountered during the pandemic as she says:

> *Then another problem is that when everyone is at home, the boundary is very unclear, one is the time, for example, when you go to work and then work is work, and when you finish work, then it is the end of the work of the day, thus it was clear that when is work and when is off work. But if you're all at home, sometimes you don't have a clear boundary. You might be checking your email or doing something at night, and then you might do other things during the day, and it's all mixed……I do not think that I was that efficient while working at home.*

Conclusion

The lockdowns and other mitigation efforts associated with COVID-19 pandemic have created changes in all aspects of our lives. This paper has examined how the shift to working and learning in the home has blurred the lines that once organized time, space and human relationships. The pandemic has caused both temporary and lasting changes on the way people work, learn and use space in their home. It has also shifted relationships within the family and in the home/school relationship. These interviews provide a snapshot into the homes of families during the pandemic, but they are only one moment in an ever-evolving phenomena.

The resultant impact of COVID-19 upon families was the enhanced blurring of boundaries within the family dynamic, particularly, muddled interpersonal, spatial, and temporal boundaries. The COVID-19 Public Health Emergency and its aftermath enhanced the traditional importance, function, and recognition of the family and the household as the center of the learning activities. During interviews, common themes were generated and aligned with the accepted academic literature. The studies' findings echo Leichter's earlier observation that "the family is always a setting in which important educational encounters occur" (1975, p. 2).

Almost universally, educational activities occurred within the home space, especially in China, which implemented more rigorous governmental restrictions and protocols for testing, quarantine, and restrictions of personal mobility. The impact of government health policy and resultant restrictions necessarily increased the responsibilities of domestic caregivers.

The intensified family dynamic and limitations of movement required families, parents and grandparents to establish a learning schedule for children, set forth specific educational activities, and become better versed with applicable educational technologies. The pragmatic impact of these new educational demands upon the family had consequences in unanticipated ways: participants claimed extra space was required for family educational activities, families needed to redesign home living space, and previously designated family space was converted for fulfilling varying educational multi-purposes.

This is a preliminary analysis of the data we have collected thus far. Because this research focused on a small group of parents and caregivers predominately from China and the United States, if we intend to conduct a global study, we will need to consider recruitment and interviews of people in other countries. Secondly, the data we presented is limited in the scope of time.

As we pass the two-year anniversary of the pandemic and witness waves of the virus circulating the globe, it leads us to questions which will shape our future inquiries. Which changes documented here are permanent as a part of the 'new normal'? What will return to the way it was in the pre-pandemic era? Which boundaries are dissolved, and which ones remain? We plan to continue researching this topic to gain a better understanding of the longitudinal changes that have occurred societally. Future research should move aggressively beyond these limitations. Researchers should examine parents from additional countries allowing for more diverse cohorts of subjects. An additional area of further research may be to recruit a broader range of interviewees (not only the parents) as the uniqueness and relative strength varies from person to person and their relationship to the children. Increased diversity of interviewees may increase the richness of the dataset.

Finally, as the WHO has started preparing for the post COVID, the family study should reflect on a new social order. Rather than focusing on the elements that can define the family's character at the standard or structural level, this study shows a tendency to pursue authenticity and qualitative value as a family. It is an important reason not only in the social environment in which the traditional family does not form the majority but also in the emergence of a new type of family.

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