IEREK PRESS Academic Research Community

http://www.press.ierek.com

ARChive

CrossMark

ISSN (Print: 2537-0154, online: 2537-0162)

International Journal on:

The Academic Research Community Publication

DOI: 10.21625/archive.v6i1.880

Changing academics' ways of working: towards a distributed university campus

Alessandra Migliore[1], Chiara Tagliaro[2], Andrea Ciaramella[3]

[1] *Department of Architecture, Built Environment and Construction Engineering & Department of Management, Economics and Industrial Engineering. Politecnico di Milano, Milan, Italy*

[2] *Department of Architecture, Built Environment and Construction Engineering, Politecnico di Milano, Milan, Italy,*

[3] *Department of Architecture, Built Environment and Construction Engineering, Politecnico di Milano, Milan, Italy*

Abstract

Academics are a peculiar category of knowledge workers whose work, by nature, is characterized by undefined time and space and includes individual and collaborative activities. Over the past decades, academics have progressively evolved their typically university-centric way of working towards a hybrid, spatially distributed model that includes home and other spaces. The spread of the Covid-19 pandemic has accelerated the redrawing of the geography of workspaces for academics and has opened up opportunities to enable creative, innovative and socially sustainable ways of working. Indeed, working from other spaces than the official workplace can not only have positive impacts on productivity, creativity, and collaboration of academics and staff, but also increase the attractiveness and inclusivity of university campuses by proposing a campus model that is spread across the territory according to the individual needs of its users. While there are already some cases where university campuses accommodate coworking spaces, libraries and innovation hubs within them, evidence of academics using other spaces off-campus is scarce. This research investigates whether, and to what extent, the use of off-campus spaces by Italian academics is a likely and desirable prospect for the future, based on how much their way of doing research has evolved during the Covid-19 pandemic towards a multi-local way of working. A questionnaire was distributed among Italian tenured academics. This chapter presents a quantitative and qualitative interpretative analysis of the data collected from 1,199 answers to this questionnaire. Results describe different profiles of multi-local Italian academics, in relation to the types of location they work from, the experience they had during the Covid-working period and the future they wish for at university campuses. The evidence on multi-local work presented in this chapter shows implications both for academic staff and for university management. The former could approach work in a more distributed way such as it would extend university campuses to an urban and extra-urban dimension. The latter are called upon to meet the needs of their staff using socially sustainable ways of managing their facilities within and beyond campus boundaries.

Keywords

Covid-19; Academia; Multi-local Work; Distributed Campus

1. Introduction

In recent decades, the diffusion of Information and Communication Technology (ICT) and the availability of new digital tools enabled knowledge-intensive workers to spread their work activities across multiple locations (Ojala &

Pyöriä, 2017; Di Marino & Lapintie, 2018). Multi-locality of work means mixing several locations in different times of the day or of the week to perform work activities (Di Marino & Lapintie, 2018). Recent literature has focused on multiple reasons that drive the choice of working multi-locally, as well as on the personas that select a multi-local spatial pattern. However, only a few studies (e.g., Bruchell et al., 2020; Wheatley, 2020; Di Marino & Lapintie, 2018; Ojala & Pyöriä, 2017) analyzed which types of locations workers access, how often and, most importantly, what may be the impact of such a phenomenon on the urban environments. Moreover, the current literature has extensively focused on broad categories of multi-local workers – e.g., knowledge workers (Burchell et al., 2021) – while job-type specifications may be crucial.

Among the population of multi-local workers, academics have been overlooked, even though their way of working has always been mobile across several different places. On one hand, their need for multi-disciplinary collaborations, entrepreneurial activities, and connections with enterprises (Rajalo & Vadi, 2017) brings their work off-campus and in third places (Oldenburg, 1989), such as cafés, restaurants, public outdoor spaces, etc. On the other hand, their need for concentration and individual work (Seddigh & Berntson, 2014; Gornall & Salisbury, 2012) as well as family duties and personal motivations pushes academics to work at home (Mokhatarian et al., 1998).

The research presented in this chapter focuses on academics as a specific type of knowledge workers (Gornall & Salisbury, 2012) who have adopted multi-locality of work. The disruptive impact of Covid-19 on the world of work has also been crucial for academic work and opened up new opportunities for redesigning work policies and workspaces within and beyond university campuses. Indeed, campuses are centers of innovation and social sustainability within cities and require adequate collaboration between their users (i.e., students and academics) and the city at large (den Heijer et al., 2018).

For these reasons, this research aims at understanding the profiles of academics that adopted a multi-local work during the so-called "Covid-working" period, meaning the period in-between strict lockdown phases when academics were not "obliged" to work-from-home but they were relatively free to decide where to work (Tagliaro & Migliore, 2021). The definition of profiles of multi-local academics integrates information on (i) the types of *other spaces*, beyond home and the campus, they accessed during Covid-working and (ii) the most valuable needs that drove their choice to be multi-local. Consequently, this research aims at reflecting on the implications that these flexible habits may have on future university campus models as extended organisms at an urban scale which are made up of multiple work locations. According to this framework, this chapter attempts to answer the following research questions: Who are the academics that adopted multi-local work during Covid-working? Which implications does multi-locality bring to future university campuses?

In order to address the two research questions, the study presents a literature review on multi-local work for academic work. Furthermore, the chapter presents the results of a survey distributed to the whole population of Italian tenured academics in summer 2020. The analysis yields three profiles of multi-local workers and their research and spatial practices within different work locations. Since these results only represent the Italian academic community, it is not possible to generalize the needs of multi-local academics. Nevertheless, this analysis adds to the limited literature on the topic a definition of three distinct profiles of multi-local workers and elaborates on the potential implications of more distributed work practices of academics for future university campuses and cities at large. Our findings contribute to the literature on work location patterns, multi-local and remote work. By drawing attention to an important but understudied type of knowledge worker, our results also advance the literature on academic work and university campus management.

2. The significance of multi-location of work for academics

The nature of knowledge work entails that it combines high cognitive skills with social interaction. Knowledge workers need time to work alone for thinking, analyzing and reflecting, along with time to interact with others so that ideas can be generated and evaluated (Ojala & Pyöriä, 2017). This might be one of the reasons why the phenomenon of coworking spaces has been growing constantly in the past decade. Indeed, coworking spaces have proved to support knowledge and creative workers in working alone together (Spinuzzi, 2012), flexible sharing (Ivaldi & Scaratti, 2019), and peer-interaction (Brown, 2017). Academics and researchers – knowledge workers by definition – need a

pattern of different workspaces to optimize their levels of proximity and privacy, nevertheless there is little evidence about their specific multi-local patterns. In particular, information is missing about the multiplicity of spaces that they use to conduct their work, including coworking and similar spaces. Nadler (2016) defined multi-locality as an active everyday life distributed in different places. Multi-local work implies that workers have the freedom to choose the workplaces they prefer from a pool of potential places reasonably accessible to them (Liegl, 2014; Kojo & Nenonen, 2015). This selection derives from a conscious evaluation process aimed at maximizing benefits (Spivack & Milosevic, 2018) and it is frequently related to collaborative work activities (Townsend et al., 2011). Nonetheless, multi-local workers may face several challenges. For instance, as Hislop and Axtell (2008) report, space limitation and the unavailability of technological facilities made it hard to work in what Oldenburg (1989) defined as *third spaces* or from home. Moreover, working off-site means being absent from the assigned workspace, therefore reducing social relationships with colleagues and/or giving up a recognized position in the social hierarchy of the workplace. Not by chance, multi-local work is less frequent in hierarchical business contexts.

Academics are less subjected to hierarchical mechanisms and have weaker organizational structures compared to company employees. In addition, their work is knowledge-intensive. For these reasons they benefit from location autonomy more than other categories of knowledge-workers. Specifically, academic work has a dual nature. On the one hand, it is strongly remoteness-compatible and can be flexibly located in multiple spaces. This part of the academic work is configured as the timeless and spaceless work when academics read, write, and think individually or collaboratively (Ylijoki et al., 2003), also facilitated by ICT and online tools. On the other hand, research needs specific facilities on-campus or off-campus which vary according to the research field (Haugen & Aasen, 2016). This part of academic work configures as scheduled and location-dependent. It is characterized by strict project deadlines, in-presence teaching, lab experiments or research that requires special facilities and equipment, as well as administrative meetings. Given the dual nature of academic work, the literature reports that academics mix flexible and fixed times and spaces (Ylijoki et al., 2003; Gornall & Salisbury, 2012). Indeed, academic work boundaries – if any – derive from temporal and spatial strategies aimed at finding an adequate balance in the use of space and time between the two parts of academic work (Ylijoki et al., 2003).

This research lays on the assumption that university campuses are complex architectures (Kornberger & Clegg 2003) which either formally or informally include multiple locations (*i.e.*, university facilities, staff and students' houses and *other spaces*). The inclusion or the exclusion of such locations for work within individual work patterns derives from personal and organizational motivations. Gornall & Salisbury (2012) summarized the evolution of spatiality of academic work as follows: first, the traditional on-campus model assumed that home was totally separated from work while the university campus was the work base; then, home gradually became a work location; and finally mobile working anywhere and anytime was progressively possible. At this point of extreme work flexibility academics decided to return to a campus workplace (for instance at alternative work hours or days). Today, ten years after the Gornall and Salisbury paper, an evolution of spatiality of academic work occurs again, as academics integrate other third spaces to their workplace locations adopting multi-local work. Namely, universities are connected more than ever to the urban environment they are embedded in through other spaces which accommodate work and learning activities.

Other spaces for research may include research-oriented and non-research-oriented locations. Research-oriented spaces are, for instance, private labs, collaborators' organizations, living labs. Non-research-oriented locations, instead, include homes, coworking spaces, cafés, and public transport. Specific consideration of those spaces is of utmost importance, especially in light of the Covid-19 pandemic which forced knowledge workers to rethink their work locations. At the same time, universities have made unprecedented investments to improve on- and off-campus infrastructures in order to rethink their role as urban attractors, innovation hubs and knowledge-sharing facilitators (Rytkönen, 2015; Baldry & Barnes, 2012). For these reasons, universities are becoming increasingly dependent on the presence of non-academic spaces (Chapman, 2006; den Heijer, 2011; Haugen & Aasen, 2016; Kuntz, 2012). While modern campuses host learning and working incubators for entrepreneurs (Wissema, 2009), it is now frequent that universities partner with coworking spaces to host their students and staff. Moreover, Den Heijer and Curvelo Magdaniel (2018) report that coffee shops and sport facilities are functional resources of the city that serve as crucial spaces for a dynamic university campus which has a strong relation with its urban environments. In such cases, *other*

spaces can support campus spaces in assisting community formation on- and off-campus (Temple, 2009; Chapman, 2006; Hampton & Gupta, 2008; Dowling & Mantai, 2017). In addition, research work is strongly collaborative. It is frequent that academics work for and within third party and private companies' sites. In fact, universities exploit external spaces to maximize their mission of sustainable development, integration within the city and inclusion (den Heijer & Curvelo Magdaniel, 2018), as well as favoring exchanges between society and the university community by building a critical mass of local and foreign actors – including students, education institutions, training companies, knowledge industries, and science and technology centers (Knight, 2014). Finally, academics are strongly involved in field work and data collection activities which push them outside of the campus boundaries for a significant amount of their work week.

According to this trend, the Covid-19 pandemic may have engendered challenges for a socially sustainable development of distributed campuses through multi-local work. On the one hand, academics that adopted a multi-location pattern even during the Covid-working period – with social distancing restrictions – stressed the relevance of alternative work locations for a part of the academic community. On the other hand, the pandemic may have amplified social inequalities (e.g., in terms of gender or age) among academics that adopted a multi-local pattern. For instance, Burchell et al. (2021) found that female knowledge workers are usually more constrained in one single location, while men enjoyed more multi-local work. In addition, some disciplines or specific universities may have benefited from *other spaces* for research more than others because of their surrounding urban quality or because of the specific activities to be performed. This research aims at understanding who the Italian academics that embraced multi-local work during the Covid-working period are, and at identifying the implications of multi-local work practices on future university campuses.

3. Multi-local work and the Covid-19 pandemic

The findings of this study are best understood in the context of "Covid-working" as the adaptation period between Covid-19 waves, when the freedom to move to other research locations returned almost to normal levels. During Covid-working academics were somewhat free to move to locations different from their homes where they were locked down in strict emergency times, but still discouraged from full presence in university buildings. In Italy, this period started just after the first lockdown phase (March – May 2020) and lasted over the summer until the second Covid-19 wave in October 2020. Our study refers to this time window (Fig. 1). Following the Economist (2020) we divided present times in the *B.C.* - before the coronavirus period and the *A.D.* - after domestication. Before coronavirus, academics worked mainly on-campus. University education and research was strongly associated with the idea of a precise physical environment. Architecture of campuses was the means to transmit identity, ideals and values of the university community (Temple, 2009). Namely, every activity of the university used to revolve around the campus and researchers, students and businesses were co-located under the same roof. After domestication, academics increased the extent to which they work off-campus, either from home or from other spaces. Such a flexibility of their work and teaching activities is leaving traditional workspaces on campus empty, while university activities are being distributed around the city, without a spatial core.

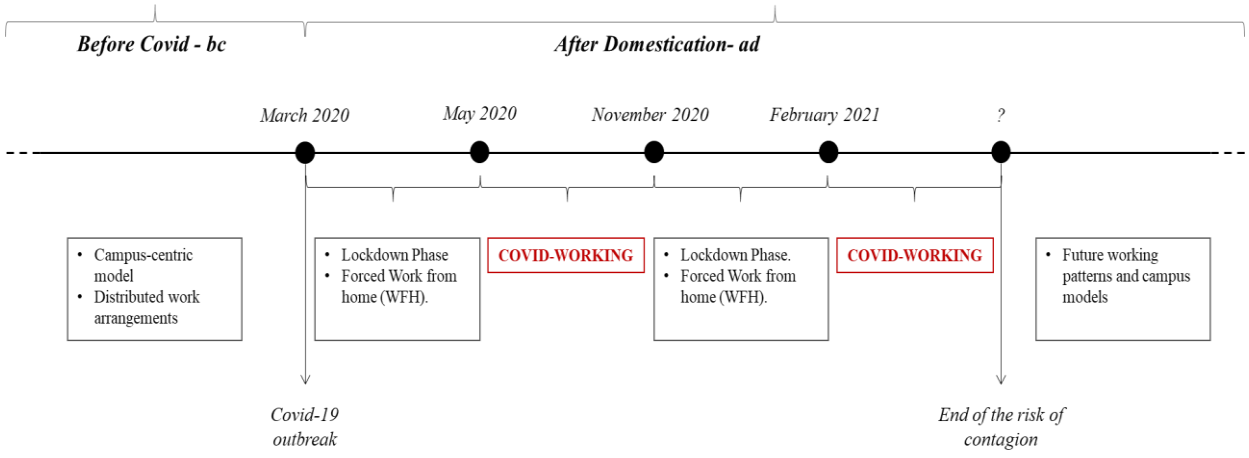

Figure 1: Covid-working timeline

4. Methodology

4.1 Research data

The data used in this chapter were collected through a large-scale survey that was administered to the whole population of Italian tenured academics, with the aim of exploring their work habits during the Covid-working period. The target population was sampled thanks to the Italian education Ministry's lists (MUR)[1] that are publicly available online. These lists include all the Italian scholars tenured in public Italian universities but exclude PhD students, post-doc researchers, and research grant holders. The target population was composed of 52,630 academics, based all over Italy, and included all the scientific sectors of Italian academia. After a pilot-test and pre-test (Collins, 2003), our survey was distributed to the target population via email. Participation was voluntary and confidential, and remained open from July 24th to September 24th, 2020. Overall, 11,634 answers were collected (response rate 22,11%). The sample consists of 3,853 women (48.99%) and 4,012 men (51.01%). The respondents are on average 51 years old. They are geographically distributed all over Italy (North, 48.29%; Centre, 25.86%; South, 25.85%). The survey collected responses on different domains through both closed and open answers. According to the objectives of this research, we focused on the information about (i) *locations of research activities*, considering time spent at 'campus', '*other spaces*', and 'home' during the Covid-working period (i.e., after the first lockdown phase in Italy); (ii) *home life*, meaning family composition, household duties and house spaces; (iii) *research life*, including collaborative work activities and involvement in institutional activities[2]. Moreover, MUR lists provided background information on *research life* (disciplines and academic seniority) plus individual characteristics included age, gender, university affiliation and geographical location.

4.2 Sample selection and data analysis

As a first access to our dataset, we initially explored research locations. Since the objective of this chapter was to delineate profiles of multi-local academics, we dropped responses from those academics who were only home-centric, only university-centric or who accessed both home and university, without considering *other spaces* in their location pattern. Accordingly, our dataset was composed of 1,199 usable and consistent answers (including 843 completed open-ended questions) from those who adopted a multi-local work, meaning that they worked from *other spaces* for a significant amount of their work week (i.e., equal or more than 1 time a week) in addition to home and the campus. The sample analyzed in this chapter represents 10.31% of the overall 11,634 answers. Even if the sample is limited in size, the aim of this study is interpretative rather than statistical. The analysis proceeds with an elaboration of survey data using descriptive statistics as well as t-tests and Anova tests for close-ended responses, and qualitative interpretation of open-ended answers. All the 1,119 closed-ended responses were considered for quantitative elaborations, whereas among the open-ended responses, only 442 provided information consistent with the objectives of this research. Namely, the survey asked academics to comment on their own productivity during the Covid-working period in relation to the location accessed for doing research. The qualitative analysis of the open responses takes inspiration from the Gioia methodology (Nag, Corley & Gioia, 2007). Accordingly, we coded lower-level meanings (primary needs) and then, through a process of abstraction, we merged them first in macro themes and finally in overarching personas or profiles of multi-local academic workers.

5. Results and discussion

5.1 Other spaces for research during Covid-working

Among *other spaces* for research, multi-local academics were strongly anchored to their home (mean=3.77 times a week), but they also worked from the campus (mean=2.07 times a week) and from other spaces (mean=2.60 times a week). Indeed, as Figure 2 shows, 433 academics (36.11% of the sample) worked from home more than five times a week, meaning that their access to *other spaces* was not weekly but rarer. In effect, 466 academics (38.87% of the

[1] Retrieved from: https://cercauniversita.cineca.it/php5/docenti/cerca.php.

[2] As our research excluded on purpose teaching commitments, every question of the survey explicitly referred only to research activity.

sample) accessed *other spaces* only once a week, while 505 academics (42,12% of the sample) consistently used *other spaces* for more than three times a week.

Concerning the access to campuses' workspaces, a consistent number of academics (308, 25.69%) never returned on-campus during Covid-working, while 446 academics (37.20%) worked on-campus more than 3 times a week. These first results depict an interesting figure: although during Covid-working academics were almost free to move across different locations, a sizable amount of academics worked from home and only rarely accessed to *other spaces*, or to university workspaces. These results are not surprising as literature confirms that other spaces for research are alternative workspaces for temporary use and for flexible arrangements (Hampton and Gupta, 2008), thus we did not expect regular access to these spaces. Moreover, the access to other spaces could have been limited because of the pandemic restriction policies (e.g., some of them were closed or enforced safe distances by reducing the capacity).

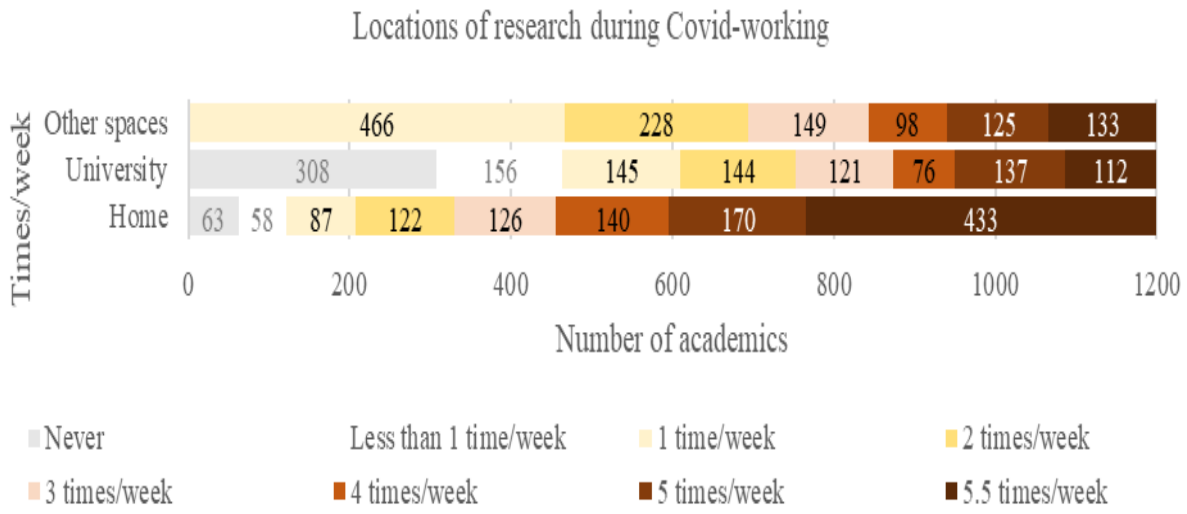

Figure 2: Multiple locations of research during Covid-working of the sample

Among *other spaces* we recognized three specific categories: (1) other universities or institutions, (2) third spaces such as coffee shops or coworking spaces, (3) in transit locations (i.e., in the car or trains). Other specific locations came up also from open answers. This analysis at a higher granularity allowed us to inform more specifically the profiles of multi-local academics (see section 5.4). The distinction of access to such spaces either for individual and collaborative work (Fig. 3) showed that third spaces (coworking spaces and coffee shops) are mostly used for collaborative work, while only rarely for individual work. On the contrary, cars and trains were actually temporary locations for individual work when reaching other locations of research. Moreover, the greatest number of academics was involved in both individual and collaborative research activities in other universities or institutions. Some researchers may have a double affiliation in other institutions and thus had the availability of a workstation in other spaces or they were frequently involved in collaborative research with other institutions or in fixed-term consultancy projects that require face-to-face meetings and the use of labs. Indeed, other institutions or companies were those locations which are more frequently accessed by the multi-local academics in our sample, even for the full work week. Finally, among other specified locations of research summer houses, private study spaces in second-apartments, colleagues' houses, public libraries, museums, parks, and open experimental parks emerged as *other spaces* for research, as can be confirmed also from the open-ended responses analyzed below. Indeed, it is frequent for academics to perform activities from privately owned offices where they can host clients (e.g., architectural studios) or benefit from specific technical facilities (e.g., in hospitals).

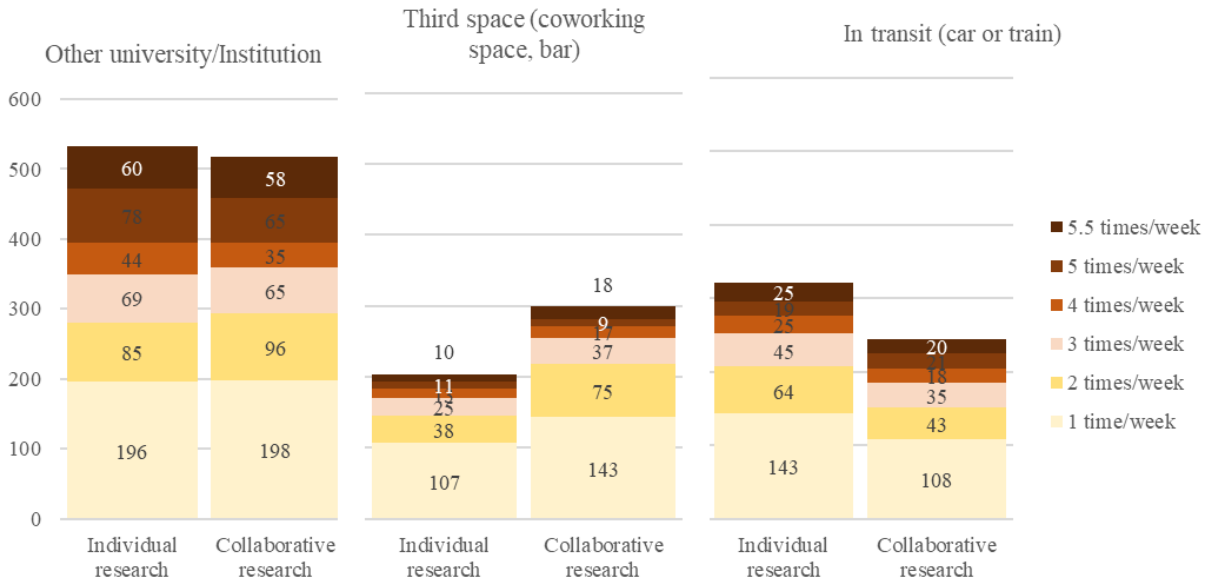

Figure 3: Frequency of access of other locations of research (beyond the home and the campus)

These results question the mainstream view which attributes to knowledge workers a binary choice between home and office (Spivack & Milosevic, 2018), and supports the recent literature confirming how – in the case of academics – spatial boundaries of research work expanded at the urban level (Wheatley, 2020; Watson, 2007). Our findings confirm this trend even during the Covid-working period.

Gender, age and geographical locations of multi-local academics

Multi-local academics were more often men than women. Specifically, 669 (55,80%) were men and 530 (44,20%) were women. This difference reflects the gender imbalance in academia, especially among more senior academics in Italy. It is interesting to note that the difference between men and women in access to other spaces during Covid-working is more evident among those who used other spaces only 1-2 times a week and among those who used them almost always (more than 5 times a week). Instead, among those whose work pattern remained more balanced in between home, campus and other spaces, the difference between men and women is negligible (Fig. 4).

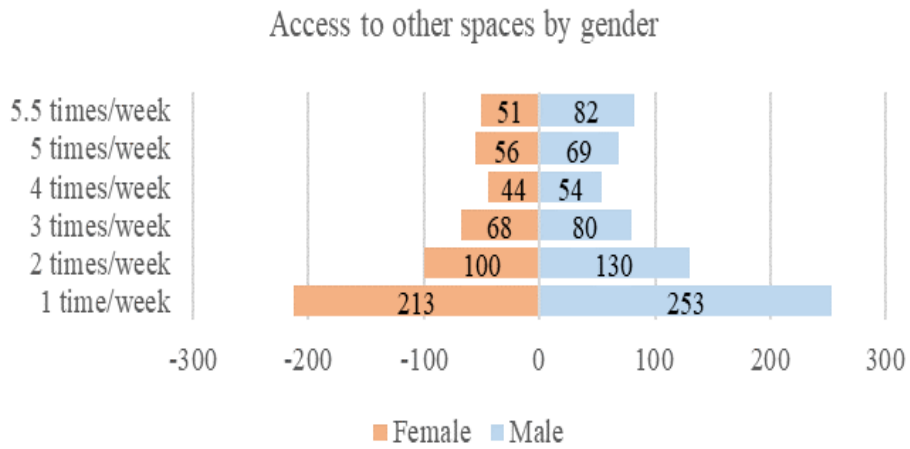

Figure 4: Access to other spaces by gender

Concerning age distribution, a first observation is that the respondents were relatively old. On average the sample of multi-local academics is 52 years old (S.D.=9.29) with a minimum of 26 years and a maximum of 70. Specifically, 457 academics (38.12% of the sample) belong to the range 51-60 years old. The main reason is that the survey was distributed only among tenured academics; in fact 31% of the overall sample belongs to the range 51-60 years old. Figure 5 shows how often each age group accessed *other spaces*.

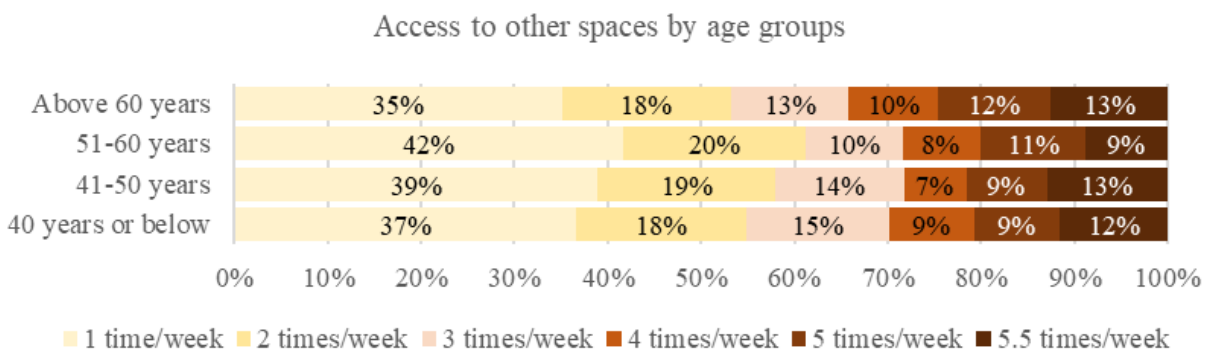

Figure 5: Access to other spaces by age groups

To further articulate the relevance of these first differences that emerged, our analysis explored whether any statistically significant difference exists among genders and age groups in the access of specific types of *other spaces* for collaborative or individual activities. Results of t-tests showed that no statistically significant difference between gender and age groups exists in the access to other spaces for collaborative research activities. Instead, a difference emerged in the access to those spaces for individual research activities. Namely, more men than women used other universities/institutions' workspaces (p value=0.05) and coworking spaces or coffee shops (p value=0.04) for individual research during Covid-working. As other authors argued, true work location autonomy is a male privilege (Burchell et al., 2021), because women tend to be more tied to one single location (either the office in normal times, or the home in emergency times). Reasons for such differences may relate to the unequal allocation of family and household duties between genders, especially among academics during the Covid-19 emergency (Cui et al., 2020).

Another intriguing figure emerged from the results of the one-way analysis of variance (ANOVA) and from the subsequent tukey post-hoc comparison[3] in the four age groups. According to the analysis, the oldest group of academics (above 60 years) resulted as the most mobile with respect to the other groups. Namely, considering the diverse types of other spaces investigated with the survey, this group accessed significantly more than the other age groups to other universities/institutions' spaces both for individual (p value=0.002) and collaborative research (p value=0.008), probably because their experience and status allowed them more freedom of choice as well as a more frequent involvement in large research projects with companies and institutions. It is interesting to note that there is a quite evident gender imbalance in the oldest group (above 60 years old) among which only 29.0% of the sample is composed by women, while 71.0% is composed by men. Again, this may reflect the female gap in Italian academia, especially among more tenured academics, and the gendered access to alternative workspaces.

The multi-local academics in our sample worked mainly in the North of Italy (352, 29.36% in the North-West; 207, 17.26% in the North-East), second in the Centre (325, 27.11%) and finally in the South (212, 17.68%) and on the Islands (103, 8.59%). To better understand these results, we analyzed the specific distribution of the sample among Italian university campuses. The sample is composed mainly of multi-local academics who work at the University of Rome 'La Sapienza' (93 responses), the biggest university in Italy, the University of Milano 'La Statale' (88 responses), the public university of Milan and, at the University of Torino (59 responses). First, the university of Rome 'La Sapienza' has the highest number of academic staff (3,388 tenured scholars overall) and for this reason the fact that many observations come from this university was expected. University of Milano 'La Statale' and University of Torino are respectively the fifth and the sixth universities with the highest number of tenured staff employed over the 67 public universities surveyed (after Rome, Bologna, Napoli Federico II and Padova university). These three universities are located in metropolitan cities and the literature confirms that multi-location of work is firstly a metropolitan phenomenon (Vilhelmson and Thulin, 2016). However, since the response rate of our survey strongly clustered around these big universities because they share the largest workforce, we looked at the rate of multi-local academics over the total academic staff of each university who answered the questionnaire (Fig. 6). We found, conversely, that multi-local academics clustered in four universities: Roma "Tor Vergata", Ferrara, Palermo and

[3] Tukey post-hoc test allows to further articulate the results of the ANOVA test by providing information on *which* group differ compared to every other group.

Siena. These results may be explained considering the specific geographical locations of those universities. University of "Tor Vergata" is a multidisciplinary higher education institution located in the south-east periphery of Rome metropolitan area, within the Tor Vergata district. Differently from other campuses which are located in the city center (e.g., La Sapienza), this campus configures as an enclosed area fairly distant from Rome (i.e., more than one hour of commuting with public transport from the city center). For this reason, it is reasonable to assume that Tor Vergata academics live in the same neighborhood where the campus is located and may be encouraged to do multi-local working by the availability of nearby services that can be found in the district (De Valderrama et al., 2020). Similar motivations can explain results from the universities of Ferrara, Palermo and Siena. In these cities, which are smaller with respect to the great metropolitan areas in Italy and which share a strong academic vocation, distances between home and other spaces may be shorter and academics may have benefitted from more sustainable and safer commuting distance both to the campus and to other spaces confirming that commuting time is a crucial criterion for work location choice (Mokhtarian and Salomon, 1994). According to these results, multi-local academics emerged as people who exploited the benefits of the 15-minutes city (Moreno et al., 2021): a city where the university campus is spatially linked to their neighborhood.

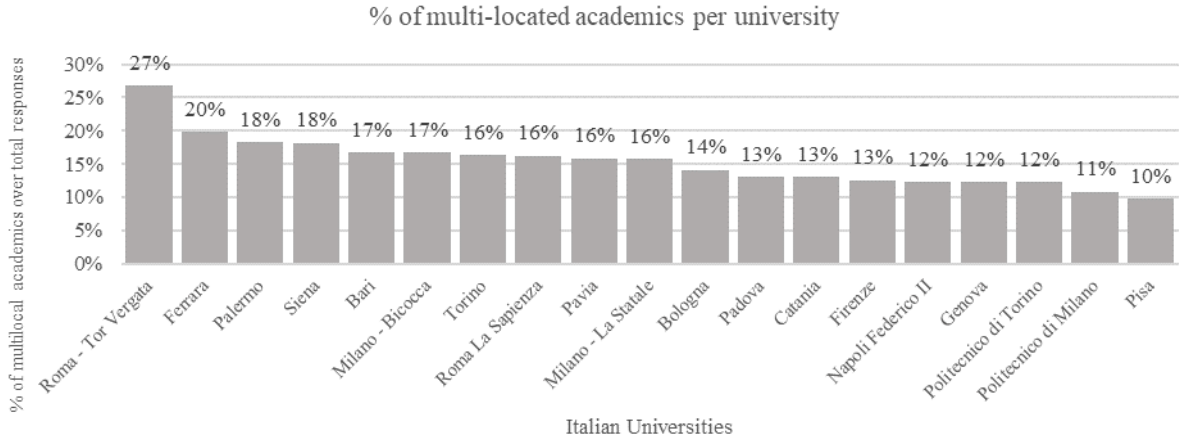

Figure 6: Percentages of multi-located academics per university (calculated as the rate of multilocal academics over the total number of employed tenured staff in each institution)

5.2 Research and family life of multi-local academics

The survey explored both the research life and the family life of academics in order to grasp the main motivations that encouraged or hampered their multi-local pattern. Among the overall sample, only 174 academics (14.51%) lived alone during Covid-working, while 1,025 academics (85.49% of the sample) shared the house with at least another person. Among these, 871 (72.64%) lived with a partner or spouse and 31.20% of the sample had school children. The number of academics who had pre-school children was even lower (11.59% of the sample) both because of the relatively old age of our sample and because multi-local work is inversely correlated with heavy family constraints (Burchell et al., 2021). Indeed, the youngest academics in our sample had more school children than the other age groups and they are at the same time those who accessed *other spaces* less frequently.

The majority of the sample is composed of associate professors (531, 44.29%), then 238 (19.85%) are full professors and 430 (35.86%) are researchers – both with a permanent (320) and not permanent (110) contract. Accordingly, the sample is almost equally divided among those with institutional roles (586 academics) and those without institutional roles (613 academics). Noteworthy, the frequency of access to *other spaces* for research changes slightly according to seniority and eventually to the commitment in institutional roles. Associate professors used *other spaces* more than the other categories – these are more males than females – while among lower status researchers – where women prevail – access to other spaces is the lowest. These results again confirm gender differences in employing multi-local work patterns.

We further explored which disciplines the sample of multi-located academics belong to. Based on the European Research Council categorization, our sample is composed as follows: 42.20% (506 academics) are life scientists,

30.53% (366 academics) are physical scientists and engineers, finally, 27.27% (327 academics) are social scientists and those who work in the humanities. Analyzing these results more deeply, some intriguing figures emerged. As expected, the largest group of multi-local academics counts academics in medical and biological sciences, as these are those academics who needed access to external laboratories, hospitals and other public or private institutions to assure their work continuity during Covid-working. Also noteworthy, exploring if some disciplines outperform others in the access to *other spaces*, we found that beyond academics in medical sciences who are overall the most mobile subjects, the share of academics in legal sciences, civil engineering and architecture, agricultural and veterinary sciences and political and social sciences are those who accessed *other spaces* more frequently (Fig. 7). These results reflected evidence from open responses of people in these disciplines stating that they are involved in consultancy activities that they perform in privately owned studios (e.g., architects and lawyers) or that they are frequently doing collaborative research with public and private institutions.

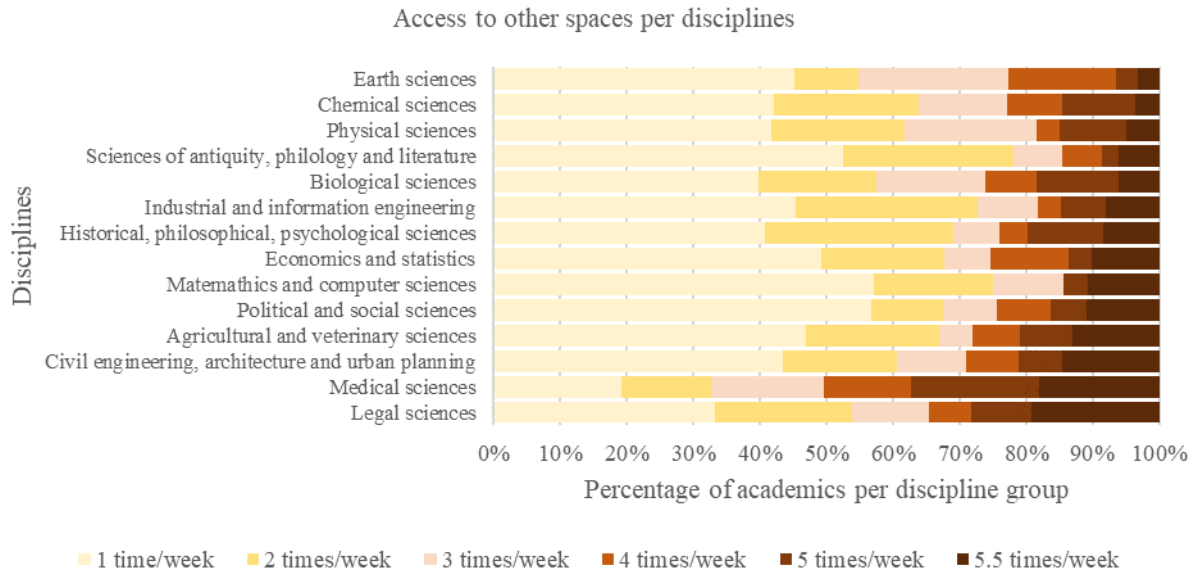

Figure 7: Percentages of multilocal academics per discipline.

We defined research life also considering the share of collaborative activities performed by our sample of multi-local academics. On average, they remained strongly collaborative during Covid-working (mean: 34.94% of the total amount of time devoted to research: S.D. 21.85), although before Covid-19 they were strongly more collaborative (mean: 46.16%; S.D.:23.06). According to the quartile distribution of the variable indicating the share of collaborative activity, we recognized four groups of academics: (i) strongly individual; (ii) individual; (iii) collaborative; (iv) strongly collaborative. The frequency of access to *other space* for work have a particular relation with those groups. Those who were more collaborative during Covid-working, more frequently accessed *other spaces*. Namely, the 12.42% of those who did research from *other spaces* for a significant amount of time a week (i.e., 4 or 5 times a week), belong to the group of strongly collaborative researchers (Fig. 8). Indeed, multi-local working resulted strongly related to collaborative work (Townsend et al., 2011), even if some academics escaped from home also for individual work.

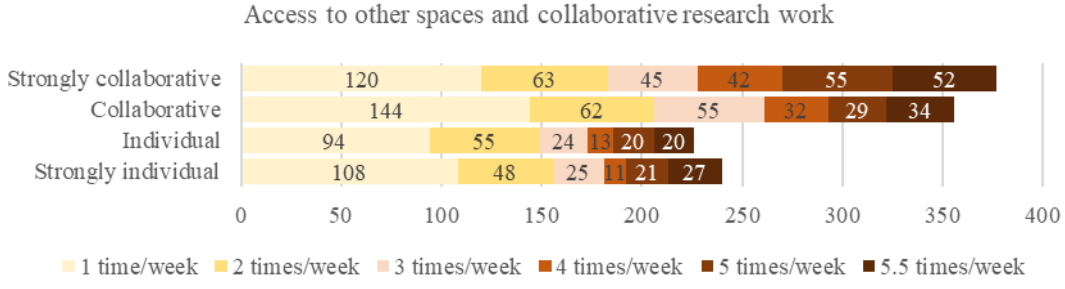

Figure 8: Access to other spaces and collaborative research work.

As expected, some disciplines are more collaborative than others. On the one hand, social scientists were more individual (more than the 50% of academics in these disciplines belong to the groups of very individual and individual academics). On the other hand, life scientists and physical scientists were more collaborative (about 70% of academics in both disciplines belong to the groups of collaborative and very collaborative researchers). In addition, collaborative activity is unbalanced between age groups. 46% of the youngest academics (40 y.o. or below) in our sample were individual researchers during Covid-working, while the share of individual researchers is very much lower in other age groups, especially in older groups (only the 30% of the groups aged more than 51 y.o. is an individual researcher). This may be caused by the fact that younger individuals had more family constraints which pushed them to work from home more than their older colleagues and thus used *other spaces* less frequently (which are spaces typically devoted to collaborative activities). Conversely, older academics have more institutional responsibilities and they usually coordinate research teams, which makes them more likely to collaborate and thus access *other spaces*.

In summary, we found that during Covid-working academics who adopted a multi-local pattern for their research were largely older adult men without family constraints (i.e., children), linked to other institutions' workspaces for both collaborative and individual activities or to public third spaces (e.g., coffee shops and coworking spaces), especially for their collaborative activities. They were mainly associate or full professors who do research in life sciences. Academics in legal sciences, architecture and civil engineering were, instead, linked to different kinds of *other spaces* (i.e., privately owned studios), both for their individual and collaborative work. Such results suggest that multi-local work in academia is far from being an inclusive work pattern. Namely, multi-local work is something that academics do *not* choose to adopt unless they are pushed to do so for external motivations. The following paragraph reports the results of the analysis of open responses. The analysis allowed us to understand which kind of external motivations push some groups of academics towards multi-local work and, thus, which are the profiles of multi-local academics.

5.3 The profiles of multi-local academics

According to the open answers that the questionnaire collected and the descriptive statistics above reported, we defined three profiles of multi-local academics. Namely, the profiles of multi-local academics helped interpret the criteria that the multi-local workers used to select their spatial locations for their research as well as their expressed needs. Figure 9 summarizes the main findings. Starting from grouping the primary needs as they emerged in open answers, we summarized ten macro themes which recap the main motivations pushing academics to look for *other spaces* for research during the Covid-working period. The ten macro themes were associated with three profiles. The profiles were named as "the unhappy fugitive", "the seeker" and "the near worker".

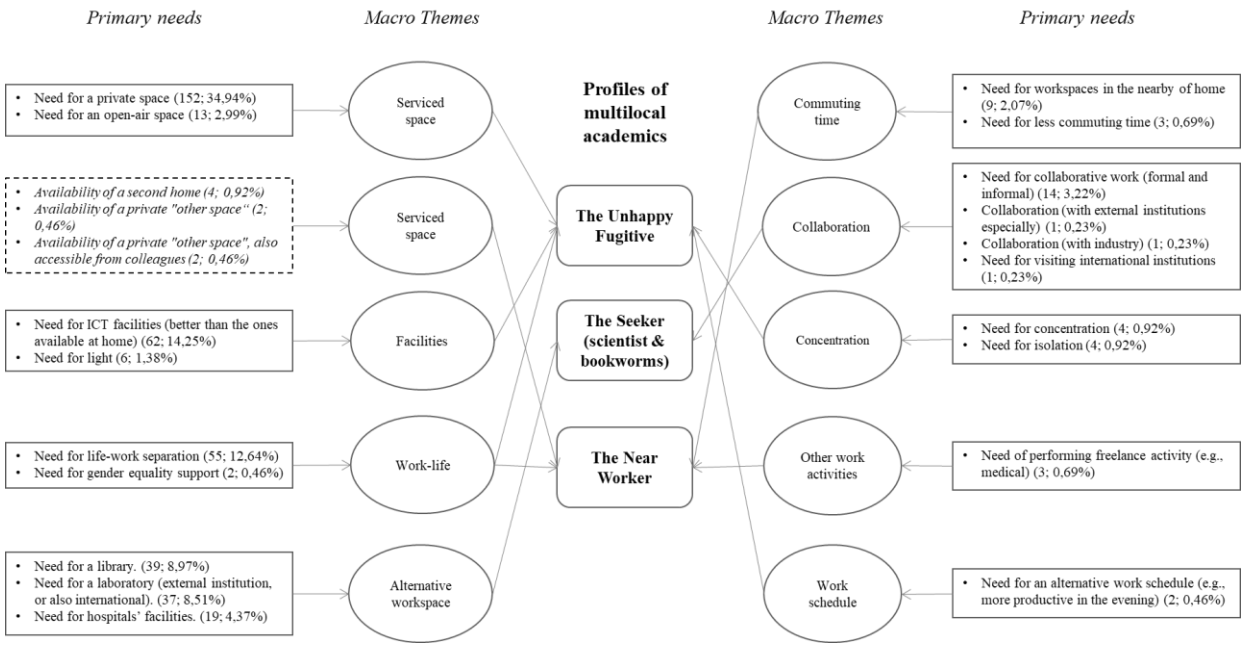

Figure 9: Open answers coding.

The unhappy fugitive is an academic who was strongly unsatisfied with his or her space for work or family reasons. There were academics who needed a private space for concentration (34.94% of the answers) and ICT facilities better than the ones available at home (14.25% of the answers). For instance, for unavoidable commitments, like exams or important meetings, they accessed other spaces where they found a stable internet connection. Alternatively, they sought a more evident division between work and life spaces (especially women) or they escaped from their family obligations (especially men). Indeed, private-life intrusion in work activities was frequently reported as a Covid-working issue in open answers (12.64% of the answers).

“Overall, I was much more productive in terms of drafting and submission [of scientific papers]. However, work has slowly become exhausting in terms of time and space, invading practically every place in the house. […] I have found myself in video conferences and business calls even at times previously unthinkable (8-8:30 am, 00-01:00 am). […] In practice, I can conclude that I am probably a more productive writer, but probably a less happy scientist and man...” (Male fixed term researcher, University of Napoli “Federico II”, Chemical science).

It is important to note that some academics reported having benefited from alternative work schedules. For instance, they were more productive in the evenings and thus required access to spaces at alternative work hours.

“[…] Staying long at the University I wasted a lot of time, because of continuous unavoidable interruptions by colleagues, students, bureaucratic issues etc... and especially because of the fact that the classic working hours are not suited to my rhythms of productivity. I only manage to write my work with adequate mental clarity between 5.30 pm and midnight, but of course not if I have spent the day at the university. […]” (Female associate professor, University of Genova, Biology).

This group also includes those who were unhappy with their academic community and preferred to work outside the university, to create their alternative work environment or to better concentrate (1.81% of the answers):

“I work better without giving importance to colleagues' criticism, I feel freer and more independent to do my job. […] I take more pleasure in doing my work and feel more capable in everything. I am available to do work throughout the day, which means I am more up to date with developments.” (Male associate professor, University of Parma, Medical Sciences).

The seeker is that type of academic who was strongly linked to a specific space for performing his or her research. Namely there were bench scientists who needed laboratories (8.51% of the answers) or facilities in hospitals (4.37% of the answers) to be productive researchers. In addition, their need for formal and informal collaboration is an invaluable benefit of collocation in laboratory spaces or in other spaces (3.85% of the answers).

“[My productivity] has certainly suffered a downturn due to the lack of PhD students, postgraduates and thesis students in the labs, but with the partial resumption of activity in the labs we are now getting back up to speed. There will be no problems if we are not forced into further 'downtime'. My scientific productivity is the result of collegial work, made up of meetings and cultural exchanges that only take effect in the presence of others.” (Female associate professor, University of Campania ‘Vanvitelli’, Biological sciences).

Moreover, social scientists (‘bookworms’) needed libraries (both universities’ libraries and public or private libraries and archives, see Di Marino & Lapintie, 2015) to seek out their research materials (8.97% of the answers), as well as close relations with the larger academic community and civil society.

“The negative elements lie in the impossibility of accessing the [university] library (even though many resources can be found online or at least are available thanks to other libraries). There are also fewer opportunities to meet and socialize, which are already seriously unsatisfactory in my relations with my closest colleagues (the fact that I don't have to attend them is actually an advantage), but seemed better with scholars from other cities or civil society. However, online connections do not replace human contact.” (Male associate professor, University of Torino, Legal sciences)

The near worker is an academic who chooses to work in the vicinity of their home for several reasons. There are academics who had a second privately owned office, often accessible also by colleagues (1.81% of the answers).

Among these, there are academics who explicitly needed to perform their medical freelance activity from other spaces (0.69% of the answers).

“The absence of conferences has freed up many days, leaving me more time for both increasing freelance activity and scientific work” (Male associate professor, University of Milan, Medical science).

Other academics lived far from the university main campus and preferred to work from other spaces in their neighborhoods (2.71% of the answers). There are also modern flaneurs – borrowing Baudelaire definition – meaning those who exploit commuting time to reach their other spaces for work in order to reflect and think of their research:

“[…] Walking to your workplace is not wasted time! When you walk you have ideas, you keep thinking, staying in the same places all the time is not good for your research!" (Female associate professor, University of Rome “La Sapienza”, Mathematics and computer science)

The three profiles are not mutually exclusive. They have to be intended as abstract profiles and not individual ones. However, profiling helped define motivations of the descriptive results above reported and articulate important implications on how a distributed campus model can inclusively allocate the needs and the requirements of the academic community.

6. Conclusions

The results of this study give an original contribution to the understanding of multi-local work in the academic context, which generally received little attention in the literature (e.g., Koroma et al., 2014). Even during the Covid-working period, multi-local workers carefully selected their work locations between the university campus, the home and other spaces (Di Marino & Lapintie, 2018). This study shows that specific types of other spaces turned out to be crucial for the work continuity of some academics. Namely, other organizations’ premises were exploited for collaborative and individual activities for those academics who are involved in joint research work, public third spaces such as coffee shops, libraries or coworking spaces were used for teamwork and collaborations, and other locations such as in transit spaces (e.g., cars or trains) or privately owned studios were accessed for individual and collaborative activities respectively.

This scenario related to the Covid-working period helps figure out future development of the phenomenon and possible implications at the individual, university, and city level. The three profiles identified through qualitative analysis of open-ended responses and descriptive statistics suggest important implications on how the physical spaces may be supportive for (i) managing social sustainability of the academic work environment, (ii) effectively improving the alignment between campus facilities and the academic activities, and (iii) increasing the interactions between industry, universities, and public institutions at a city level. Considering these external other spaces as integrated physical support to a model of distributed campus may have strong advantages for academics, universities, and cities.

Firstly, we found that, during Covid-working, academics who adopted multi-local work for their research were predominantly older adult men without family constraints (i.e., children). They were mainly associate or full professors who do research in life sciences, legal sciences, architecture and civil engineering. Even if the ability to work remotely promotes workplace inclusiveness (Pyöriä, 2003), the unbalanced access to these spaces in relation to disciplines, genders and age show that multi-location of research work was generally not socially sustainable during Covid-working. Future campus models should engender policies of inclusion, in order to increase social sustainability and gender equality in academic institutions. For instance, literature is showing how female-oriented coworking spaces (Sargent et al., 2020) may be sources of equality and inclusion in the work environment, providing more favorable commuting times, services which support work-life balance and a more inclusive atmosphere as well (Clifton et al., 2019). While supporting multi-local work, universities may create partnerships with coworking space suppliers, which could in turn lead to positive results for collaboration and hybridizations of skills with other members of the space, as the literature on coworking suggests (Brown, 2017; Ivaldi & Scaratti, 2019; Spinuzzi, 2012), and give a distributed shape to university campuses.

Secondly, future campus models should integrate the other spaces that academics effectively used before and during the Covid-working period. We need to increase our awareness that the work of academics does not only take place

within the traditional campus and that other spaces can be valorized within a unique strategic model. Accurate planning policies of future campuses should support research life before, during, and after working hours by ensuring accessibility to campus and off-campus spaces. For instance, we intend a distributed campus strategy as a development strategy which considers that private spaces (i.e., homes, organizations' premises, privately owned studios) and public spaces (i.e., coffee shops, libraries, parks) are all to be considered as university facilities which meet diverse academic work needs. In this way the campus model would become multi-centric instead of mono-centric. Analyzing the campus as an extended organism made of multiple work locations at the urban scale means considering the work patterns of their staff as the source of data to start a new university planning strategy. Although a model of distributed campus may lead to a diffusion of a university's identity that may hamper academics' sense of community (den Heijer & Curvelo Magdaniel, 2018), exploiting and converging off-campus spaces within a comprehensive campus strategy can represent a development opportunity from which all the stakeholders involved can benefit (including academics, students, campus managers and public society).

Thirdly, the distributed campus model could contribute to cities planning towards multi-functional districts which actively integrate higher education functions within residential, tertiary and public activities (den Heijer & Curvelo Magdaniel, 2018; Di Marino & Lapintie, 2018). Indeed, the biunivocal relationship between the campus and the city lies in the mutual benefits that universities and cities can gain from the distributed campus model. Universities – once they become a network of multiple private and public spaces dispersed across the city – can benefit from the multiplicity and variety of functions and physical resources available in different neighborhoods in order to reach shared goals (e.g., stimulating innovation, improving university-industry relations, increasing sustainability – which are already on the agendas of universities, industry, and public parties alike). Cities, at the same time, would benefit from the presence of university communities in private and public spaces and use this network of spaces, empowered by a distributed university campus model, as a means to regenerate urban areas.

References

Baldry, C., & Barnes, A. (2012). The open-plan academy: space, control and the undermining of professional identity. *Work, Employment and Society*, 26(2), 228–245. https://doi.org/10.1177/0950017011432917

Brown, J. (2017). Curating the "Third Place"? Coworking and the mediation of creativity. *Geoforum*,82,112-126. https://doi.org/10.1016/j.geoforum.2017.04.006

Burchell, B., Reuschke, D., & Zhang, M. (2021). Spatial and temporal segmenting of urban workplaces: The gendering of multi-locational working. *Urban Studies*, 58(11), 2207-2232. https://doi.org/10.1177/0042098020903248

Chapman, M.P. (2006). *American places: In search of the twenty-first century campus*. American Council on Education. Series on Higher Education. Praeger.

Clifton, N., Fuzi, A., & Loudon, G. (2022). Coworking in the Digital Economy: Context, Motivations, and Outcomes. *Futures*, 135(102439). https://doi.org/10.1016/j.futures.2019.102439

Collins, D. (2003). Pretesting survey instruments: an overview of cognitive methods. *Quality of Life Research*, 12(3), 229–238.

Cui, R., Ding, H., & Zhu, F. (2021) Gender Inequality in Research Productivity During the COVID-19 Pandemic. *Manufacturing & Service Operations Management*, 24(2), 707-726. https://doi.org/10.1287/msom.2021.0991

De Valderrama, N.M.F., Luque-Valdivia, J. & Aseguinolaza-Braga, I. (2020). The 15 minute-city, a sustainable solution for post COVID19 cities? *Ciudad y Territorio Estudios Territoriales*, 52(205), 653-664.

den Heijer, A.C. (2011). Managing the university campus: Information to support real estate decisions. Eburon Academic Publishers.

den Heijer, A.C., & Curvelo Magdaniel, F.T.J. (2018). Campus–City Relations: Past, Present, and Future. In P. Meusburger, M. Heffernan L. Suarsana (Eds.), *Geographies of the University. Knowledge and Space*, (p. 439-459). Springer.

Di Marino, M. & Lapintie, K. (2015). Libraries as transitory workspaces and spatial incubators. *Library & Information Science Research*, 37(2), 118–129. Di Marino, M., & Lapintie, K. (2018). Exploring multi-local working: challenges and opportunities for contemporary cities. *International Planning Studies*, 1-21. https://doi.org/10.1080/13563475.2018.1528865

Dowling, R. & Mantai, L. (2017). Placing researcher identifications: labs, offices and homes in the PhD. *Area*, 49(2), 200–207.

Gornall, L. & Salisbury, J. (2012). Compulsive working, 'hyperprofessionality' and the unseen pleasures of academic work. *Higher Education Quarterly*, 66(2), 135–54.

Hampton, K.N. & Gupta, N. (2008). Community and Social Interaction in the Wireless City: Wi-Fi Use in Public and Semi-public Spaces. *New Media & Society*, 10(6), 831–850.

Haugen, T.I. & Aasen, T.M. (2016). Campus alive: Transformation and integration of university work and campus space. In Proceedings of CFM's second nordic conference: Facilities Management Research and Practice. Does FM contribute to happiness in the Nordic Countries (pp. 8-15).

Hislop, D. & Axtell, C. (2009). To infinity and beyond?: workspace and the multi-location worker. *New Technology, Work and Employment*, 24(1), 60–75. https://doi.org/10.1111/j.1468-005x.2008.00218.x

Ivaldi, S., & Scaratti, G. (2019). Coworking hybrid activities between plural objects and sharing thickness. *TPM: Testing, Psychometrics, Methodology in Applied Psychology*, 26(1), 121-147.

Kojo, I.V.I. & Nenonen, S. (2015). Places for multi-locational work – opportunities for facilities management. *Facilities*, 33(1/2), 20-37.

Kornberger, M. & Clegg, S. (2003). The architecture of complexity. *Culture and organization*, 9(2), 75-91.

Koroma, J., Hyrkkänen, U. & Vartiainen, M. (2014). Looking for people, places and connections: hindrances when working in multiple locations: a review. *New Technology, Work and Employment*, 29(2), 139–159.

Kuntz, A.M. (2012). Reconsidering the workplace: faculty perceptions of their work and working environments. *Studies in Higher Education*, 37(7), 769-782.

Liegl, M. (2014). Nomadicity and the Care of Place—on the Aesthetic and Affective Organization of Space in Freelance Creative Work. *Computer Supported Cooperative Work (CSCW)*, 23, 163–183.

Mokhtarian, P.L. & Salomon, I. (1994). Modeling the Choice of Telecommuting: Setting the Context. *Environment and Planning A*, 26(5), 749–766.

Nadler, R. (2016). Plug and Play Places: Subjective Standardaztion of Places in Multilocal Lifewords. In P. Pucci, M. Colleoni (Eds.), *Understanding Mobilities for Designing Contemporary Cities* (p. 109–128). Springer.

Nag, R., Corley, K.G. & Gioia D.A. (2007). The Intersection of Organizational Identity, Knowledge, and Practice: Attempting Strategic Change Via Knowledge Grafting. *Academy of Management Journal*, 50(4), 821–847.

Ojala, S. & Pyöriä, P. (2017). Mobile knowledge workers and traditional mobile workers: Assessing the prevalence of multi-locational work in Europe. *Acta Sociologica*, 61(4), 402-418.

Oldenburg, R. (1989). The great good place: Café, coffee shops, community centers, beauty parlors, general stores, bars, hangouts, and how they get you through the day. Paragon House Publishers.

Pyöriä, P. (2003). Knowledge Work in Distributed Environments: Issues and Illusions. *New Technology, Work and Employment*, 18(3), 166–180.

Rajalo, S. & Vada, M. (2017). University-industry innovation collaboration: Reconceptualization. *Technovation*, 62-63, 42–54. https://doi.org/10.1016/j.technovation.2017.04.003

Rytkönen, E. (2015). University campuses in spatial transformation. *Facilities*, 33, 794 – 818.

Sargent, A.C., Yavorsky, J.E. & Sandoval, R.G. (2020). Organizational Logic in Coworking Spaces: Inequality Regimes in the New Economy. *Gender & Society*, 35(1):5-31. https://doi.org/10.1177/0891243220974691

Seddigh, A., Berntson, E., Danielson C.B. & Westerlund, H. (2014). Concentration requirements modify the effect of office type on indicators of health and performance. *Journal of Environmental Psychology*, 38, 167-174.

Spinuzzi, C. (2012). Working Alone Together: Coworking as Emergent Collaborative Activity. *Journal of Business and Technical Communication*, 26(4), 399–441. https://doi.org/10.1177/1050651912444070

Spivack, A.J. & Milosevic, I. (2018). Perceived Location Autonomy and Work Environment Choice: The Mediating Influence of Intrinsic Motivation. *The Journal of Applied Behavioral Science*, 54(3), 325–348.

Tagliaro, C. & Migliore, A. (2021) "Covid-working": what to keep and what to leave? Evidence from an Italian company, *Journal of Corporate Real Estate*, 24(2), pp. 76-92. https://doi.org/10.1108/JCRE-10-2020-0053

Temple, P. (2009). From Space to Place: University Performance and its Built Environment. *Higher Education Policy*, 22(2), 209 – 223.

The Economist (2020, May 30). *Working life has entered a new era*. The Economist. https://www.economist.com/business/2020/05/30/working-life-has-entered-a-new-era

Townsend, A., Forlano, L. & Simeti, A. (2011). Breakout! Escape from the Office: Situating Knowledge Work in Sentient Public Spaces. In M. Shepard (Ed.), *Sentient City: Ubiquitous Computing, Architecture, and the Future of Urban Space.* MIT Press.

Vilhelmson, B. & Thulin, E. (2016). Who and where are the flexible workers? Exploring the current diffusion of telework in Sweden. *New Technology, Work and Employment*, 31(1), 77–96.

Watson, L. (2007). Building the future of learning. *European Journal of Education*, 42(2), 255-263. https://doi.org/10.1111/j.1465-3435.2007.00299.x

Wheatley, D. (2021). Workplace location and the quality of work: The case of urban-based workers in the UK. *Urban Studies*, 58(11), 2233-2257. https://doi.org/10.1177/0042098020911887

Wissema, J.G. (2009). Towards the third generation university: Managing the university in transition. Edward Elgar.

Ylijoki, O.H & Mantyla, H. (2003). Conflicting time perspectives in academic work. *Time & Society*, 12(1), 55-78. https://doi.org/10.1177/0961463X03012001364