

CONTENTS

Prolegomenon - Dimitra Babalis	7
Introduction - Dimitra Babalis Towards Changed Ways to Make Research	9
PART 1 - Conceptualizing Future Research Matters under the Impact of the Covid-19 Pandemic	15
Chapter 1 - Dimitra Babalis Changed Perspectives and Behaviours on Sustainable Planning and Design Issues under Covid and Post-Covid Era	16
Chapter 2 - Maria Rita Pais Designing for Anthropocene: Bringing Creativity as Method and 'Milieu' as a New Paradigm of Looking to the World	28
Chapter 3 - Salih Ceylan, Serengül Seçmen, Pınar Şahin Re-interpreting Sustainable Development Goals under the Effect of Covid-19. A Study on Past and Future Research	36
PART 2 - Research Projects and the Covid-19 Pandemic Effects	47
Chapter 4 - Helen Maistrou Research Projects at the Time of the Covid-19. The Case of the IRC-HERMeS Project	48
Chapter 5 - Lubica Vitková DANUrB Project and Promoting Sustainable Tourism in Response to Pandemic COVID-19	54
PART 3 - Future Education and Lessons Learned from the Pandemic	69
Chapter 6 - Smajo Bešo, Emily Scullion, Tim Townshend Research-led Teaching in Lockdown: Lessons for Post-COVID Studio-based Design Projects	70
Chapter 7 - Annamaria Silvana de Rosa, Maria Dutto 'CLOSE FROM AFAR'. The Virtualisation of Scientific and Training Activities in Time of Covid-19	82
Contributors	92

PROLEGOMENON

This publication is based on research experience within the 'International Group on Urban and Architecture Design', INTEGRO UAD¹ which has made efforts in finding answers on how scientific research and teaching could be affected differently by the ongoing or post Covid-19 pandemic crisis.

The collection of contributions brought together in this volume shows that both future research and teaching efforts should focus in diverse and innovative methods to develop a more robust approach to design process. The knowledge acquired from testing new ideas and approaches to design healthier urban environments can be a valuable inspiration for the future.

The INTEGRO UAD is giving high priority to sustainable and healthy planning and design, especially after pandemic emergency. Reflections on the future research process for healthy planning and design should have an impact to the pandemic crisis. The following main key issues² have emerged from contributions:

- Research is valuable to go deeper into the design problem or debate. It must bring to clear benefits for both academics and professionals.
- The value of research can be an important issue for education to find new key strategic methods on how to provide access to relevant teaching tools.
- Scientific research can bring to collaborations with other public and private bodies to make their way into practice-related research that would be beneficial to both.
- Research process along the Covid epidemic emergency have brought to brilliant thinking on how cities could be managed to overcome urban difficulties; how temporary solutions should be essential to solve urban uncertainties.

Further, teaching and training activities presented challenges during lockdown and related learning methods and student-interaction have been rapidly adapted to the 'new reality'. This became particularly important for communication, learning, and learner-technology interaction which might usefully be taken into the post-Covid time. However, during lockdown both negative and positive aspects in education demonstrated a fully adaptation and resilience that have been recognized at various educational levels.

The book is trying to give information and some answers on future research and teaching issues that must be taken into consideration for the post-Covid City.

¹ INTEGRO UAD is an International Research Partnership, founded and chaired by DIMITRA BABALIS since 2015.

² Key issues have been discussed within the 7th INTEGRO UAD Annual Meeting: *Pursuing on Research Items (PURE.It). Changing Ways, Principles and Methods of Scientific Research Future* held online in March 2021. The Meeting has been planned, coordinated, and chaired by DIMITRA BABALIS.

Dimitra Babalis
The Series Editor

INTRODUCTION

Towards Changed Ways to Make Research

Dimitra Babalis

At present, many questions are being asked about how future research items can affect planning and design of the post-Covid City. In recent debates and before the pandemic emergency, the concepts on sustainability, urban resilience and climate change put forward the new recommendations on how local authorities should behave on future planning. But Covid-19 pandemic took advance on what encompasses all the above-mentioned, with a significant impact on our lifestyles. There is a great need to plan and design our cities differently. Coincidentally, both professionals and researchers widely accept to contribute to this change by adopting new design criteria. However, it is being used to address complexity in urban planning and design, but from research that supports design process there is a diversity of approaches and methods to a design matter. Perhaps more importantly, specific proposed solutions to deal with planning debates and policy could certainly do more on identifying common topics and developing innovative research skills. At the current, there are several scenarios increasingly engaging in topical and timely research. In one scenario, research is seeing to respond to social, cultural, and technological advancements that can be applied into a practice. Another scenario is focusing on a topic that often requires to respond to complex and urgent questions including urban emergencies. Design has the role to find solutions and spatial interpretation in the built environment addressing topics from transformations in public open space to accessibility, urban mobility, and public transport. To this end, the city becomes the research lab that would promote specific tools that will have an impact on urban community. For instance, topics may address matters directly related to spatial practice such as designing for pandemics. However, exploring innovative approaches to timely challenges is important to apply the best methodology to cover required skills. To this end a collaboration across disciplines can bring to successful solutions. Practice-led research can benefit academic research and can ground the theoretical issues providing a fruitful intersection of practice and academia. Investigation on practical issues can have a positive impact into the learning environment. Knowledge exchange is basic to shaping urban environments under specific conditions such as a pandemic emergency, where collaborative efforts of designers and academics are essential. In the following chapters is essential to put some questions and give some answers on how research priorities have been changed during the lockdown and how pre-Covid research goals could be further put under discussion in the post-Covid City. In addition, focusing on sustainability, research items must be formulated with a vision to build more resilient urban environments through a new conception in planning and design. Research in using scientific knowledge and methods should be pooling in major efforts. So, pandemic crisis can be considered a great opportunity to revise design ideas and disseminating them in urbanism and architecture. The encouragement to undertake research-based evidence and technical investigations can provide robust outcomes for future opportunities. If research is considering essential to put questions and find solutions, methodologies are still relevant to identify contemporary answers for place-making and healthier urban environments.

Structure of the Book

PART I – *Conceptualizing Future Research Matters under the Impact of the Covid-19 Pandemic*. In times of urban change mainly driven by various factors such as the recent pandemic crisis and climate change, scientific research can play a critical role in defining its future, the value of research largely unexplored. Part One explores some of the emerging new approaches trying to engage with relevant problems in planning and design, seeking innovative solutions well-informed through research.

Chapter 1 – *Changed Perspectives and Behaviours on Sustainable Planning and Design Issues Under Covid and Post-Covid Era* by Dimitra Babalis reflects on how humanity has experienced several pandemics over the centuries that have generate considerable health crisis. The Covid-19 emergency has created new scenarios in urban environmental strictly connected in public health. Pandemic crisis has not only responsibility for the deaths of thousands of people all over the world but also set humanity in an extraordinary critical position that affects every sphere of everyday life. However, health emergency has forced people for social distancing, has restricted urban mobility but has also highlighted how urban change can be faced differently by preserving urban identity and connectivity. Urban resilience cannot therefore be considered a spontaneous process. It needs for a clear planning and design intentionality that must be developed through new urban strategies that can take advantages from new research attitudes to better face future critical circumstances. It is therefore essential to adapt research investigation on issues experiencing sustainability and resilience by designing for public open spaces, mobility, building design under new perspectives for the post-covid City. To this end, European Cities such as Paris, Barcelona, Edinburgh, Glasgow including Italian Cities such as Milan, Bologna they tried in a common agreement on the need to re-organize city times and re-discovering neighbourhood dimension to ensure accessibility to all services while preserve social distancing. Under pandemic, several local authorities have adopted specific strategies and re-organized sustainable mobility to redefine the use of public space through long-term and short-term actions increasing walkability and usability to overcome pandemic emergency. The chapter tries to respond to the following questions on how Covid-19 has changed ways to live the urban environment and how Covid-19 has changed people lifestyles. Finally, it is stressed on how research priorities have been changed and how new research goals should be put for discussion to design urban environment in the post-Covid City.

Chapter 2 – *Designing for Anthropocene: Bringing Creativity as Method and 'Milieu' as a New Paradigm of Looking to the World* by Maria Rita Pais discusses on scientific method that is based on research including collection of data, observation and experimentation as well as formulation and testing of hypotheses. The aim of scientific method is to have substance conclusions, and through these guarantee some safe knowledge basis for continuing researching and achieving knowledge. In 1942 Robert Merton stated that “The institutional goal of science is the extension of certified knowledge”. Further, Merton distinguish some basis to modern science: ‘Communalism’, ‘Universalism’, ‘Disinterestedness’ and ‘Organised Skepticism’. These fundamentals agree in the idea of science with a sense on communal good: universal knowledge. In the scope of architecture, research has been a difficult issue to respond to the real necessities of society. Research in architecture follows traditional research methods assuring scientific universal knowledge, but considering architecture as a creative discipline, researchers/architects try to bring its *resistance*, as Deleuze called to the creative act. However, it is understandable the importance of the creative subject in the creation process. The chapter proposes to understand ways of doing research in architecture. It evaluates the possibility to respond to society in a creative way, but also in the critical one: climate crises, ecological deprivation and specifically health crises under Covid-19 pandemic global collapse. Further, it is discussed here *milieu* as a new and current concept to see the world. The understanding of

the role of creativity in architecture and research and of the world as a *milieu*, for a new *milieu-centered* era is important. It is also essential the role of architects and researchers as a midland between conception and execution in anthropocene and post-pandemic times.

Chapter 3 – *Re-interpreting Sustainable Development Goals under the Effect of Covid-19. A Study on Past and Future Research* by Salih Ceylan, Serengül Seçmen, Pınar Şahin debates on the UN Sustainable Development Agenda, approved in 2015. The target period of the Agenda is 2030-2045, and it is associated with 17 Goals (SDGs) that have been launched due to the global crisis of food, energy, water and so on. The multidimensional scope of the Agenda turns around sustainability issues embedded in the goals. The goals seek a balance between economic growth, well-being, and social justice, which have gained more importance according to the vulnerability of health, food, and other systems during Covid-19 pandemic. In evidently, this situation has led to a global tendency in the academic research environment for encouraging Sustainable Development Goals to be adopted for urban areas to become more resilient to risks. The aim of this chapter is to demonstrate the changing scope about the SDGs-based academic studies in Covid-19 period. The research is based on the results obtained by scanning the literature in both pre-Covid from 2015 to 2019 and in-Covid period including the timeline 2020-2021. Research papers addressing 17 goals have been scanned among the academic online databases. The number of the studies have been classified under 17 themes and ranked due to a scale ranging from high to low. The results show that in-Covid times, research on 'Zero Hunger' (SDG 2), 'Good Health' (SDG 3), 'Quality Education' (SDG 4), and 'Climate Action' (SDG 13) themes have been accelerated in a short period of time while 'Sustainable Cities and Communities' (SDG 11) - one of the main subjects among the studies in the pre-Covid era - seems like falling below its usual research density in comparison with the mentioned goals. Among the fields of Social Sciences, Environmental Science, Energy, Engineering, Arts and Humanities, and Multidisciplinary, 193 papers are explored in the SCOPUS databases published between 2020-2021 and the main themes are classified such as education, energy/environmental effects, local studies, food supply and urban issues turn around urban transportation and sustainable mobility, smart city. However, education theme is gaining a wider scope such as teaching/learning methods, behaviour; restructuring/redesigning education; teaching SDG, adding them in the curriculum; flexible methods for working/education, or difficulties/opportunities in online teaching. In Covid era, due to the tendency among the research subjects that emphasize strengthening partnerships to succeed the sustainable development goals, the probability of the rise in multidisciplinary research collaborating with architects and urban planners is higher than before.

PART II – *Research Projects and the Covid-19 Pandemic Effects*, explores contemporary attitudes regarding theoretical and practice-based research in urbanism and architecture. Research is trying to address continuity and identity in a pre and post Covid time, looking for future adaptation.

Chapter 4 – *Research Programmes at the Time of the Covid-19. The Case of the IRC-HERMES Project* by Helen Maistrou reflects on recent pandemic emergency that has changed personal and social life and scientific research as well. It is questioning: Can we adapt our scientific and research work in the new reality? And to what extent can research be adapted when it requires field-work? The chapter discusses the following research project that required field work. Four UNESCO World Heritage Sites in three Balkan countries under consideration suggest a cooperation on a common strategy for the preservation of cultural heritage through the IRC-HERMES (InterRegional Cultural Heritage Management e-System) project. The cities of Corfu and Samos in Greece, Gjirokastra in Albania and Ohrid in North Macedonia are facing common challenges but also different problems. The digital recording and documentation for selected buildings in the four selected cities can be considered the first and basic step to decision-making related to the preservation and management strategy of the architectural heritage of the

cities. A platform has been created for the registration of the historic buildings and an educational online portal will be developed.

The chapter presents the stages of the project, the problems of delay due to the Covid-19 pandemic as well as the required modifications which reduce the results expected from the program. However, digital technology can replace some stages of the research process. Nevertheless, the direct relation of the researcher with the object of its research and the collaboration of the scientific team in the field are necessary. At the same time, personal contact, and discussion with the broader public, are necessary to raise awareness on the preservation and promotion of their Cultural Heritage. Finally, can be a very effective way of working for documentation, protection, and management strategy, as they emerged through the IRC- HERMES Project.

Chapter 5 – *DANUrB Project and Promoting Sustainable Tourism in Response to the Pandemic Covid- 19* by Lubica Vitkova discusses on sustainable tourism that is the opposite of long-term unsustainable mass tourism. The topic of sustainable tourism is not new, but has resonated for a few decades, in parallel with expanding initiatives and measures aimed at reducing the carbon footprint. Further, sustainable development of tourism is thus based on the basic pillars of sustainability: environmental, economic, social, and cultural aspects. The ongoing coronavirus pandemic is a challenge for more substantial support for sustainable tourism. The pandemic highlighted the limits, threats, and unsustainability of mass tourism, which had fallen dramatically because of the necessary anti-pandemic measures. The fatal economic as well as social impacts caused by the restriction of air and ship transport, of the significantly reduced demand for accommodation and services related to tourism are obvious. This experience should be an opportunity to change the transformation of the current form of mass tourism in favour of sustainable tourism. It is necessary to start monitoring the balance between quantity and quality, between economic profit and quality of life in the area.

The chapter presents research focused on the declining regions on the Danube region in Slovakia, which have considerable potential in the form of cultural and natural heritage, which should be supported and developed. The research maps and presents the unused cultural and natural heritage in the Danube Region, which is rich in historical monuments (historic city centres, fortification systems, churches, mansions and so on), technical and industrial monuments, as well as architecture from the socialism period. The Region is characterized by natural conditions associated with the Danube, its tributaries, bodies of water, floodplain forests, but also with thermal springs and the cultural landscape cultivated for many centuries. The research also focuses on the strategy and concept of its valorisation, and it is an output of the DANUrB project (Danube Urban Brand and regional network building through tourism and education to strengthen the Danube cultural identity and solidarity) and supported by the DANUrB+ project (DANube Urban Brand + Building Regional and Local Resilience through the Valorisation of Danube's Cultural Heritage).

PART III – *Future Education and Lessons Learned from the Pandemic Crisis* is dealing with Higher Education and how Covid-19 contingency can be managed in a different way to be a good precedent for identifying teaching and training difficulties and bringing in relevant knowledge to address it. The issues stressed here show how lessons learned from the pandemic time must be considered as a challenge for the future of education. There has been a strong need for educational institutions to undertake key strategic decisions on how to provide access to relevant tools, and how to manage training methods for both educators and learners.

Chapter 6 – *Research-led Teaching in Lockdown: Lessons for Post-Covid Studios* by Smajo Bešo, Emily Scullion, Tim Townshend discusses on Covid-19 contingency planning that impacted all aspects of life across the globe. Higher education was no exception and, in many countries, a sudden shift to 'online' teaching became the new reality. For some – particularly lecture

based – courses, while disruptive, this transformation was achieved relatively smoothly. However, practical, and studio-based courses presented challenges. Design studios had to be rapidly re-designed, extracting out elements like student-client interaction, and finding ‘work arounds’ to replace site visits, and related methods to collect much needed baseline research as well as practical methods of working i.e. model making, drawing and tutor demonstrations. This is particularly important for weaker students, those in early the stage of their education and international students.

Moreover, physical studios had to be replaced by virtual ones. Given the rapid timeline in which this needed to be enacted, existing, readily available, and easily accessible online platforms had to be adapted. Virtual whiteboards – learning spaces where tutors and students can interact with each other individually, or in groups, and in real time via the internet – provided a workable solution.

This chapter shows an experience of 3rd Year students on a BA Architecture and Urban Planning (AUP) undergraduate degree and students undertaking and students on an International Foundation in Architecture (INTO). A lot of international students on AUP, interestingly not many from INTO this year, but this has been an added challenge, not just in terms of accessibility/language issues but also cultural/educational backgrounds and ways of learning that may not be common in the UK. Framed around the topics of communication, learning, and learner-technology interaction pedagogical challenges are examined, pros and cons, and successes for this enforced virtual experiment and highlight lessons which might usefully be taken into post-Covid studio teaching and form the basis of co-design with students to shape their own projects.

Chapter 7 – ‘CLOSE FROM AFAR’. *The Virtualisation of Scientific and Training Activities in Time of Covid-19* by Annamaria Silvana de Rosa, Maria Dutto examines on how the Covid-19 pandemic has been a turning point in history, marked by ‘before’ and ‘after’ of changed habits and everyday life. The most common measures adopted in many countries including spatial and social distancing; lockdown; smart working; distant training. (D.a.D.: Distant Didactic)

Driven by the interest to study the role of communication in co-constructing the social representations, in this chapter is presented a selection of results from a wider investigation based on advertising communication and marketing and its impact during the Covid-19 pandemic with particular focus on the education sector, widely affected by *the virtualisation of scientific and training*.

Results show the challenge to enhance the resilience of vulnerable students during the transition to online and distance education, leading them into the new normal to take advantage of all the opportunities that it offers. However – after almost one year of experience – factual data and experiential narratives both by students, teachers, and professors also show the effect of the digital divide between students belonging to different social classes and geo-cultural areas. The two faces of the coin of *Close from Afar*, with positive and negative representations of the massive digitalization, the forced distancing, with images of sharing, adaptation and resilience have been documented at various educational levels.



DANUrB Project and Promoting Sustainable Tourism in Response to Pandemic COVID-19

Ľubica Vitková

Sustainable tourism is the opposite of long-term unsustainable mass tourism. The topic of sustainable tourism is not new, it has been resonating for a few decades, in parallel with expanding initiatives and measures aimed at reducing the carbon footprint. Sustainable tourism is naturally based on the principles of sustainable development, which is focused on the principle of meeting current needs so that the needs of future generations are not jeopardized. The sustainable development of tourism is thus based on the basic pillars of sustainability: environmental, economic, social, and cultural aspects.

The ongoing coronavirus pandemic COVID-19 is a challenge for more substantial support for sustainable tourism. The pandemic highlighted the limits, threats, and unsustainability of mass tourism, which had fallen dramatically as a result of the necessary anti-pandemic measures. The severe economic, as well as, social impacts caused by the restriction of air and ship transport in particular, significantly reduced demand for accommodation and services related to tourism, are obvious.

This experience should be an opportunity to change the current form of mass tourism towards to a sustainable tourism. It is necessary to start monitoring the balance between quantity and quality, between economic profit and quality of life in the area. The basic principle of sustainable tourism is a friendly approach to the

environment through the sustainable use of natural and cultural resources. In addition, sustainable tourism is able to support declining regions, local communities, and their economy.

The presented research is focused on the declining regions around the Danube, which have considerable potential in the form of cultural and natural heritage, which should be supported and developed. The article focuses on Danube region in Slovakia in the context of sustainable tourism (short-distance tourism, slow-experience tourism, or tourism of a lower density). The research maps and presents the unused cultural and natural heritage in the Danube region, which is rich in historical monuments (historic city centers, fortification systems, churches, mansions), technical and industrial monuments, as well as architecture from the period of socialism. The region is characterized by natural conditions associated with the Danube, its tributaries, bodies of water, floodplain forests, but also with thermal springs and the cultural landscape cultivated for many centuries. These conditions create ideal bases for adventure and relaxing tourism in terms of sustainable tourism. In addition to mapping the potential of cultural and natural heritage, the research also focuses on the strategy and concept of its valorization.

The presented paper is an output of the DANUrB project (Danube Urban Brand and regional network building through tourism

The characteristic Danube landscape with watercourses and floodplain forests (image: L. Vitková).

The Danube region as well as the cultural landscape (image: L. Vitková).

and education to strengthen the “Danube” cultural identity and solidarity) and supported by the DANURB+ project (DANube Urban Brand + Building Regional and Local Resilience through the Valorization of Danube’s Cultural Heritage).

Characteristics of the region

“Podunajsko” (Danube region in slovak language) is a region located in the south of Slovakia. The south-western and southern borders of the area follow the Slovak-Hungarian border, which is formed by the river Danube. The area is connected with the Danube River, as well as with its tributaries – with Váh, Hron, Ipel, or other smaller rivers such as the Small Danube, Čierna Voda, Dudváh and others. These river networks are complemented by other smaller streams, live and dead branches, lakes or artificial water channels. The river system creates a unique inner Danube delta, which is a unique natural phenomenon with several protected areas. Accompanying floodplain forests are a rare ecosystem with specific fauna and flora of rivers, lakes or wetlands. There are also meadow communities of salt marshes and sands in the area. The region has great wealth and diversity of natural habitats. Along the Danube lies the protected area of the Danube Meadow (VITKOVÁ, LEMAK 2021).

The majority of the Danube region is occupied by the lowlands, delimited in the east and northeast by low mountains and hills. The Danube plain has exceptionally fertile soils, which determine its agricultural char-

acter. Wheat, corn, vegetables, fruits and vines are grown here. In addition, the area is characterized by a pleasant climate. The cultural and natural landscape along the Danube is complemented by historic towns, rural settlements and many locations with sights. The area had defensive significance in the past as a border of Roman territory, as well as a buffer zone against Turkish invasions. This was reflected in a specific cultural heritage. Fertile country conditioned the development of mansions, farms, food industry, as well as irrigation and drainage canals, or booster pump stations. Last, but not least, there are valuable historical sacral and secular buildings in the region. Cultural heritage has a great potential for the development of tourism in the Danube region.

From the economical point of view, the area has always been predominantly agricultural, with the focus on processing local products (sugar factories, distilleries, breweries, starch factories, brickyards, etc.). At the turn of the 19th and 20th centuries, the ship building industry, as well as the industry connected with the defense function (Ammunition Factory) began to flourish in Komárno. In the 1960s, during the period of Slovakia’s industrialization, other industrial areas were developed, such as pulp and paper mills in Štúrovo, while the development of the Komárno ship building industry continued. The largest Central European railway transshipment station in Štúrovo also played an important role. After 1989, with the transition to a market economy, all areas of the industry, including the food industry, went through a recession.



The Danube region is highly differentiated in terms of the settlement network hierarchy. In its western part, the area is closely connected mainly with Bratislava, the capital of Slovakia, and its wider urbanized area through the so-called functional urban region. The western part of the Danube region represents the residential, economic and recreational background of Bratislava. The territory of the Danube region in the Trnava and Nitra regions is connected to the surrounding area of regional cities (Trnava, Nitra) and district cities (Galanta, Dunajská Streda, Šaľa, Komárno, Nové Zámky). In terms of tourism and its potential, there are also links to the cross-border regions of Hungary (Győr – Mošon – Sopron and Komárom – Esztergom) and Austria (Burgenland). Based on the Concept of Territorial Development of Slovakia (KLAUČO, HRDINA, CHUDÍK, KOSTOVSKÝ 2001), the communication-settlement axis of the 1st degree Bratislava - Trnava and the communication-settlement axis of the 3rd degree Dunajská Streda --Galanta are important from the development point of view. The development of the communication-settlement axis of the 2nd degree Dunajská Streda – Nové Zámky is promising.

The development of each area depends on the level of transport connections. The Danube region is well accessible in terms of connections to multimodal corridors. However, the accessibility of the area and its main centers is differentiated. While the western part the Danube region is under strong influence of Bratislava and the accessibility to the centers of settlements is very good, approx. 30 minutes. In the east-

ern and central part of the area, it is up to 60 minutes, as the area is served by II. and III. class roads. This is also reflected in the region's attractiveness in terms of tourism. Dunajská Streda (served through R7 Bratislava-Holice) and Komárno (served through the M1 motorway, M15 Budapest – Vienna – Bratislava) have excellent connections via the international road motorway network. The cities of Galanta, Šaľa, Nové Zámky, Štúrovo are connected to the international railway route. The cities of Gabčíkovo, Komárno and Štúrovo are connected by public river transportation with Bratislava, Vienna, Budapest and other cities on the Danube.

Development and current state of tourism in the Danube region

Regional tourism in the Danube region is developed especially in the vicinity of large cities. All of them have their favorite tourist destinations tied mainly to short-term and weekend recreation. The situation is more difficult in regions outside large cities, which began to develop especially after 2000 (KADÁR, VITKOVÁ 2019). The development of regional tourism in the area around the Danube in Slovakia has been influenced in the past by the categorization of tourism centers. In the 1960s this area was added to the lowest category of touristic regions. Regions in this category were to provide mainly short-term and medium-term recreation in relation to larger cities and industrial agglomerations. The categorization of tourism defined only the wider

Komárno: Fortification system (image: L. Vitková).

Komárno: The historical city centre (image: L. Vitková).



Velký Meder: Popular thermal baths (image: L. Vitková).

The Danubiana Art Museum: Gallery of Modern Art on the banks of the Čuňovo dam (image: L. Vitková).

area of Bratislava and Komárno as regional tourist centers. For this reason, no significant tourism fundings have been invested in the Danube region. These were targeted at regions of international or national importance for tourism (the High or Low Tatras), and spas of international importance (KISSFAZEKAS, KRKLJES, STAN, VITKOVÁ 2019).

Due to its regional importance, recreation in the Danube region was focused mainly on activities in the open country, especially in connection with water – with the Danube, its tributaries, branches, lakes, gravel pits. Various types of water sports and fishing thrived on the water areas. Hiking, cycling and hunting in the surrounding floodplain forests. “These were activities without the right to more substantial development of infrastructure and services” (VITKOVÁ, ŠTRBÍKOVÁ 2021).

The Danube region is also rich in thermal springs. These began to be used in the 1960s, especially for weekend and short-term recreation. During this period, the infrastructure of several thermal baths was built in Patince, Štúrovo, Komárno, and Velký Meder. These underwent more significant development, especially at the beginning of the millennium, both in locations mentioned above and in Dunajská Streda, Topoľníky, Senec, Nové Zámky and in the wider area. Characteristic for this region were also areas of weekend cabins, which began to be established in the 1970s. They represented an escape from the communist regime and its normalization, as well as from dehumanized housing estates realized by mass panel construction. At the same

time, gardening and home vegetable farming represented a return to the land that the inhabitants had lost by moving to cities (KISSFAZEKAS, KRKLJES, STAN, VITKOVÁ 2019).

The most important investment to support recreation in the Danube region in the 1980s was the construction of the Gabčíkovo waterworks. Its construction was planned as prevention of cyclical floods and for production of electricity, and was accelerated by the catastrophic floods of 1965. The Gabčíkovo waterworks was built in the years 1977-1992. The problem was, that its construction changed the landscape character of the inner the Danube Delta (KISSFAZEKAS, KRKLJES, STAN, VITKOVÁ 2019). When planning the dam, more significant development of recreation around it was taken into account.

Since the 1990s, several sports and recreational areas have been built in connection with the Gabčíkovo waterworks: the Čuňovo watersports complex, the Danubiana Museum of Modern Art, cabin settlements around the lakes near Vojka, and the X-BIONIC® Sphere sports and leisure complex in Šamorín. Larger investments in the region were also made near Orechová Potôň. It is the construction of the Slovakia Ring, which, provides both professional motor sports facility and a recreational one - Slovak Karting Centre. Nearby is the popular Zoo – Malkia Park. Tourism and recreation in the Danube region is currently, as it was in the past, closely linked to recreation in nature, especially by the water. Lakes are used mainly for swimming, rivers and branches are sought



has always primarily connected important economic centers and cities on its banks. Before the COVID-19 pandemic period, the capitals of individual countries were connected through the so-called global tourism (Budapest, Vienna, Belgrade and Bratislava). They were popular international and popular tourist destinations (KÁDÁR, VITKOVÁ 2019). Areas such as the Danube Delta, the Iron Gate, the Wachau region, and some upper Danube cities such as Linz, Passau or Regensburg were also popular (KÁDÁR, VITKOVÁ 2019). "The high number of operating cruise ships and direct air connections of major cities also support the high number of visitors to these destinations" (VITKOVÁ, ŠTRBÍKOVÁ 2021). During the COVID-19 pandemic, global mass tourism proved to be not only unsustainable but also extremely vulnerable. During this period, it experienced a huge decline.

The implemented DANUrB and DANUrB+ projects, on the other hand, are focused on the development of sustainable tourism, moreover in areas that have so far not been frequently visited. The projects focus on tourism in small and medium-sized towns, in stagnant, or in declining regions around the Danube, from Austria to the delta of the Danube. The aim of the project is to strengthen the common cultural identity by benefitting from the cultural and natural potential, which has not yet been sufficiently utilised. Therefore, one of the important goals of the project was to find, name and categorize the unused (tangible and intangible) cultural and natural potential in the studied regions. The research focused on mapping all available sources and typologies of the urban environment such as historic cities, industrial heritage, the heritage of the communist past, fortifications, sacral and secular monuments as well as urban sets of important value. The project also mapped intangible heritage such as living cultural traditions, characteristic gastronomy, customs, etc. An important part of the mapping was also natural conditions: cultural, recreational landscape, or protected landscape areas. Thanks to the research of cultural, historical and natural heritage, a categorization of the characteristics and elements of the whole area were developed (VITKOVÁ, ŠTRBÍKOVÁ 2021).

The motto of the project was the search for a common brand that characterizes the areas around the Danube and is a transnational link between diverse and at the same

time parallel cultural and natural values. The project, therefore, specified the following thematic areas characteristic of the regions around the Danube with potential for tourism, especially sustainable tourism. It is about:

- Fortifications: fortresses, castles, bunkers from different periods (Limes Romanus – from the period of Byzantium, medieval – from the period of Turkish invasions, from the 20th century);
- Cultural building: churches, monasteries, archaeological sites, historical buildings, historic city centers, art galleries, museums;
- Technical buildings and monuments: bridges, ports, mills, industrial buildings and areas, water towers;
- Water tourism: spas, swimming pools, thermal baths, natural swimming pools, beaches, waterways, but also the waterfront promenades;
- Green tourism is tied to the natural landscape (nature reserves, floodplain forest), to the cultural landscape (vineyards, gardens, orchards, fields);
- Traditions intangible culture as theatres, folklore, music and art festivals, gastronomy, viticulture (VITKOVÁ, ŠTRBÍKOVÁ 2021);

Based on these features, a strategy was developed for the area, a joint strategic development plan, which is the basis for the so-called "Danube Cultural Promenade", supported by the "Pocket Guide" mobile guide and pilot activities carried out with local stakeholders. The currently implemented DANUrB+ project is already focused on the development of action plans.

The researched stagnant regions have a great potential from the sustainable tourism point of view. Precisely thanks to their potential, which is the hitherto untapped cultural heritage, preserved natural wealth, as well as human capital. Thanks to the Danube, these regions are reachable by river transport, they are connected by the international cycling route Eurovelo 6 or by train. Thus the basic principles of sustainable tourism are fulfilled. These include:

- Respect for the natural and cultural heritage, and for the local population;
- Respect for the environment;
- Support for the local economy (jobs for local people, local businesses);
- Preference for efficient and sustainable transport (BRAMWELL, LANE, 1999);

The strategy for the development of sustainable tourism in the Danube region

builds on the mentioned principles. It is based on the development of the specific conditions of the region and therefore supports areas such as:

- Recreational and sports tourism (tied to the landscape around watercourses and areas), relaxation and therapeutic tourism (tied to thermal springs), residential and experience tourism (tied to gastronomy, wine tourism, agro-tourism);
- Thematic and sightseeing tours connected to the Danube region, but also the adjacent regions (routes through Roman monuments, fortress architecture, historic cities, or a journey to gastronomy and wine);
- Comprehensive tours within the Danube region, which offer connecting different thematic areas (VITKOVÁ, ŠTRBÍKOVÁ 2021).

In the proposed strategies based on the support of urban and regional identity, it is necessary to monitor both the spatial characteristics of the area (peculiarities of urban and natural structure) and specific social and cultural activities. Only the balance of the relationship between these factors provides the preconditions for the formation of a harmonious and sustainable environment, both for residents and visitors.

Sustainable tourism at a regional and local level – characteristics of problems

A special category of sustainable tourism is the relationship between the Danube region and the capital and larger cities. These represent a natural potential for local tourist destinations and sustainable tourism, which is still used mainly at the national level. This is confirmed by the research carried out so far, which is linked to the middle and lower regions of the Danube (WIDAWSKI, WYRZYKOWSKI 2017). In their research, Kádár & Gede (KÁDÁR, GEDE 2018) evaluated the movements associated with tourism, generating clusters of targets around the mentioned larger and middle cities of the national level as well as cross-border regions of neighboring countries. The same groups of tourist destinations are also forming in Slovakia and specifically around its capital Bratislava or in the Danube region (KASAGRANDE, RAJČÁKOVÁ, VYSTOUPIL, 2016). It follows that short-term tourism and recreation (day, weekend) are mainly linked to places of permanent residency and their immediate surroundings, which is the basis for developing a sustainable form of recreation and tourism. In this context, Bratislava,

the capital of Slovakia with a population of around 450,000 and another 230,000 in its agglomeration, represents significant potential especially for short-term and cyclical recreation and tourism. The economic strength of its inhabitants and the way of life in which active leisure time plays an important role are also crucial in this context. The goals of the inhabitants of Bratislava, especially in terms of short-term, weekend recreation, are mainly related to the immediate surroundings of the city, which, thanks to its natural conditions, provide ideal opportunities for recreation

The relationship of the city to the river and to the landscape (image: L. Vitková).

CITY	THE RELATIONSHIP OF THE CITY TO THE RIVER			THE RELATIONSHIP OF THE CITY TO THE LANDSCAPE	
	HISTORY	THE PRESENT	THE CHARACTER OF THE RIVER	THE PRESENT	THE CHARACTER OF THE LANDSCAPE
KOMÁRNO			Danube and its tributary -Váh		Agricultural landscape Floodplain forest The park
ŠTÚROVO			Danube		Agricultural landscape Floodplain forest, Mountains
KOLÁROVO			Váh Small Danube		Agricultural landscape Floodplain forest The park
GABČÍKOVO			Small river Danube		Agricultural landscape Floodplain forest
DUNAJSKÁ STREDA			Stream		Agricultural landscape Floodplain forest
ŠAMORÍN			Danube		Agricultural landscape Floodplain forest
VEĽKÝ MEDER			Without the water element		Agricultural landscape Floodplain forest

Recreation areas in Komárno (tab: L. Vitková).

Recreation areas in the edge of Komárno (tab: L. Vitková).

in nature. Popular are recreational centers connected to Devín and Devínska Kobyla, Little Carpathians (Železná studnička, Krasňany, Borinka, Pezinská Baba, Zochova chata, Borinka), Danube (Čučovo, Rusovce, Hamuliakovo, Čilistov), Malý Dunaj (Jelka), surrounding lakes and gravel pits (Senecké lakes, Košariská, lakes in Vajnory, Ivánka, Vojka and others). Some Bratislava residents have cottages or gardens in the vicinity. Due to its location on the border with Austria, the region of Lower Austria and Burgenland is also a destination for short-term tourism for inhabitants of the Bratis-

lava region. However, a large part of the region's population still travels on weekends to tourist-dominant locations in Slovakia (the High and Low Tatras, the Small and Great Fatras, or the Štiavnica Hills).

The need to support the development of a network of recreational areas, especially near cities, is also confirmed by the COVID-19 pandemic period. Hygiene measures were aimed at closing down shops, services, hotels, indoor and often outdoor sports facilities too. Restricting the movement of population was essential. This took place in Slovakia during the COVID-19 pandemic in several periods (spring 2020, winter, spring 2021, autumn 2021). The movement was allowed only in the nearest area around the place of residency (grocery shopping, work, outdoor recreation, doctor appointment). Recreation and sports could be realized only within the district of residency. In addition, people visited nature and practised outdoor sports much more intensively during the COVID-19 pandemic than under normal circumstances. This situation pointed to the fact that in the vicinity of Bratislava, but also other places in the Danube region, there is an insufficient network of recreational areas. Those, which are popular, were overcrowded during weekends. It was necessary to draw attention to compliance with pandemic measures, such as keeping the distance and wearing a mask even outdoors. Given the landscape character of the Danube region and surroundings of cities around the Danube, this fact may seem paradoxical. Therefore, the research of the DANURB+ project in this period focused mainly on mapping the problems of location, character, accessibility of outdoor recreational areas in the built-up area of the Danube region, in the peripheral areas of cities and their vicinity. In this project the research focused on small and medium-sized cities in the Danube region. We evaluated the conditions for recreation in relation to the nearby cities, their urban fabric and the landscape of their surroundings.

Recreation in the city – The character of the landscape also shapes the ground plan of the cities and towns and their image. The dominant landscape elements are the most attractive areas of cities: river embankments, city parks, mountain slopes and hills, etc. At the same time, they represent a potential for recreational use - natural places connecting urban structure and nature (VITKOVÁ, LEMAK 2021).

RECREATION AREAS IN KOMÁRNO				
KIND	CHARACTER	USE	DISTANCE	REACHABILITY
Area near the New and Old fortress	Free space: greenery paved areas, partially built up by buildings Endangered functionality during a pandemic	Park Stadium Thermal swimming pool Municipal sports hall Children's playground	Direct link to the city centre	Pedestrian connection Bike connection
Greenery around the fortification system	Gardens Free areas Untreated greenery	Children's playground Gardens Free spaces Unprocessed greenery	Link to residential estates in their contact	Pedestrian connection Bike connection
Elisabeth Island	Mostly individual family development, horticultural area	Danube waterfront Gardens Family houses with gardens Park	Direct link to the city centre	Connection by: Pedestrian Bike Car Public transport
Greenery of the living estates	Semi-public premises of housing estates	Children's playground Free green spaces	Link to residential estates in their contact	Pedestrian connection
School sport grounds	Bound to school premises, partially accessible to the public	Sport	Link to residential estates in their contact	Pedestrian connection

RECREATION AREAS IN THE EDGE OF KOMÁRNO				
KIND	CHARACTER	USE	DISTANCE	REACHABILITY
Waterfront of Danube	Industry-warehouse complex	Area of port and warehouses	Walking distance Link to the centre Link to residential areas	not reachable
Waterfront of Váh	Natural, Urban character	Walks Cycling Stay areas Natural playgrounds	Walking distance Link to the centre Link to residential areas	reachable Partly reachable
Dead branches of Váh	Natural character	Recreation on and around the water Stay areas Natural playgrounds	Walking distance	reachable

In the built-up area of the surveyed cities, we identified the following problems in terms of the use of natural areas for recreational purposes:

- Insufficient use of the potential of characteristic landscape elements in the urban structure. Absence of functional waterfronts, city parks in connection with floodplain forests;
- Insufficient use of the potential of existing natural areas in the urban structure;
- Insufficient network of local parks and recreational areas;
- Inadequate connection of local as well as city-wide recreational areas with urban environment of the city center;
- Public areas are not adequately adapted to walking and cycling. Dynamic and static car traffic dominates;

Recreation at the edge of the city – The character of the city is formed by its geographical structure. Its image is closely connected with the surrounding landscape too. Landscape character also has an impact on recreational opportunities. As part of the project, we, therefore, mapped the relationship between the city and the landscape elements, which are the dominant and determining factors for the regions around the Danube (as river, floodplain forests, agriculture landscape, flats or mountains). In addition, the Slovak part of the Danube is characterized by an inner delta with many of its branches and tributaries, accompanied by floodplain forests, waterbodies and wetlands. These natural elements also enter into the structure of cities or are in contact with them. Therefore, recreation and tourism in the Danube region is associated with recreation in nature, especially by the water. Another characteristic feature of the Danube region is the agricultural landscape. The degree of interconnection of urban and landscape structure represents a significant potential for the development of recreation and tourism. This potential is not always used sufficiently. Likewise, the value and importance of the cultural landscape at the edge of cities is underestimated (VITKOVÁ, LEMAK 2021).

Conditions for recreation in the peripheral locations of cities in the Danube region are relatively different. Many towns are located directly by the rivers: Štúrovo by the Danube, Komárno by Danube and Váh, Kolárovo by Váh and Small Danube. Other towns are in contact with the Danube only at the edges of their wider urban area (Gabčíkovo, Šamorín).

We identified the following issues in the surveyed cities:

- Insufficient network of different kinds of recreational areas at the edge of the cities;
- Inadequate interconnection of recreational areas at the edge of the cities with their urban fabric;
- Public spaces as the main connecting elements are not adequately adapted to walking and cycling. The dynamic and static car traffic is dominant;
- Insufficient use of the potential of natural areas in contact with the built-up area of the city (inadequately used areas around watercourses, absence of involvement of the cultural landscape);

Recreational areas in the wider city area – Conditions for a recreation around the cities in the Danube region are relatively diverse. Many places are located directly by the rivers and in contact with the typical landscape of floodplain forests. Štúrovo (near Danube), Komárno (near Danube and Váh), Kolárovo (near Váh and

Recreational areas around Komárno with natural character (tab: L. Vitková).

Recreational areas around Komárno focus to the culture heritage (tab: L. Vitková).

RECREATIONAL AREAS AROUND KOMÁRNO WITH NATURAL CHARACTER				
KIND	CHARACTER	USE	DISTANCE	REACHABILITY
Appalachian Island	Nature reservation	Tourism	6 km	Pedestrian connection Bike connection
Patince Velký Meder	Thermal baths Endangered functionality during a pandemic	Therapeutic relaxation stays Tourism	13 km 32 km	Connection by: Ship, car, bike, bus
Island of Velký Lél	Nature reservation	Eco-farm	15 km	Connection by: Bike, car
Branches of Čičov	Nature reservation	Tourism	31 km	Connection by: Bike, car
Flutante Park	Recreation area		8 km	Connection by: Bike, car

RECREATIONAL AREAS AROUND KOMÁRNO FOCUS TO THE CULTURE HERITAGE				
KIND	CHARACTER	USE	DISTANCE	REACHABILITY
Water Mill Kolárovo - museum	Technical monument Monument of folk architecture	Cognitive tourism Rafting on the small Danube Tourism	23 km	Connection by: car, bike, train, bus, boaters
Iža- Kelemantia	Historical monument	Cognitive tourism	8 km	Connection by: Bike, car
Pumping stations: Kameničná Čergov Komárno- Lándor Patince	Technical monument	Only exterior accessible	10 km 21 Km 6 km 13 km	Connection by: Bike, car

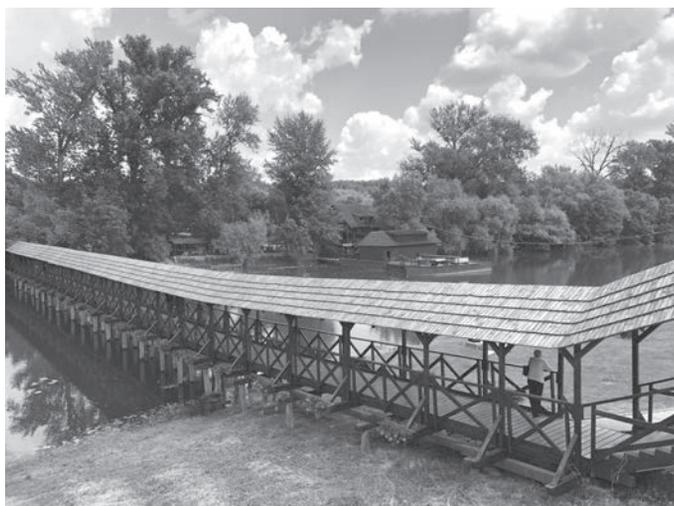
Little Danube). As a result, their inhabitants have direct contact with a valuable and attractive natural environment. Others are surrounded by farmland. However, all cities in the Danube region have recreational conditions at a reachable distance. As a part of the research, we focused on the reachability, forms of recreation and types of recreational areas in the surveyed cities. Characteristic types of recreational areas tied to the landscape or monuments have already been mentioned above. The recreational areas around the Danube and the Small Danube are dominant, but the uplands of Hron and the Burda Mountains have potential too. From the tourism point of view, for some groups of people thermal baths are extremely popular in the region, as well as golf courses. The demand for rafting on the Little Danube and cycling is growing. Social-cultural events, fairs and local markets are also sought after, but these were not permitted during the COVID-19 pandemic. Furthermore self-harvesting of fruits is popular in the farmlands. At the regional level, we have identified the following issues in regards to recreation:

- Limited number of recreational areas around the cities and their inadequate facilities, especially for families with children;
- The recreational areas, which are well reachable by car, were overcrowded in the period of the COVID-19 pandemic;
- Reachability of the recreation premises is tied mainly to car transport.
- Cycling routes to the recreational destinations are missing. Regional and local roads are used by cyclists instead.

Examples of good practice

In this project we also mapped examples of good practice in cooperation with stakeholders. Within the cities in the Danube region in Slovakia and their surroundings, it can be stated that activities in the form of reconstructions of buildings, smaller investments and interventions, acupunctures - small improvements in the urban or natural environment represent impulses for more fundamental changes. Activities supporting the development of natural economic, agrarian or recreational activities in the region also play an important role. They are “starters” for a more fundamental development of a municipality, city, or area. They often inspire other sites in the area. Among the realizations that underline the uniqueness of Žitný ostrov and are based on the tradition of agriculture and local culture is the reconstruction of watermills on the Little Danube in Kolárovo, Dunajský Klátov, Jahodná, Tomášikovo or Jelka. These are preserved technical monuments of wood carving in southern Slovakia. The watermills have been preserved in their original condition, without interference and with functional mill equipment. They are mostly connected with a museum or an open-air museum presenting the way of life in the past. In the context of wooden architecture on the Little Danube, a very inspiring work was realized recently – Korzo Zálesie. It is a wooden promenade above the water surface of the small Danube, referring to the wheeled structures and bridges of the mentioned watermills. It represents a valuable intervention in the suburban environment of Bratislava, which in an unconventional

Water mills: unique elements of technical and cultural monuments in the Danube region - Mill in Kolárovo and Dunajský Klátov (image: L. Vitková).



Reconstruction of mansions for tourism, as well as social and community center for locals (image: L. Vitková).

way has raised the public space and the social environment not only of the municipality itself but also of the wider surroundings. It is a modest project in terms of size, but with great added value, both social and architectural. The project was awarded in the competition of the Slovak Chamber of Architects CE.ZA.AR. This exceptional project draws on the tradition of the region and at the same time creates an environment that encourages communal activities and meaningful leisure time. It is part of the Interreg - Danube Bike & Boat project, which aims to develop boating, cycling and hiking infrastructure. Behind the project is a civic initiative supported by local and regional governments.

Once again, mansions are coming to life in the areas around the Danube. During communism, they were degraded to the facilities of social services or even the warehouses of collective farms. At best case, they became offices or museums. Thanks to private investors and often even enthusiasts, they are regaining their former elegance. They were converted into hotels of a higher standard, together with that they also became centers of social life and a place of important family or social events. The mansions in the villages of Báč, Vrakúň (hotel Amade Chateau), Belá (Chateau Belá), Rúbaň (Chateau Rúbaň), Bernolákovo and Tomášov underwent such a transformation. Unfortunately, not all are undergoing a positive transformation.

For centuries, the fertile land brought sustenance not only for the local population but also for the less fertile regions of

Slovakia and the main city centers. After a period of collectivization, private entrepreneurship is recovering again – in larger or smaller forms. The Danube region is the South Slovak wine region and offers several wineries of various sizes are located here. There are many architecturally interesting wineries such as Világi Wineri in the village of Chľaba, SanVin in Okoč, wineries associated with the aforementioned renovated mansions in Rúbani, Belá, and smaller wineries in traditional country houses in Mužla, Belá and Strekov.

This fertile region between the Little Danube and the Danube offers local products thanks to emerging farms. The smalltown squares and main streets in this region come to life with farmers' markets, restaurants, stalls with local gastronomy, flowers and local products (Dobrohošť, Vojka, Legnice, Zlatná na Ostrove, Čilistov, Šamorín). This is the focus of revival of traditional activities of this region, gradual and natural transformation of settlements and their urban structure.

Conclusion

The COVID-19 pandemic has had a dramatic effect on the international, national, regional and local level and caused unprecedented mobility restrictions, which have lasted for more than twenty months. This situation was reflected in the decline of international and domestic tourism, as well as in all related segments, such as air transport, ship cruises, public transport, hotel accommodation, guest-houses, gastronomy services,



conferences, festivals, concerts, and sporting events. Mass tourism, which is an important part of many economies, has been hit the hardest. Moreover, the pandemic also pointed out its vulnerability and environmental unsustainability. It is clear that the further development of tourism should focus on its sustainable forms. The presented concepts and strategies developed within the DANUrB and DANUrB+ projects (within the Interreg - Danube Strategy scheme) focus precisely on the forms of sustainable tourism both at the international and local level. At the same time, the paper points out the appropriate and possible synergies between the two levels. The project DANUrB+ was launched during the pandemic. This significantly affected the method of communication between the partners (mostly online), the implementation of planned activities, but also the increased emphasis on local tourism and its sustainability.

In the context of the COVID-19 pandemic, as well as sustainable tourism, the project monitored the potential, character, occupancy rate, reachability of existing recreational areas and tourist destinations. These aspects were evaluated in the context of tourist, recreational areas, and objects and areas of cultural heritage within the surveyed cities and their wider area. The level of utilization of recreational areas was largely conditioned by the availability, method of their use, as well as the scope and quality of services, but also the urban-architectural quality, or the quality of the landscape. Based on the principle of the city of short distances, which is crucial in the period of the pandemic, the research emphasized the

reachability of recreational areas within the city and its peripheral locations. The extent of implementation of sustainable transport was crucial too, especially at the level of the wider area.

The strategy for development of small and medium-sized towns in terms of sustainable recreation and tourism was therefore focused primarily on improving public spaces, shaping the waterfront areas of towns and cycling routes. We placed great emphasis on the even distribution of leisure and recreational areas, in the cities themselves, and their surroundings, their good connection with urban structure is absolutely essential. We consider their good connection with the urban structure to be essential. As a matter of priority, we focused on using the existing landscape potential of the city (floodplain forests, watercourses and areas), as well as the potential of their cultural heritage (VITKOVÁ 2018, 2019). It was during the COVID-19 pandemic that the locals began to discover and visit the cultural richness in their surroundings to a greater extent. They have become tourists in their own city and region. An important part of the strategy was the transformation of abandoned industrial areas and unused spaces.

As a part of the action plans within the DANUrB+ project, we are preparing pilot projects for the reconstruction of selected monuments and smaller interventions, based on genius loci of its areas. They are the starting points for the transformation, which have been carefully selected in collaboration with local stakeholders and are important in improving the environment and the social life of the local community (VITKOVÁ, URBAN 2019).

Korzo Forest: part of the concept of revitalizing the Little Danube embankment (image: L. Vitková).

Dunajský Klátov: humble access to the floodplain forest on the principle of a traditional pier and wooden walkways (image: L. Vitková).





Research-led Teaching in Lockdown: Lessons for Post-COVID Studio-based Design Projects

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Tim Townshend

In 2019 COVID contingency planning impacted all aspects of life across the globe. Higher education was no exception, and in many countries a sudden shift to 'on-line' teaching became the new reality. For some – particularly lecture based – courses, while disruptive, this transformation was achieved relatively smoothly. However, practical, and studio-based courses, presented particular challenges. Design studios had to be rapidly re-designed, extracting out elements like student-client interaction, and finding 'work arounds' to replace site visits, and related methods to collect much needed baseline research.

Moreover, physical studios had to be replaced by virtual/online ones. Given the rapid timeline in which this needed to be enacted, existing, readily available, and easily accessible online platforms had to be utilised. Virtual whiteboards – learning spaces where tutors and students can interact with each other individually, or in groups, and in real time via the internet – provided a workable solution. In this paper we look at the experience of two sets of design projects in Newcastle, UK. Framed around four topics – communication, learning, learner/tutor-technology interaction, and pedagogical perspectives – we examine some of the key pros and cons, challenges and successes of this enforced virtual experiment and highlight issues which might usefully be taken into post-Covid design project teaching.

Pedagogical overview

The studio-based design project is the essential element to any art and design education (CROWTHER, 2013, ORR AND SHREEVE, 2018, SALAMA, 2015). In architecture and urban design it provides the opportunity for students to try out real world solutions for design problems – in other words learning by doing – without risk in a “shared creative environment” (KOMARZYŃSKA-ŚWIEŚCIAK ET AL., 2021). Moreover, the design project hones communicative skills – both visual and verbal – that are vital for students' future professional life (TOKMAN AND YAMAÇLI, 2007). Traditionally, this has largely happened in purpose built physical studios that allow for pedagogical support from design tutors, but also encourage a 'studio culture' to flourish where students serendipitously interact with, and learn from, each other i.e. (co-)constructing their own knowledge (BADA, 2015) and applying understanding drawn from across their whole design education (SOLIMAN, 2017). Learning by doing in the physical presence of other, students are able to develop and refine their own skills, capabilities and design approaches.

However, long before the COVID-19 crisis, virtual design studios have been of interest to design schools (see for example BENNETT, 2001; KVAN, 2001). Moreover, many design schools had begun to replace, or at least augment physical studios with online, or virtual ones (RODRIGUEZ ET AL., 2018). Partly this was to reflect the in-

INTO Newcastle University studio: students working together in the studio pre-COVID (image: E. Scullion).

INTO Newcastle University: students working as a group to document and present site research and analysis (image: E. Scullion).

INTO Newcastle University studio: tutor and students working together in the studio pre-COVID (image: E. Scullion).



creasing importance of the use of 'online worlds' in practice (JONES ET AL., 2021), but also driven by more pragmatic motivations, such as the pressures on curricula, increasing student numbers, and the high cost of physical studio provision (particularly since studios largely remain empty and unused during vacation periods). The wholesale move to online education – including design studio teaching – as a result of COVID-19 lockdown measures by UK Universities (as elsewhere) in Spring 2020, therefore, in some ways accelerated what was an already growing trend.

There have been a number of studies evaluating the impact of online studios during the COVID-19 crisis, many of these have based their observations on student feedback. For example, Alnusairat found that students were disengaged from online studios, that they apparently lacked appropriate experience and skills – such as the requisite time management needed – and generally felt unsupported (2020) and research has also suggested given a choice students prefer face-to-face contact (FLEISCHMANN, 2020). Rather more positively, Ceylan suggests while the physical contact of the studio is impossible to substitute, students were positive about using digital tools and given the correct support some could work effectively at distance (2020). In this study, while we incorporate student feedback into our findings, we rely more broadly on observation of student's behaviour during the projects, and the characteristics and quality of their submitted assignments.

Aim of the study

The aim of this study was to examine, compare, and contrast the learning trajectories of two sets of online design projects. These occurred during the second semester of academic year 2019-20 – in other words commencing before COVID-19-related lockdown in the UK and in the first semester academic year 2021-22 when lock down had been clearly established. The findings are based on critical examination of the tutor-student experience, feedback through various mechanisms – for example 'community building' sessions – and by assessing the outputs of the studio in the light of previous cohort submissions.

The studios chosen were a third-year studio on BA Architecture and Urban Planning

(AUP) run by the School of Architecture, Planning and Landscape (SAPL), Newcastle University. And a project offered by INTO, Newcastle, a partner organisation which offers international students bespoke preparation programmes for UK university entry – including both undergraduate and graduate pathways.

Semester 2 (feb '20 – may '20) into Newcastle Graduate Diploma: North East Film Archive (NEFA)

This project, offered on the graduate pathway, was introduced for academic year 2019-20, after careful discussion and preparation by course tutors. The module outline – syllabus, aims, learning outcomes, teaching and assessment methods – were therefore, set out in the previous academic year and long before the COVID-19 crisis. The first 3 weeks of the project were conducted on campus prior to the first national lockdown and all face-to-face teaching switching to online overnight.

The brief for the project was developed in response to the following:

SAPL collaboration

Tutors at INTO also tutor on the programmes that the INTO students progress to – this informs pedagogical practices, aims/objectives and methods and ensure the INTO projects offer appropriate student experiences.

Feedback from the external examiner

Recommendations over the past few years have focused on giving students more freedom to express themselves theoretically and in design.

Feedback from students

Reflected in the external examiner comments – in other words, that students wanted more intellectual freedom in their design projects.

The new design brief, therefore invited students to explore an appropriate architectural response to meet the long-term aim of North East Film Archive (NEFA) to consolidate its two existing collections into one regional film archive, ensuring long-term preservation and access to these invaluable collections. The archive is an important cultural institution which preserves a significant part of local cultural identity and heritage.

The project fosters a holistic, inter-disciplinary and contextual design approach to urban and architectural design, through testing and exploring of the city as a laboratory of design ideas and strategies. The key design aim is to help students appreciate and have a greater understanding about the complexities of urban transformation. The key theoretical aims being to explore creative ways in which buildings, space and the built environment articulate notions of memory, identity, and culture.

Semester 1 (oct '20 – feb '21) AUP Studio: green infrastructure for well-being and biodiversity

The AUP design project was also new. It was designed partly in response to the COVID-19 crisis and partly to pre-existing feedback from external course examiners who had requested students received more training in larger 'urban' scale projects. The core aim of the project was to explore the potential of green infrastructure (GI) to enable people to lead healthier lives – while at the same time creating habitats that support biodiversity and helping mitigate the effects of habitat destruction. The project was fortunate to exploit content materials prepared for a pan-European, EIT funded GI project, 'URSHHealthS' (NEWCASTLE UNIVERSITY, 2020).

The project required students to design a new 'green route', connecting two areas of the city – Byker in Newcastle, and Bensham in Gateshead – a distance of approximately, 6km. The two areas are high in terms of indices of multiple deprivation and demonstrate high burdens of lifestyle diseases – such as Type-II diabetes, cardiovascular disease, and hypertension. The two areas also contain considerable green space and are contribute considerably to the city's overall GI. Byker, an experimental housing area design by Ralph Erskine in the 1970s is largely traffic free with an emphasis on soft landscaping throughout the estate. Bensham, in contrast, is a district of traditional modest Victorian Terraces, however, it contains 22ha of very well-loved parkland at its heart.

As well as providing the new green route – the route needed to cross the River Tyne – utilising the historic High Level Bridge, opened in 1849 as an innovative double decked structure (railway above roadway below) and designed by a famous local engineer Robert Stephenson. The bridge was closed to most

motor vehicles after extensive investigation work in 2005 revealed structural issues. Currently only a few single decker buses use the crossing as part of their route and these are due to be terminated in the near future; leaving the bridge for pedestrian and cycle traffic only.

Structure of the online-studios

The online studios effectively made use of three platforms:

Blackboard/Canvas

Newcastle University/INTO utilise Virtual Learning Environments (VLEs) which enable staff to add resources for students to access online. For design projects content may include tutor presentations; maps/plans etc; exemplars of good practice and other useful information. The shift from Blackboard to Canvas – which have entirely different interfaces for both staff and students – during the lockdown period was challenging, added complexity and created confusion (this issue is expanded upon below).

Miro

The 'studio' was effectively created using Miro online whiteboard – the boards were set up to represent the physical studio with each student provided with a 'frame' – 'pin-up', or desk space equivalent. The studio board – was meant to represent the 'messy' working environment, while for final presentation a new more formal 'exhibition' board was created.

Zoom

When the tutors met students in Miro they concurrently needed to use Zoom for direct oral communication.

Findings

In reflecting on the virtual studio design project, four aspects became key;

Communication – in all its various forms needed to be assessed given the most natural forms face-to-face oral and direct drawn input from the tutor onto the student's work were unavailable.

Student learning – both cognitive (knowledge retention and development) and affective (attitudinal engagement with the subject matter).

Studio pre-COVID: peer to peer interaction in a typical studio setting (image: E. Scullion).



Online Studio: Using Miro and Zoom to monitor student performance and provide feedback (image: E. Scullion).

Miro: drawing over students drawings during online tutorials (image: E. Scullion).

Student and tutor technology interactions – how easy, appropriate, accessible, and intuitive – and so on – did the students and tutors find the technology was to use.

Pedagogical perspectives – what aspects of the design projects required adjustment and implications of these modifications for tutors delivering the projects.

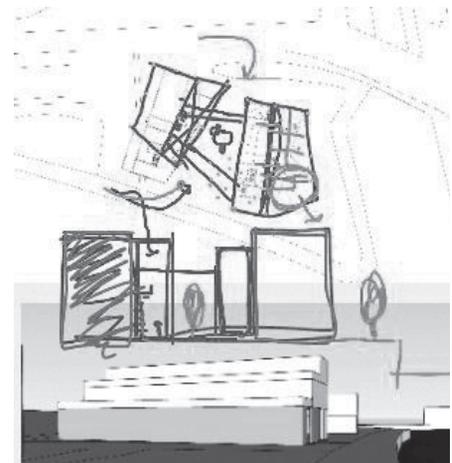
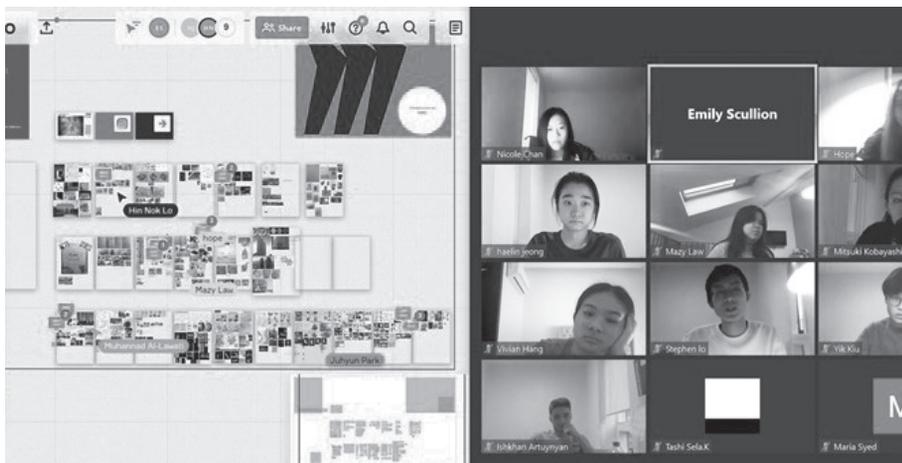
The following are necessarily a selection of findings drawn from the categories.

Communication

Within studio-based design projects there are usually two tiers of communication. Tutor to students and students to peers. While the former is of course crucial for the effective delivery of the project, it is easy to overlook the importance of the latter. In the case of INTO students, peer to peer learning is particularly crucial to develop confidence in English language skills, and also critical to breakdown cultural differences and increase mutual respect and understanding. Students from different cultural backgrounds may also have experienced vastly different educational practices, and relationships with their tutors in their previous institutions. Therefore, it is highly constructive to have them discuss these issues among themselves, so that they understand there are different ways in which to learn. Even with year 3 AUP students, however, individuals have developed significantly different skill sets and life experiences during their degree – which they mutually benefit from sharing. Therefore, peer communication, and learning are hugely beneficial at all stages.

In the tutorial, for AUP year 3 students, the primary mode of communication between tutor and student is verbal, though this is reinforced with drawing – either directly onto the students work, or for example using tracing paper overlay. With the INTO students the emphasis in tutorials is almost directly reversed, because the international INTO students often lack specialist, or technical vocabulary. Drawing with the students in the INTO tutorials, therefore is the dominant form of communication, while tutors also naturally encourage the students to develop language skills. Body language – both the tutor's and students' – becomes heightened in these circumstances, with tutors ensuring they maintain an open, relaxed, and non-threatening posture. Tutors must be aware of whether a student is also appearing open and receptive, or for example, adopting a posture that is defensive and/or withdrawn. This often signals a lack of comprehension and can act as a signal to the tutor to try an alternative form of explanation. Students, from more deferential education systems in particular, may resist asking for help, or clarification – even when desperately needed – lest it be interpreted as being disrespectful to the tutor; something that has to be carefully managed.

The dynamics of remote tutoring, therefore, interrupted the normal communication patterns of the design studio project. Verbal communications became more stilted and less 'natural', but far more damaging was the inability for tutors to demonstrate drawing effectively. On both projects, tutors experimented with ways round the issue. For example Miro permits



drawing with a mouse, however, this is a skill in its own right and tutors felt – while it was better than no drawing at all – the process was limiting and the results generally somewhat ‘clunky’, and nuances in the design – both process and product were lost. Tutors also drew into sketch books and held them up to the camera, which was arguably easier and produced clearer results. However, with this process the students miss witnessing the process of creating the drawing, in other words the practice of ‘thinking through drawing’ – this is a key skill students need to learn; and are still very much developing by year 3.

Student Learning

Tutors concluded that there were marked differences in the two cohorts of students in relation to the types of learning impacted. INTO students have very strict visa requirements to maintain attendance. This means students are generally very good at being present at tutorials and studio sessions, but this does not mean they necessarily/automatically engage or learn from them. Tutors therefore record both attendance and engagement registers. In the case study period tutors noted that for the INTO students, affective learning – in other words attitudinal engagement, or more simply ‘being there’ – was largely comparable to the range expected from previous years. However, cognitive learning (knowledge retention and development) was severely impacted. A large proportion of INTO students come from educational backgrounds with a high emphasis on ‘rote learning’ – the accumulation of knowledge based on repetition and memorisation. A key part of INTO’s preparatory education for UK University entry is to transform students into active learners, improving their critical thinking and reflection skills through doing in other words through drawing, model making, exploring, testing, making mistakes, and watching others. Having tutors present to encourage them and/or improve their working methods, is hugely beneficial and was therefore much harder to achieve online.

The opposite situation was largely true of students in AUP year 3, who have generally developed into independent learners by this stage. This enabled them to critically engage with the subject material provided online (such as lectures, reading material, and so on) at their own pace. Most were able to talk confidently and critically about

subject material pertinent to the project and had obviously absorbed key information – particularly at the beginning of the semester – where knowledge accumulation had been ‘front loaded’. However, translating this knowledge into an effective and robust design project appeared extremely problematic for some students.

Many AUP students made little week on week progress, presenting very small amounts of work at tutorials, sometimes suggesting they were forced to prioritise other coursework (though cross-checking with the relevant tutors suggested this was generally not the case). Moreover, after a few weeks of the project a much larger than expected proportion started missing online tutorials, with a few effectively dropping out altogether. A community building session (a weekly event for the whole year group and personal tutors) was set aside for discussion of the topic – however, the same students who absented themselves from tutorials, were also largely absent from the community building. Those who attended suggested that maintaining motivation while being largely confined to their accommodation was extremely difficult and in particular they missed the “buzz” of the physical studio (those who had flat-mates on the same course, added that at least this meant they could encourage each other, but this only included a small minority). Some students who were different countries and time zones said they felt particularly isolated and an inability to visit the sites they were designing for made the project feel completely “unreal”.

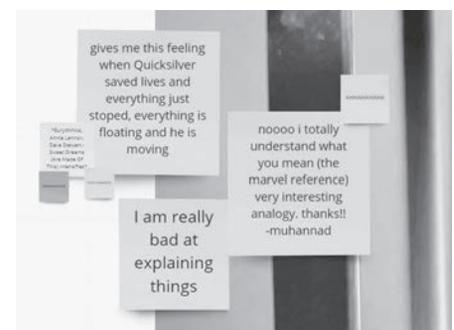
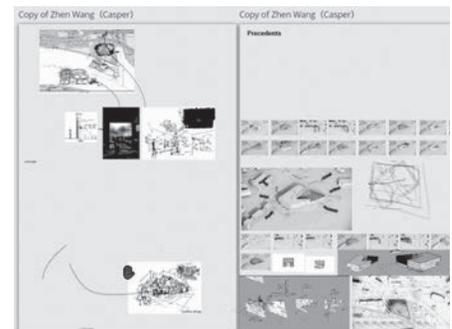
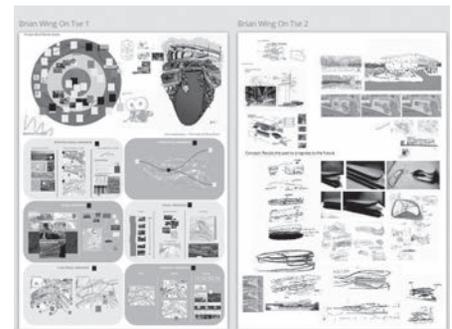
Student and tutor technology interactions

A key challenge for the INTO tutors and students was the changeover of the institution’s virtual learning environment (VLE) at the same time as the enforced move to online teaching. This precipitated some modules using the old system (Blackboard) and some the new (Canvas) – this caused a great deal of confusion, since while ostensibly serving the same purpose the two platforms’ functionality is quite different and key information available in different formats. Even for the AUP students where the system was changed during the summer vacation, changing from a system they had used for two years to a completely new and very different system caused disruption. In particular, Canvas focuses much more on students being in control of their online interaction, with many more optional

Miro: a well used student board (image: E. Scullion).

Miro: a less used student board (image: E. Scullion).

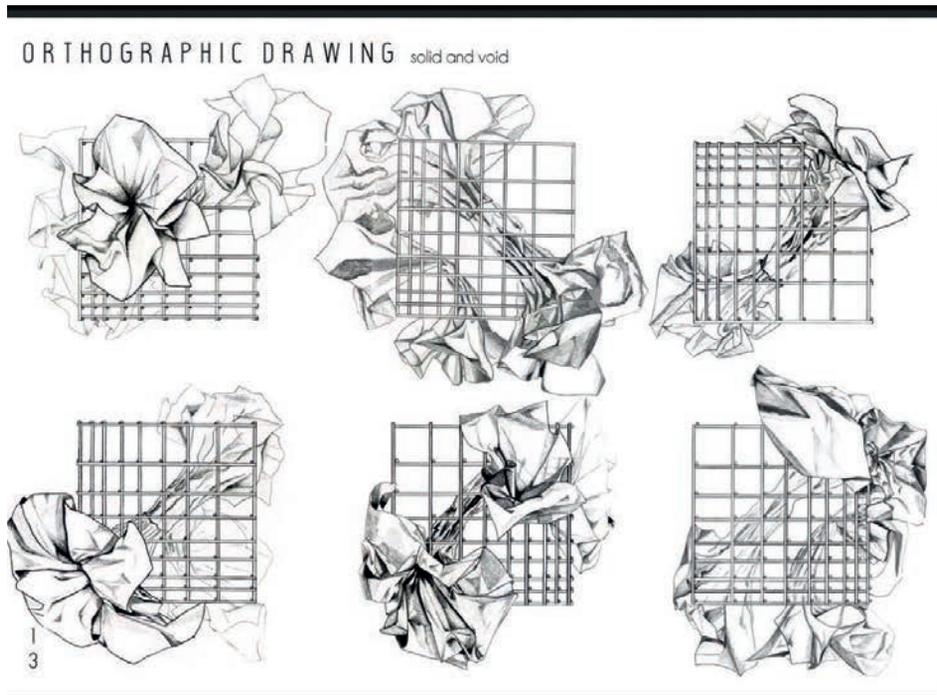
Miro: students commenting on each other’s work and encouraging each other (image: E. Scullion).



Miro: monitoring student engagement during studio sessions (E. Scullion).

Online Student Community Forum: weekly social catch up (E.Scullion).

The image shows a Miro board with columns for students: LY (G3), ANIRUTH (G3), DONGIN (G3), TIARA (G3), JOHN (G3), AIDAN (G3), DASHA (G3), and SO. Each column contains a grid of images and a table. Below the grid, there are callout boxes with names: Emily (pink), Aniruthkrishna Devaraju (blue), Tiara (yellow), Aidan (black), and Dongin Lee (blue). The tables contain data for 'ASSIGNMENT' and 'PROJECT' with columns for 'Task', 'Page', 'Page', and 'Page'.



settings – for example, pertaining to email and other notifications. With hindsight the change of VLE was inadvisable to say the least – though the Institution's position was that the commitment had been made and could not be postponed.

There were also issues about what technologies were more appropriate for design project tutorials versus officially adopted technology by the institution. For example, INTO adopted Teams as its accepted online meeting tool – however, for design tutorials tutors found Zoom more flexible and intuitive. The University adopted an either/or approach since Teams is directly embedded in the Outlook email system they use; however, Zoom is directly embedded in the Canvas VLE. This meant that tutorials could be set up in multiple ways, using either system. Moreover, students could also receive notifications in different ways – for example, emails, a university timetabling app, or announcements in the VLE. Tutors tend to use whatever they feel works best for them, but this varied from course to course and tutor to tutor. Some tutors – in thinking they were being helpful – would use multiple communication methods, only for the students to feel bombarded and overwhelmed by the amount of information they were receiving. A further complication with using Zoom, however, proved to be national regulatory restrictions that meant that some international students were unable to access Zoom in their home country, an issue that can impact a wide range of online platforms. In the end it became a balancing act to ensure the technology was used in the most accessible and equitable ways.

Generally, tutors and students in both cohorts picked up using Miro relatively quickly and the INTO students also felt comfortable enough to use it for a student community forum outside of their scheduled design studio sessions for both academic and social experience (the AUP students already had a well-established Facebook page for that purpose). There were technological challenges, however;

- Wi-fi connections at both ends (student and tutor) but particularly for students in privately rented accommodation – which is quite typical for 3rd year students – which is highly variably in quality, including the reliability of wi-fi provision.
- Individual hardware and software issues

– although software licenses (for example photoshop, Sketchup and so on) were, eventually, provided by the University, this was slow to roll out, and also some student's laptops did not have the capacity to run such software if they were more than a few years' old.

- In addition, some international students installed the software with their native languages which meant tutors could not easily demonstrate by taking control of their laptops (virtually) as they usually would.
- INTO tutors requested drawing tablets and additional cameras to capture drawing and possibly model making, which would have been hugely beneficial, but these were not provided.

One aspect of Miro that students reported positively on, was being able to see each other's work as well as their own weekly progression. This was of course intentional not least to encourage some form of peer-to-peer learning, as well as in effect to create a timeline of progress on individual projects. Not all student engaged with this (certainly with AUP there were some relatively blank boards right up until submission) but those who did, produced the stronger final submissions. In the case of INTO students, all students used Miro, because this is evidence of attendance for visa requirements, however again those who used it more intensively produced more resolved submissions.

Pedagogical Perspectives

Tutors reflected on a number of issues that they felt impaired the pedagogical integrity of the projects. For both projects the lack of opportunity for students to be able to go out into the field was an element which was hugely problematic from a pedagogic perspective as it defied substitution; Detailed discussions in the tutorials about the nature of the places that were the focus of intervention – backed up by tools such as Google street view – were no replacement; this finding has been highlighted in other studies (Komarzyńska-Świeściak et al., 2021). The result was that many of the projects – while imaginative and appealing – lacked grounding in reality. For example, unsurprisingly – given the subject matter of their project – many AUP student schemes included elements of rewilding. However, the extent to which elements such as landscaping the heavily engineered 19th century bridge at the heart of their project were

possible, remained largely unresolved.

For INTO tutors the whole dynamic of the mode of classroom management and design project delivery was disrupted. In normal times INTO have timetabled studio sessions amounting to 9 hours contact time per week. This allows for very intensive 'hands-on' tutoring, where the whole group works together as well as one-to-one design tutorial time. Timeslots for individual tutorials are rarely utilised, so tutors manage the whole group for the entire time; this is different to the AUP projects for example, where timed tutorials are often offered to individuals, pairs, or small groups of students. Tutor-led working as a group for the INTO students is invaluable for driving students forward and developing key skills and knowledge. Tutors tried to replicate this on-line, however it was simply not as effective. It was harder to have an oversight of the whole group, even with Miro. This had a direct impact on their skill development – both design and English – and similar to the AUP cohort – even some of strongest students ended up with unresolved projects.

Discussion: lessons for the future

Design studios are usually planned well in advance of their delivery and with careful consideration of feedback (from colleagues, students, external examiners and so on) plus the tutor's own reflexive analysis. In turn, pedagogic decisions taken are meticulously scrutinised by Boards of Study and so on. All of this is good practice, however, it was thrown into disarray during the COVID-19 crisis. The fact that studio projects were successfully delivered without the usual academic 'scaffolding' in place is noteworthy. It should not, however, suggest these usual quality assurance processes are abandoned, but to acknowledge that design tutors are necessarily adept at dealing with unexpected changes, for example, when projects are 'live' – or at least parallel live projects – which are often subject to complexity and change.

There were many pragmatic issues highlighted by the projects from which tutors could take valuable lessons, for example, the problems around students working in their own language on their laptops. However, some issues were more nuanced and suggested that the on-line systems and practices, were either replicating, or substi-

tuting for off-line equivalents (either serendipitously, or by design). It is these aspects we now seek to unpack and reflect upon.

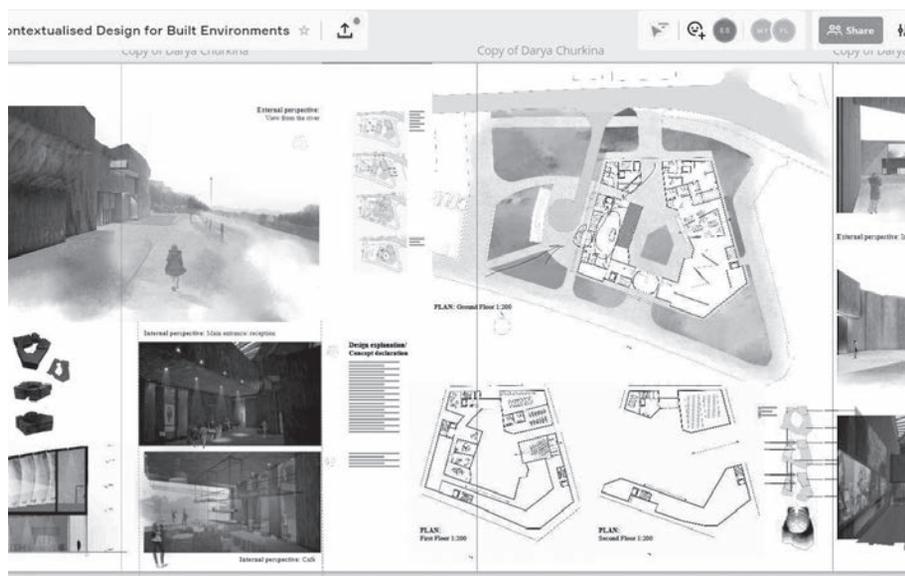
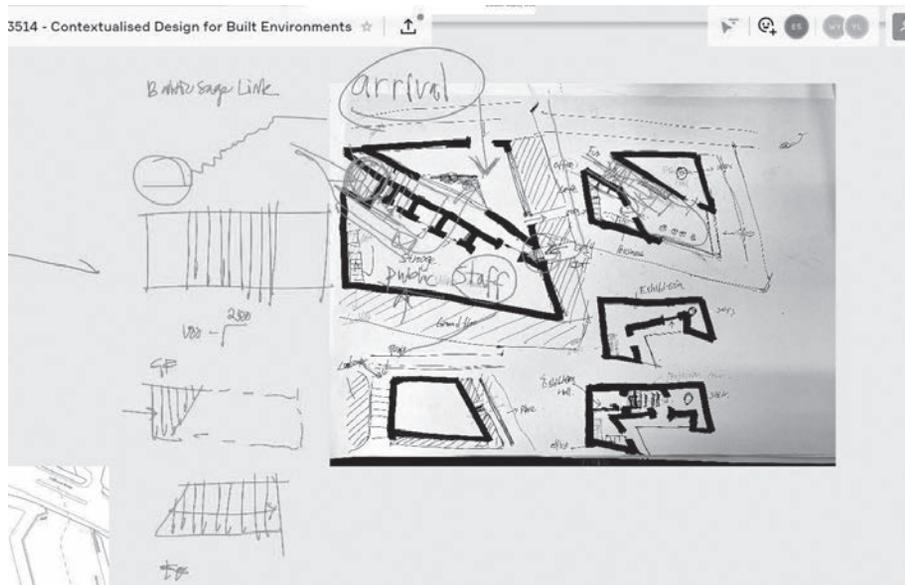
Communication

That students missed the face to face communication afforded by the physical studio, the chance to ask questions of each other, demonstrate skills they had developed, and offer feedback might well be expected; this is in-line with two other studies (Flieshmann, 2020; Senyapili and Karakaya, 2009). Attempts to reinforce inter-groups communication outside of the design project, with for example weekly team building zoom meetings, were only partially successful, since a core group of regular attendees was formed, but many chose not to be involved. Overall there has been limited analysis by other authors of communication modes and impacts, as a result of the move to on-line teaching. Milovanović et al., from the University of Belgrade concluded that in their experience online workspaces broadened communication modes – rather than limiting them as in our experience. Close comparison of the two studies, however, revealed a marked differences in mode of delivery, since in the Belgrade example the design project was a short intensive programme rather than a semester long one. It was the maintenance of communication in the online mode that proved particularly problematic, especially for the AUP project in Newcastle. One approach, therefore, might be to deliver shorter free-standing projects within the overall design project module. The other lesson from Belgrade was the use of a variety of forms of student presentation, such as Pecha Kucha, for initial perspectives which might again be usefully trialled.

Another approach that was highlighted by KOMARZYŃSKA-ŚWIEŚCIAK ET AL., was the extent to which platforms such as Zoom are 'industry standard', mastering these and learning to effectively communicate with them should be regarded as a learning opportunity for students. This certainly seems to provide a positive example to follow. A natural development from this approach would be to involve practitioners in the projects not just to give content feedback, but to directly address online presentation, their own experiences, and techniques. This might particularly help with sustaining engagement in those groups whose transition to a professional life is on the horizon – in other words the

Miro: tutor drawing over student work (image: E. Scullion).

Miro: student final presentation boards (image: E. Scullion).



year 3 group – and as noted by other studies it is these more senior groups where attendance drop off is more likely in the move to online design projects (see for example JONES ET AL., 2020); and is under consideration by tutors involved in this study. However, ultimately as noted here and elsewhere (see for example LOTZ ET AL., 2018) the student's motivation, personality type, their preferred learning style and socio-cultural background all play important roles in the extent to which online and/or blended work as a method.

Student Learning

One of the most positive aspects of the on-line studio was – as expressed through student feedback – the ability of students to observe and scrutinise each other's work and on a week-to-week basis using Miro. Under 'normal' conditions, students are encouraged to work in the studio and share views, skills and knowledge, in the nature of (co-)construction (BADA, 2015) already mentioned in the introduction. However, inevitably some less confident students do not engage. Moreover, such students may hold back from studying others' work in the studio, fearful of being accused of trying to plagiarise ideas. To an extent our study suggests the whiteboards add a buffer of protection to those students, as well as allowing detailed and unhurried examination. Moreover, online display need not be time, or space, limited in the ways in which use of physical studio space dictate.

Viewing other student's work in this manner, may a seem a poor substitute for active engagement and debate in the physical studio, however, this may not be entirely the case. Drawing on theories of learning JONES ET AL., 2020, suggest that online viewing equate to three types of activity also present in the physical studio these are legitimate peripheral learning (LAVE AND WENGER, 1991) – in other words learning by observing others' practices; listening in (CENAMO AND BRANDT, 2012), though Jones et al., do not make the connection this might be particularly be the case where a tutor leaves notes or sketches on to a student's work; and finally lurking – for example SCHNEIDER, ET AL., 2013 the act of viewing and reading online fora, but without actively participating, which students do as a matter of course. These are useful aspects to consider and facilitating them, for example by tutors plac-

ing more written and drawn feedback on student Miro boards may well be advantageous. However, demonstration (in other words the direct 'learning by observation') led by a tutor, and as emphasised in our study for INTO students this is particularly vital is still absent. Here, tutors might usefully make short 'how to' videos of key issues – though this is dependant on them being provided with the correct equipment and having sufficient preparation time.

In terms of weekly tutorials some studies report that students felt more comfortable about listening-in to other students tutorials in screen-share mode, than they do in the physical studio – this was not least because they could see more of the detail of other's work (KOMARZYŃSKA-ŚWIEŚCIAK ET AL., 2021); theoretically also more students would also be able to see that detail than would be the case in the physical studio. Our study did not specifically look at this issue, but it would be worth exploring in future.

Tutor-technology interaction

One of the most frustrating aspects of was the inability of tutors to draw directly onto/ over student's hand-drawn work and the restrictions of drawing digitally. This also adds into broader debates around computer versus hand drawing, where some claims at least have been made to the effect that traditional drawing methods increase creativity because of the greater hand-eye-brain coordination involved in hand drawing, which is limited by digital drawing (EREN AND YILMAZ, 2020). The INTO tutors had requested extra equipment to enable students' observation of hand drawing created by them, but this was not forthcoming during the emergency, this is something that tutors can bring forward in appropriate fora – again as being advantageous to remote working – while, also developing other 'work-arounds' such as improving whiteboard drawing skills, however limited these may be.

Pedagogical perspectives

Having experienced some of the key shortcomings of the on-line project will also better equip tutors for future blended/online options. So, for example, though no work-around will replace the site visit, rather than expecting distance learning students to rely on google street view and existing on-line resources, one option would be

to encourage physically present students to undertake detailed photo analysis and present this to their classmates on-line.

Moving forward designing projects from the outset as flexible, 'blended' learning would seem a most efficacious approach, allowing for an easier transition to fully on-line teaching, but only if absolutely needed. This also reflects FLEISHMANN's call for 'middle ground', a recognition that some elements of the flexibility offered by online learning are not only acceptable (2020 :52), but desirable to many students (IOANNOU, 2018). In many ways it also prepares students for a future of more flexible working in their professional life where fitting in with disparate working practices of different clients is key.

Conclusion

This study should be seen in context, it was limited in scope, created post-hoc and its findings are tentative. However, it adds to a small but insightful set of papers that have emerged since universities and design schools have an enforced (or at least accelerated) move to initially fully on-line and more latterly blended studio learning. The findings of this study are largely concurrent with other studies, no matter what methods they used in collecting information. These are that while COVID-19 contingencies proved a shock to the system and interrupted normal studio practice, that the experience was not entirely negative and the learning gained may be put to good use for the future.