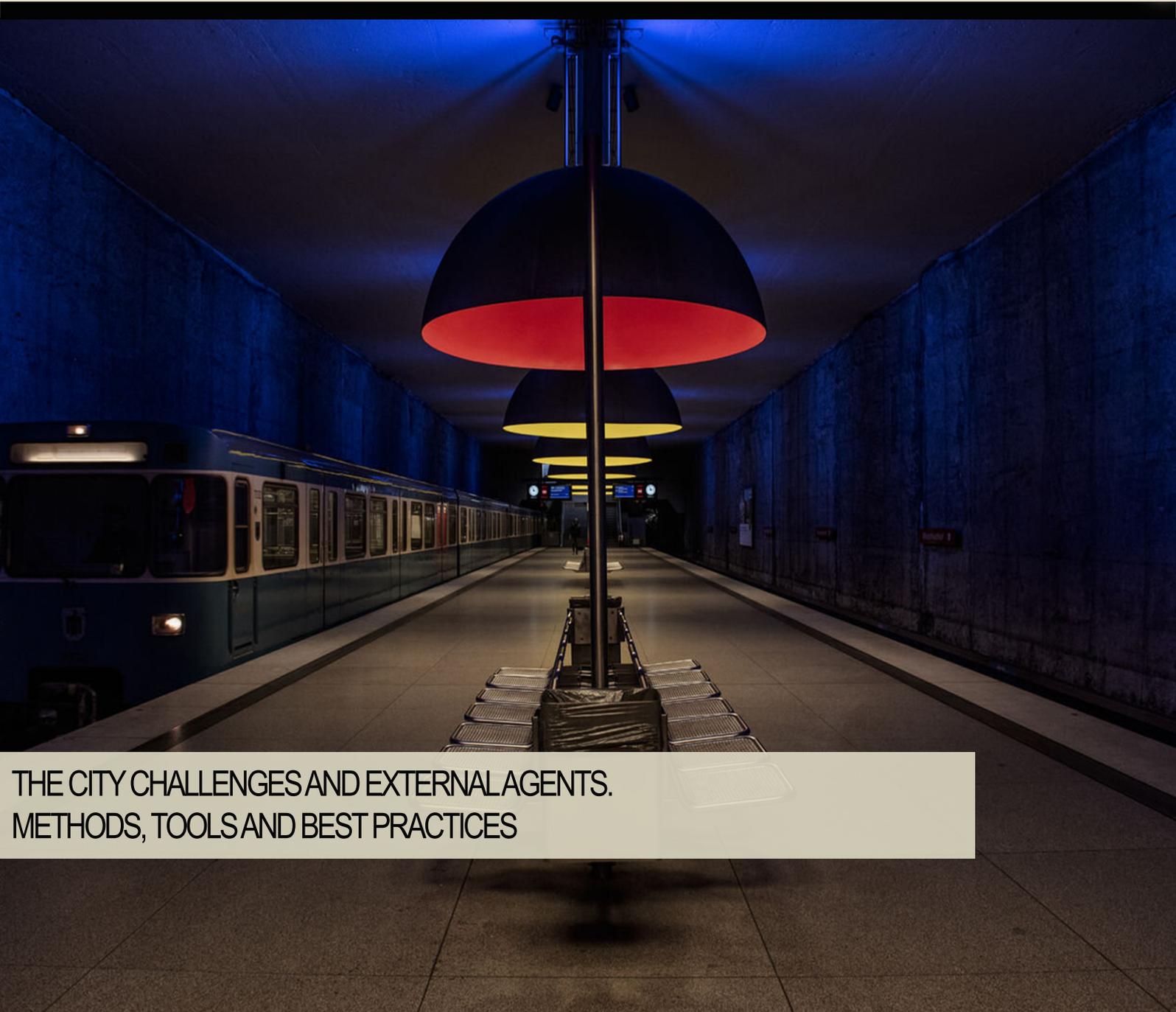


# TeMA

Journal of  
Land Use, Mobility and Environment

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THE CITY CHALLENGES AND EXTERNAL AGENTS.  
METHODS, TOOLS AND BEST PRACTICES

## THE CITY CHALLENGES AND EXTERNAL AGENTS. METHODS, TOOLS AND BEST PRACTICES

2 (2020)

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# TeMA

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Land Use, Mobility and Environment

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## Building strategic scenarios during Covid-19 lockdown Insights from a university-class remote simulation

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### Abstract

Since early spring 2020, the outbreak of the Covid-19 in Italy caused schools and universities to lock and shift from traditional face-to-face classroom education to online education. In the academic field of spatial planning, online education and examples of on-line participatory process (e.g. e-planning, e-governance, etc.) are traditionally not very frequent. Through the application of an on-line participatory process to build a future vision of Bari (Apulia Region), this study explores elements related to the behavior of the knowledge agents involved in the process and compares them with the application of previous face-to-face classroom examples. The results obtained allow to collect some suggestions not only on the performance of the application in two different times, but also on the potential elements of difference to be associated to the temporal and psychological context related to the diffusion of Covid-19. Since these conditions are clearly exceptional and practically (hopefully) unrepeatable, the results seem to show a mixed perspective of effectiveness for the use of online education to build a future vision of a city.

### Keywords

Covid-19; Knowledge exchange models; Participatory process; Multiagent visioning; Urban planning

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## 1. Introduction

Since early spring 2020, the lock down of schools and universities have changed teaching methods in 61 countries around the world, due to the spreading of Covid-19. It has been a shift from traditional face-to-face classroom education to online education (UNESCO, 2020). Suddenly, millions of faculty members on the one hand, and corresponding students on the other, have been using the internet as the only possible tool for teaching interaction (Bao, 2020).

Although teaching interaction is a highly researched approach, whose benefits are increased access to information and improved quality of learning (Subhashni, 2008), the assessment of the adaptability to online education is still poorly researched in extreme events such as a pandemic context.

Also in Italy, according to government decrees (starting from D.P.C.M. dated March 9, 2020), regarding measures to reduce the epidemiological emergency from Covid-19, the universities have started the online education method through different platforms (e.g. MSTeams, Zoom, Classmill, Socloo, Weschool, Webex, GMeet, etc.).

In the study course of Spatial planning and engineering, as a part of the master's degree in civil engineering of the Polytechnic University of Bari, the Microsoft (MS) Teams platform has been used to carry out lessons, exercises and exams. Specifically, simulation exercises were carried out in planning and decision-making fields. The present study aims to explore evidences concerning agents' behaviour starting from an exercise based on a decision-making process simulation to define possible future visions of Bari (Italy). Two different contexts were analysed: simulation performed in presence (face-to-face classroom) and online simulation performed through MS Teams platform. The research question focuses on the analysis of the performance of the methodology through a comparison between two decision making process simulations, i.e., face-to-face and online conditions.

Historically (since the early strategic planning debates, in the days of the Tavistock Institute of Human Relations in the 1960s), the strategy-building process has always played an important and fascinating role. That historical context had already changed the classic command-and-control strategic principle, which was authoritarian, prescriptive, top-down and inspired by millenary and military memory. John Friend (1969) had contributed to replacing it with a constructive, more inclusive and bottom-up perspective, often drawing on grassroots movements, which were lacking in authority and rather inclined to found planning efforts on involvement, collaboration, dialogue, cognitive interaction. The liveliness of the debate then oriented this plurilogic democracy towards pathways of structural knowledge of problems and dynamic construction of strategies, looking at the so-called futures studies (Ringland, 1998). In this context, a recent interest in the cooperative construction of future scenarios has developed, with the aim of grounding the construction of future strategies on the involvement of diffuse (especially non-expert, common, experiential) multi-agent knowledge (Jungk & Mullert, 1996). Yet these experiences, wherever they took place, however they developed, inevitably proved to be linked to the complexity of the organizational and behavioural contexts from which they intended to draw cognitive advantages and strategic efficacy. Situational contingencies have in fact often played a crucial role in these scenario arenas, where the differentiated interest of the participants can become a scarce or inconstant participation in the process, affecting the quantity and quality of the cognitive contents collected and built up. However, information imbalances or distortions of power can still influence these contents and even determine reluctance to participate, in part or in the whole process. Finally, poorly prepared interactive environments can cause difficulties in empathy and expressive creativity on agents, thus misleading interpretations and constructing delegitimized scenarios. Hence, the remote, online technological potentials of scenario-building processes have opened up prospects of almost naturally overcoming these obstacles posed by real participatory arenas.

The exercise is based on the decision-making process building aimed to define future visions for the city, according to the Future Workshop model (Jungk & Mullert, 1996). The Future Workshop model used not only

in spatial planning to involve citizens in the planning process, but also in all sectors where it is needed to address a complex problem through the involvement of stakeholders, rather than simply being subject to the decision of experts. As part of the decision-making process, interests are discussed and developed. Creativity, organization, awareness, imagination and competence of action emerge through the collaboration of stakeholders in two main phases: imagination and action-oriented design (Jungk & Mullert, 1996).

The decision-making process was composed by four phases and five steps of activities. The construction of the simulation of participation in a hypothetical plan refers to the methodology for building future visions developed by Khakee et al. (2000).

The exercise is followed by the support of a knowledge engineer (the lecturer) who plays the role of facilitator in order to support students in a coherent development of the whole process.

The discussion considers the different temporal and 'psychological' context related to the lockdown condition. It highlights some aspects of the same simulation methodology carried out in different ways. Five criteria to highlight the differences were identified, namely (i) contents that emerged, (ii) depth of the arguments that emerged, (iii) different composition of the students' profiles, (iv) the number of students taking part in the simulation; (v) influences of individual contribution related to the context (vi) final discussion - considerations by the knowledge engineer.

Therefore, the results obtained allow to raise some suggestions not only on the performance of the methodology, but also on the potential items of difference to be associated to the temporal and 'psychological' context related to the lockdown.

After this introduction the document outlines the context in which the exercise was carried out (section 2); section three presents the case study and the methodology adopted; section four shows the results; section five illustrates the discussion. Final remarks close the paper.

## 2. Building a city vision during Covid-19: shifting from face-to-face classes to on-line classes

Visioning or future-vision building process was used in the field of urban planning particularly during the 1980s and 1990s, in order to collect different images of the future of the city according to desires of people involved, and draw out possible strategies (Shiple, 2002).

Therefore, the results of future-vision building process is not a goal but a starting point for a constructive dialogue about the future of the city (Ortegon-Sanchez & Tyler, 2016).

To elicit the rationale or theory behind the building of visions, different approaches exist (see a review by Shiple, 2002). A common consideration in different approaches concerns the reflection phase. The context in which the moment of reflection takes place for the building process becomes therefore fundamental.

For this reason, in the present study, reflections phases will be dealt with in the light of the temporal and emotional context in which the process of building future visions of the city of Bari was carried out.

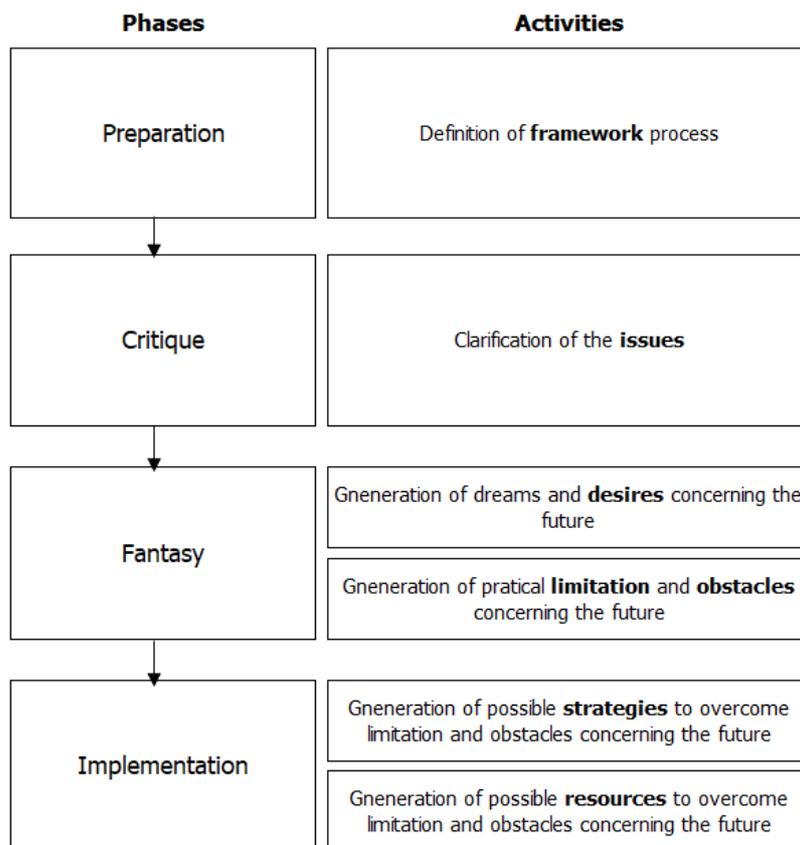
In fact, in recent months, due to the pandemic declared by OMS on March 11, 2020, there has been a shift from traditional face-to-face classroom education training to online education (UNESCO, 2020). Online teaching is not a new way of teaching. It is an approach tested by many universities that induces benefits and limitations (see e.g. Appanna, 2008). Although there are therefore studies related to online teaching under ordinary conditions, studies in risky (pandemic) conditions are still few and far between. The shift to the online mode in this historical moment has raised several doubts about the ability of lecturers and students about teaching using existing technologies. Doubts are on the actual availability of faculties and students to have the proper tools to carry out teaching, the emotional involvement creating a sense of uncertainty, the anxiety about the future with a consequent stress. Think, for example, of commuting and non-resident students concerned not only about their health, safety and education, but also about the welfare of their families (Basilaia & Kavadze, 2020; Bao, 2020, Sahu, 2020).

The quality of online education is a critical issue that requires adequate discussion and is far from the objectives of this paper. Rather, this study aims to highlight evidences emerging through the comparison of a methodology applied in two different contexts, in the definition of a decision-making process for the construction of future scenarios of the city of Bari. Although the effects of Covid-19 in spatial planning are beginning to be studied (Honey-Rosés et al. 2020; Lee et al., 2020), examples of remote participation (e.g., e-planning, e-governance etc.)<sup>1</sup> are traditionally not very frequent and their slow experimentation can benefit from situations carried out in unforeseen or extreme conditions.

### 3. Case study and methodology applied

The present section discusses an experimental methodology applied in the case study of Bari. The methodology applied follows an approach largely put down by Kahkee (2000). It can be subdivided into four phases and six steps of activities (Fig.1).

During the first phase the framework of the process is shared with students, whereas in the second phase, identification and clarification of the issues are defined. The third phase is composed by two activity steps: (i) free idea generation, desires, dreams, fantasies regarding the vision of the future and (ii) the potential limitations to developing the vision of future. Finally, the implementation phases allow to develop the potential ways and resources to overcome previous limitations. The methodology was applied in face-to-face classroom context and online context.



**Fig.1 Framework of decision-making process applied during face-to-face, in-class simulation and online, remote simulation (adapted by Kahkee, 2000)**

<sup>1</sup> <https://www.opengovpartnership.org/collecting-open-government-approaches-to-covid-19/>;  
<https://ec.europa.eu/digital-single-market/en/news/covid-19-how-egovernment-and-trust-services-can-help-citizens-and-businesses>;  
<https://www.un.org/development/desa/dpad/publication/un-desa-policy-brief-61-covid-19-embracing-digital-government-during-the-pandemic-and-beyond/>

### 3.1 Face-to-face, in-class condition

This type of exercise took place over several subsequent years among the activities scheduled for the Spatial planning and engineering course at the Polytechnic university of Bari, each year involving about 100 students, aged about 25-30. As said, the context is the definition of a decision-making process for the construction of future scenarios of the city of Bari. The exercise was always carried out 'in presence', in the classroom, during the laboratory hours of the course. The simulation model of participation in a planning process is the Visioning model described in the previous section.

The practical development of the exercise has been held in the classroom, with the presence of the lecturer (in a role changing over time, from knowledge engineer, to moderator, to lecturer), the collaborators with a role of functional support for the performance of the exercise itself, and the group of students who were present during the lab hours. These participants have never been the totality of students enrolled in the course, often absent for various contingent reasons - as also occurring in the operational reality of these social-based processes.

A first phase has been the description of the participation model of the exercise to students (preparation). This was followed by the actual exercise phase in the distinct phases of critique, fantasy, implementation (Fig.1). The materials used to carry out the participatory process simulation were mainly sheets of white cardboard in UNI A1 format, coloured marking-pens and sticky notes.

The sheets of white cardboard have been used as posters with the relative titles and were prepared to identify (spatially) ideal message boards (and moments) related to each phase of the simulated participatory process. The coloured marking-pens have identified with different colours the different phases of the knowledge-exchanging process: they were used to write the title of each message board and to trace the ideal connections and unions between the contributions left on every message board for each phase by every single student.

The sticky notes have been used to put down the contributions offered individually by each student.

Each message board received the corresponding phase "crowding" of sticky notes.

Once the theme concerning the simulation of the participation process was made known - over the years, a simulated process supporting a planning (also strategic) activity concerning the city of Bari has always been chosen - the students expressed themselves in alternative steps on critique, fantasy, implementation. For an accurate description of the methodological aspects of the model, numerous case studies can be examined in literature (e.g. Khakee et al., 2000, 2002; Celino & Concilio, 2010).

In this case study, the description of the process is reported only in a concise way, strictly oriented to the research purposes of this work.

The individual writing phases (organized with precise strict timing for each phase) were alternated by collective reading and discussion phases. During these phases, the sticky notes previously attached in random order on the cardboards/message board after the collective and shared reading were repositioned into homogeneous groups to elicit the recurring families of critical issues written by the students. After the fantasy phase, an attempt was made to elicit fantasy visions (i.e. free from the limits imposed by the awareness of possible critical issues) by organizing them in family groups. The discussion phase was crucial in this step to highlight which visions to pursue leading to the contribution phase of implementation. The sticky notes written for the last phase were collected by content, including planning strategies aimed at achieving the recognized visions achievable in a predetermined time horizon.

In the multi-year history of these classroom exercises, however, the process has typically stopped at the generation of visions or, more rarely, when singling out obstacles to visions themselves. The identification and implementation phases of the strategies (policy making and resource-finding) never appeared, due to the limited number of lab hours available. This limiting circumstance, however, even for different reasons, is typically also present in the operational reality of these processes, often contrasted by the extreme volatility of the time available to the participating agents in their multifaceted daily struggle for time. For this reason,

even the forcibly interrupted process in the classroom was always considered as a didactically valid reason for reflection.

### 3.2 Online condition

The exercise involved 130 students enrolled in the course study of Spatial planning and engineering of the Polytechnic University of Bari. The students aged 24 to 29 and most of them came from Bari metropolitan region as a whole - only a small part residing in Bari city or in other Apulian cities.

The analysed sample is characterized by 30 resident students of the city of Bari and 100 commuters, resident of neighbouring areas. The exercise was carried out through MS Teams online platform during the first week of April 2020, in the midst of the Italian lockdown period.

For each phase an online document was created through Google Modules, structured in (i) user profile, in which students were asked to indicate gender, age, city of origin, and a nickname for technical reasons, and (ii) the subject matter referred to the five steps of activities (Fig.1). For each phase, students were asked to express up to three concepts related to the topic, either in the form of a sentence or by synthesizing the concept using three words. Because of time constraints, each student had 30 minutes to fill in each form.

The phase in which the students filled in each form was introduced by an initial narration by the lecturer, as facilitator, in order to explain the purpose of each phase. There were moments of discussion to verify the elements that emerged between the different phases and a final moment of discussion to validate the elements globally emerged.

## 4. Results

This section describes the results deriving from the simulation of the construction of a decision-making process aimed at envisaging possible scenarios of intervention in the city of Bari, in the two ways described above.

### 4.1 Face to face classroom simulation

The exercise has been developed over the years with a didactic purpose that involved students in a sort of role-playing (participating in a participatory planning process), so that they could experience the participation as a support to a planning process, according to the model (previously described) proposed in theoretical form during the course.

The annual repetition of this exercise suggested implementing its description and the results obtained for research reflections to identify recurrences in the contents produced by students as agents, and in the general development of the exercise itself. This posed minimal re-organizations of the exercise for an experimental form and the problem of collecting and managing the contents that emerged. The results obtained have been not easy to manage as data, because of their difficult examination, and of the need to transcribe what emerged from the simulation into a digital supporting report.

The analogical support combined with the flow movement of an always crowded group of students merged with a passionate debate concerning the themes involved in the exercise itself has created an interesting phenomenon of sharing/exchanging ideas. It is useful to report here that during the exercise students could influence each other even in the individual stages of development of the contribution or when some participants left the arena before the conclusion of the works, causing variations in the outcome of the simulation.

Rather unexpectedly, as a consequence of an inscrutable event, the classic "black swan" emerged from the "deep unknown" (Rabino & Stufano Melone, 2020), so leading to the sudden closing of the universities. All interactions suddenly moved onto digital platforms for remote meetings from home. Lecture and lab materials

remained locked and physically inaccessible at University, and faculty and staff remained strangely detached from papers kept in university workrooms.

We can qualitatively describe results that emerged during the last face-to-face exercise, that we had last year, writing without the support of any of the materials produced during that previous simulation. Being a normally recurrent simulation, each year, texts, pictures and graphs belong to the volatile outcome of a didactical activity, carried out without thinking of improbable future research uses. So, we can describe briefly what we witnessed by heart, as Stefan Zweig did after he escaped in Brazil from the war and the Nazi dominion (Zweig, 1942). This difficulty is an integral part of the research reflection that we propose in this paper, in the comparison between the different methods of carrying out the exercises in face-to-face classroom simulation and online classroom simulation.

As can be read in the following section reporting the results emerged during the exercise developed via MS Teams platform, the topic discussed during the exercise has been the same (simulation of a planning process for Bari city), and some emerging issues are recurring, particularly concerning criticalities. This seems to show that in a biennial cycle, the perception of the city by a group homogeneous in age and interest has not changed much.

The critical issues in the case of the last face-to-face exercise focused on the difficulties in public transport, the ease of accessibility, street cleaning, sense of safety, lack of greenery.

The visions that emerged focused on a city completely connected by sustainable, reliable and widely distributed pedestrian and bicycle networks, a green city in which 'the gardens could sing' together with the sea, and people could move through the streets in complete safety.

The subsequent discussion phase identified the strategic lines to be implemented and the critical issues and obstacles that the realization of these visions would encounter in the impact with the obstacles of a possible reality. The principal obstacle was recognized as been mainly the lack of funds to enhance public transport, to set up and manage the gardens, to allow social peace that would mitigate certain widespread micro-crime, as well as to an effective reduction of the criminal phenomenon in the city.

The strategies that have been defined have focused on identifying possible urban plans that would be able to attract the funds necessary to initiate actions aimed at challenging critical issues and setting actions for policies that lead to the implementation of implementable visions.

## 4.2 Online simulation

As described in the previous section, each student had the possibility to define the topic through two ways: a sentence and a synthesis into three words. In order to reduce the analyst's margin of interpretation and to obtain a result in real time during the process, an analysis of the frequency of the words referred to each phase was carried out. The frequency of the words was used to identify the recurring issues that emerged from the students. It is evident that this operation is extremely reductive in real situations and therefore unrecommended, but it was considered acceptable in the didactic perspective in which the process itself took place.

In phase one, criticality, the most recurrent themes identified through the most frequent words refer to (i) mobility (traffic, lack of transport and lack of parking) and to (ii) the concept of usability of space (pollution, degradation, incivility, inefficiency of transport, lack of sense of security). In phase two, images of the future, the themes that emerged are linked to the concept of sustainability declined on (i) mobility and (ii) green spaces. The students expressed the desire to increase green areas in order to reduce environmental and social degradation and to reduce pollution together with the adoption of sustainable mobility.

At the end of these two phases, the analysis resulting from the frequency of the words was shared with the students. This participated moment allowed the shift from more frequent words to recurring themes. This phase allowed the construction of visions of the future for the city of Bari. Tab.1 shows the visions emerged:

Future visions
Bari, green and environmental sustainability city
Bari, city of efficient and reliable mobility
Bari, safe city
Bari, city that valorises the suburbs
Bari, city integrated with the sea
Bari, city of culture, research and university
Bari, city of socialization and public spaces

**Tab.1 Future vision of the city able description**

Based on the shared visions, students were asked to lead the next three steps of the process (Fig. 1). The visions analysed by most of the students are: (i) Bari, green and environmental sustainability city, (ii) Bari, city of efficient and reliable mobility, (iii) Bari, safe city. For a matter of simplicity, syntheses among *obstacles*, *strategies* and *resources* were made for each vision.

Bari, green and environmental sustainability city		
Obstacles	Strategies	Resources
Citizenship attitude	Communication strategies to raise awareness of more sustainable actions	Human
Failure to manage green spaces strategies	Collaboration strategies between different types of stakeholders converging in common actions to regenerate existing green spaces	Human/financial
Lack of funding	Project writing to get funding	Human/financial

**Tab.2 Obstacles, strategies and resources for Bari, green and environmental sustainability city vision**

Bari, city of efficient and reliable mobility		
Obstacles	Strategies	Resources
Citizenship attitude	Communication strategies to raise awareness of more sustainable actions	Human
Lack of funding	Increase funding to boost public transport and build more cycle paths by promoting sustainable mobility	Human/financial

**Tab. 3 Obstacles, strategies and resources for Bari, city of efficient and reliable mobility vision**

Bari, safe city		
Obstacles	Strategies	Resources
Presence of criminality	Intensify supervision and narrow the cultural gap between citizenship	Human
Lack of public lighting	Increasing areas of the city without lighting that are gathering points for crime	Human/financial
Presence of degraded areas	Upgrading areas of the city with physical and social interventions	Human/financial

**Tab. 4 Obstacles, strategies and resources for Bari, safe city vision**

As shown in Tables 2, 3 and 4, for both visions, the main obstacles are related to human and financial resource management. Specifically, with reference to the vision *Bari green city and environmental sustainability*, the lack of human resources management refers to the lack of communication that makes citizens aware of the adoption of sustainable actions, to the lack of collaboration between institutions that favours strategies for the redevelopment of existing green areas and that allows the implementation of projects for the acquisition of funds. With reference to the vision *Bari city of efficient and reliable mobility*, the concept of lack of communication to raise awareness of sustainable mobility actions is repeated. The lack of funds also appears crucial in this vision. Increasing funding to boost public transport and building more cycle paths by promoting

sustainable mobility becomes the most cited policy by students. With reference to the latest vision, *Bari safe city*, the obstacles identified are related to the presence of crime, lack of lighting and the presence of degraded areas. In order to reduce these obstacles, students have proposed, on the one hand, policies of social transformation linked to the reduction of the cultural gap between citizens in order to reduce the percentage of young people who find refuge in crime and, on the other hand, policies of physical transformation of some areas of the city in order to increase its liveability and make it safer.

## 5. Discussion

The application of the methodology in two different contexts allows us to make some observations. On the one hand, there are suggestions strictly intrinsic to the nature of the two approaches, as also highlighted by the literature (Subhashni, 2008). On the other hand, they are suggestions related to the specific application. The online simulation approach, compared to face-to-face classroom approach, shows several advantages. Concerning the analyst, they are related to the easiness of managing the information deriving from the construction of the process through a digital platform, the possibility of obtaining immediate and organized results, and of validating them in real time in a participatory way, as well as the creation of a secure database. Digitally collected data are less likely to be lost than sticky notes or billboards used in face-to-face classroom approach.

Moreover, this approach also shows suggestions for users, in this case for students. The associated advantage or disadvantage value cannot be attributed a priori because it is strictly dependent on the context and circumstances. For example, the little interaction between the different students could lead to a greater focusing for moments of reflection, but it could also represent a space without feedback, which limits reflection. The house, a place of constraint during lockdown, may not have represented a comfortable environment for everyone. The current contingency, moreover, may have generated an emotional peculiarity, not quantifiable and strictly subjective.

The contribution given by the two methodologies to the criteria defined above is summarized in Table 5.

	<b>Contents</b>	<b>Depth of the arguments</b>	<b>Students' profile</b>	<b>Students' involvement</b>	<b>Influences of individual contribution</b>	<b>Discussion</b>
Face to face classroom simulation	=	-	-	-	unknown	+
On line simulation	=	+	+	+	unknown	-

**Tab. 5 Summary of results deriving from methodologies comparison**

In terms of contents, the results from the two methodologies did not produce many differences. In fact, the issues that emerged in the online education can also be found in the face-to-face approach used during the past years. The possibility to write in a less limited space compared to post-it has left a greater freedom of expression that is reflected in long and argued contents. In the face to face classroom approach, for each student it is not possible to know the hometown but, considering the number of students involved, it is possible to assume that most of them come from Bari or from cities nearby. Instead, in the online approach is possible to track the hometown. The results show that a fair percentage of students is not residing in Bari. The easiness of interaction in the online approach may have helped to facilitate their participation.

Having produced concepts in a context without interaction has certainly reduced the contamination in the reflection. Therefore, every thought expressed is associated to the subjective sphere of the student. It was impossible to define whether this element may have enhanced or limited reflection. Furthermore, it is also

possible that the students may have had a parallel communication with the analyst. In this case, the contamination in the reflection occurred, and the thinking is the result of this exchange of information.

The validation of the phases and the concluding debate found greater participation in the face-to-face classroom simulation.

During the face-to-face sessions, there was always the chance to perceive the level of involvement that students were living right at that moment. Surely, the moments when every student had to put their sticky notes on the different billboards have been crowded, noisy, but the experience of a collective simulation has been something of plenty lived by participants and something not far away from similar real-world arenas (at least as they usually had taken place). The debate has been always passionate, and the attention has been high, probably the curiosity about the carrying out of the process and about the outcomes that would be reached, a subtle line of thrilling about this was palpable. The debate phases were discussed as if the participatory process could have been an effective result.

Previously it has been explained how issues and topics during online and face-to-face sessions were basically the same. Concerning the contents, it could be useful to highlight here that students reacted to questions with a mind still focused on issues and topics concerning a pre-Covid city. Probably, when the exercise was held, the consciousness of a different future asset for social practices was still not perceived (or refused). The pandemic has been a too rapid event to be immediately elaborated not only as an episode but as something that potentially was going to change many assets.

## 6. Conclusion

The relevance of the present research stems from a rather unique, although socially terrible, opportunity of comparing two interactive knowledge-building approaches in planning-oriented decision-support processes. The lockdown period induced in Italy by the virus emergency allowed the setting up of IT-based remote experimentations suitable to be compared with similar non-remote experimentations previously held. In particular, the previous traditional face-to-face experimentation carried out within the mentioned university course of Spatial planning and engineering largely showed the typical outcomes, potentials and limitations of such kinds of processes in other real or simulated planning contexts (Shiple, 2002; Khakee et al., 2002). In order to enhance the reliability and significance of the knowledge-building process, it has been said (Khakee et al., 2002) that interacting from a remote platform could minimize the constraints opposed by normal organizational rules, decrease controllability, stimulate creativity without risks of social condemnation. Cognitive contents could be managed massively but also selectively, taking advantage of the real-time support of IT architectures. In general, we know the greatly significant stimulus given to decision-support knowledge-exchange processes by IT-based architectures in this sense (Borri et al., 2013, 2014; Shiple, 2002). Yet to date, we know that at least a couple of negative elements resist in comparison with face-to-face processes. A first, traditional problem is the so-called 'coldness' of remote interaction, carried out in an expressive solitude that wears out the exchanged cognitive content, due to lack of participation. The second problem, however, is the persistence of an intermittent, inconstant availability of the cognitive agent who thus risks giving quantitatively but especially qualitatively limited contents - moreover without a social, contextual stimulus and / or control, being physically isolated. Well, the lockdown status caused by the Covid-19 emergency has allowed in our recent experiment to partially remedy these negative aspects. The captivity and computer-dependence regime ensured a continuity of remote multi-agent interaction and favoured the conclusion of a scenario-building process - which normally proves to be difficult to be achieved both in presence and even much more in a remote mode (Khakee et al., 2002). Also, a hidden sense of solidarity induced by the common fate seems to have partially offset the sense of coldness of the remote interaction, as can be seen from the quantity but also from the expressive quality of the contributions. This last result, although strictly dependent on the very peculiar context, can be interesting in the perspective of a process in extreme risky conditions.

Admittedly, the relevance of this online simulation experiment is undoubtedly depending on its didactical substance, being limitedly legitimated only within this methodological context. The control of the quality of interactions and data, as well as of the interactive 'loyalty' of the agents, was low as it was of little interest for teaching purposes. In addition to the problems mentioned, however, the experiment poses another dilemma, which is the by-product of the results of participatory continuity achieved. In fact, in another remote exercise also carried out this year, on another subject, the students showed and argued their great suffering for a harrowing absence of socialization and of frequenting the normal environments of individual and collective life (Mastrodonato & Camarda, 2020). These are therefore the particular conditions that have guaranteed and accompanied their continuous availability for interaction in our case. Being clearly exceptional and virtually unrepeatable conditions, it seems difficult to imagine a favourable perspective regarding the use of these strategic construction processes of the future, in a remote way.

Advantages and disadvantages of both approaches cannot be entirely worked out when trying to extend such case-based findings to a real planning process. For example, one typical drawback induced by the forcedly remote interaction during the lockdown period is generally claimed to be the economic and/or digital divide - as community's accessibility to high technologies is notoriously variable. On the contrary, such difficulties are not widespread in a university (particularly engineering) environment, where technological equipment and literacy are nowadays essential parts of students' toolbox. In this vein, an online knowledge management process applied in the local or macro governmental units in times of stress/pandemic/natural disaster is an intriguing perspective - which nonetheless requires more extended studies. Such online discussion platform certainly inspires future applications among real decision-making stakeholders.

Currently, online processes seem not much preferable to the more traditional face-to-face path, which instead seems to remain generally preferable since digital familiarity is commonly still not pervasive at least in terms of age.

Hence, the debate certainly remains interestingly open and able to spur the future subject of adequate analytical development in subsequent research activities.

## Author Contributions

Author Contributions: Stefania Santoro: abstract, introduction, section 2, methodology and results of on-line education sections, discussion; Maria Rosaria Stufano Melone: methodology and results of face to face education sections, discussion; Domenico Camarda: conclusion, review, project framework and supervision. All authors have read and agreed to the published version of the manuscript.

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