

Virtual Co-creation Workshop: Collaboration Design for Place Innovation

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Abstract

In this paper, we investigate how virtual co-creation workshops can be conducted. Therefore, sharing experiences with virtual collaborative methodologies is interesting to support researchers, designers, students, and professionals interested in innovation. Thus, the workshop serves as an illustrative case to convey our knowledge of this growing phenomenon, so it is intended to share an experience of design and evaluation of an experiment in virtual co-creation workshops aiming to contribute to the collaboration design for Place Innovation. We found that some challenges must be considered when planning co-creation workshops virtually, especially for Place Innovation, among them: the participants' ability to deal with modern technologies, internet connection, time zones, and languages to be adopted. In this way, we suggested one script to plan co-creation virtual at three stages: pre-workshop, execution, and post-workshop, as well as the tools and techniques that the researchers and designers could use in each phase of this journey. Some recommendations are related.

Keywords: Co-creation, Place Innovation, Service Design, Virtual Workshop, Digital Platforms

1. Introduction

The concept of co-creation has been used in several disciplines; the social sciences, business studies, engineering, design, and tourism studies. Among the recent studies, co-creation of services in non-governmental organizations, public value, responsible tourism, citizen engagement in the co-creation of public services, co-creation in coworking spaces, and improvement of the value co-creation process in banking services platforms are some examples. (Namisango et. al (2021), Payne et. al (2021), Goermar et. al. (2021), Khan, et. al (2021), Font et. al (2021), Sørensen et. al (2021)).

Most studies approach co-creation from a perspective in which individuals must work together to produce "more value," "better experiences," and improve knowledge transfer. Although the definition of co-creation is gradually being developed, it often refers to how producers and consumers of a particular product or service work together, partially or totally. (Ren, Jóhannesson and Van Der Duim,2017).

Greenhalgh et al. (2016) has observed that academics have increasingly used the concept of co-creation to align research with the interests and involvement of end-users with the aim of social impact. A similar tendency is seen in the field of environmental sciences; some scholars suggest the inclusion of research tools that address the valuation of social relations, and factors related to the diversity of contexts, and reinforce the importance of the involvement of participants in research projects (Cockburn-Wootten et al., 2018; Dredge, 2006; Potts & Harrill, 1998).

Participatory approaches that prioritize the involvement of different stakeholders have been evaluated to be a fairer way of conducting research, producing projects, solving problems or needs faced by the community, developing mutual learning, and promoting social change. (Cockburn-Wootten et al., 2018).

To facilitate social change, creative participatory methods, such as co-creation, are adopted to stimulate dialogue and develop understandings beyond verbal and written language, aiming to create transformation and change solutions, especially for complex problems faced by diverse communities. (Wengel, Yana, Alison McIntosh, and Chery CockburnWootten, 2019).

In practice, co-creation processes take the form of workshops. Workshops are specifically organized situations that have structure, tasks, and facilitation. Holmlid et al. (2015). Traditionally, these events are held face-to-face at community event spaces, organizations, or universities. However, recent events, notably the corona pandemic and technological advances (International Congress and Conference Association, 2020), point to a need for virtual options. Virtual events grew



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substantially during 2020 and are expected to continue to grow in 2021. (Cook, A.; Kuczer, 2021)

Therefore, sharing experiences with virtual collaborative methodologies is interesting to support researchers, designers, students, and professionals interested in innovation. The guiding question of this work is: How can virtual co-creation workshops be conducted? The article follows the case study methodology presented by Yin (2015); thus, it is intended to share an experience of design and evaluation of an experiment in virtual co-creation workshops aiming to contribute to the collaboration design for Place innovation.

The article is divided into four parts. In the first part, we present the theoretical backdrop to co-creation for Place Innovation. The second part offers the methodological design. In the third part, the experiences with virtual co-creation workshops for Place Innovation are analyzed as a case study. The fourth part discusses the results and a proposal for designing co-creation virtual workshops for Place Innovation.

2. Theoretical Framework

2.1 Virtual co-creation workshops for Place Innovation

According to Holmlid (2015), workshops are specifically organized situations with structure, tasks, and facilitation. Workshops are, therefore, a widely used strategy to involve users and stakeholders to generate insights, together with Designers and Researchers.

Johnston (2005) organizes the workshops into three main phases: warm-up, central part, and feedback. The three phases are developed to meet a schedule of actions, the transformation of participants' thoughts about the subject being discussed and immersion in their own experiences, followed by a creative environment, to generate insights and conclude with the lessons learned in the workshop.

Co-creation workshops have been introduced for Place Innovation. According to Lindberg et al. (2018), Place Innovation is a co-creative process that innovatively interconnects different stakeholders, components, and operations, aiming to improve its attractiveness to various local actors.

The concept of Place Innovation describes the interrelation between the identity of a place and its main components: content, configuration, content, and communication. Identity has its origins in the cultural, social, economic context of the area and



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geographic location. The content of the place is related to the commercial aspects, the public services, and the non-profit activities that are made available on the site. The configuration of the area encompasses its architecture, design, and other physical components of the area. Communication, in turn, concerns the internal and external brand and the marketing of the site. Therefore, by connecting these factors, it enhances the capacity of the place to attract existing and potential residents, tourists, business people, investors, entrepreneurs, and other stakeholders. (Lindberg et al., 2018). Co-creation for place innovation has been used in the Arctic (Lindberg et al., 2020).

However, we lack knowledge about virtual workshops or co-creation experiences (Jauhiainen, 2021; Kohler et al., 2011). We can consider a virtual world as a computer-simulated environment Gent, (2020). Cook and Kuczer (2020) reinforce that virtual worlds offer a collaborative environment where people can train and learn together. Therefore, a virtual workshop can be inserted in this context. Participants can access virtual tools to apply their collaboration efforts, including sticky notes, mind maps, and other devices that can contribute to the collaborative process (Mural.co; Miro). As the need for borderless collaboration and communication and the demand for virtual presence grows, virtual world platforms become increasingly relevant. (Cook and Kuczer, 2020).

Therefore, when it comes to innovation processes through co-creation workshops, the virtual world and its potential to promote collaboration are motivating, especially in uncertain times when trips and meetings are canceled due to the pandemic (Covid-19). Amidst the pandemic, many organizations adjusted their modality of events to connect participants without geographic and temporal limitations (Dousay et al., 2021). Therefore, virtual experiences are strategies to consider in which diverse stakeholders collaborate and communicate through collaborative platforms.

2.2 Methods of design of co-creation virtual workshops

To engage people in a virtual event, participants need to experience an inspiring, intrinsically motivating, engaging, and fun co-creation experience (Kohler et al., 2011).

Mattelmäki and Sleeswijk Visser (2011) suggested four different modes of co-design. In the 1st mode, the users' experience is used in the design process, that is, through interviews and observations. In the 2nd mode, user involvement is facilitated through (co-creative) tools made available by designers or researchers. In the 3rd mode, the designer or researcher is not just a facilitator but participates in collaborative activities together with others. In the 4th mode, designers or researchers seek to support and facilitate a collaborative process with different stakeholders, not just



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users. It is proposed in mode two that the activities are facilitated with (co-creative) tools provided by designers or researchers. Therefore, this strategy was used in the present case study.

Regardless of the co-design modes, it is essential to point out that according to Holmlid et al. (2015), the main reasons for co-creative practices are, initially, to bring together different people to collaborate, make sense, and share, and then rethink the present and explore future possibilities.

Although the literature presents different models that contextualize and represent the design processes, there is a gap when explaining the interactive nature of the process and how co-creative practices could be applied to them. (Holmlid (2015)). Therefore, we chose to adopt the Four Lens Model for this article, which proposes direct innovation processes.

Among the particularities of the four-lens model suggested by Holmlid (2015), it is not considered a linear progression in the innovation process. The different lenses share elements and have ambiguous relationships between them. Therefore, it becomes a challenge to develop a standard creative practice that only contributes to one lens. Table 1 shows the objectives of each of these lenses.

Lenses	Objectives
Insight Generation	To identify needs, wants, and potentials. It is about exploration and curiosity about what users experience and can experience in the desired future.
Concept Exploration and Development	Manifestations used in a collaborative exploration of concepts are not intended to test or evaluate ideas but to concretize, explore, and collaboratively develop possible futures.
Converging Towards a Specification	Convergence has two goals. First, it aims to define or specify a service, and, second, it seeks to ensure that all actors involved converge towards a shared understanding of the service and its specificities. The



	former is usually aided by Prototyping and the latter by visualizations and modelling.
Transformation and Implementation	Organizations often adopt co-creative practices to make their changes or when implementing new ways of working. However, it is also known that others prefer to use in-house labs to test future customer interactions or set up a deployment process where an office is the first to use a new service process. Design tests and games as a design approach have been applied in organizations to support transformation. Prototyping can take on new challenges and formats when used as a means of change and implementation.

Table 1. Objectives of the four lenses. Source: Holmlid et al. (2015)

Finally, Holmlid et al. (2015) give the following recommendations: Define your purpose; generating insights, concept exploration, convergence, or implementation; Choose appropriate methods and tools, as well as participants for the co-creation workshops; Use qualified co-creation facilitators; Consider how to document and create knowledge from the event. For virtual co-creation workshops, we need virtual tools. The tools developed in the case reported here were designed for co-creative Place Innovation practices but could inspire innovation processes in different contexts.

2.2.1 Virtual co-creation workshop: Tools.

Throughout the 2010s, more than 100 digital three-dimensional (3D) platforms were developed for various events, with the capacity to host between ten and more than 10,000 participants simultaneously. The most used platforms (in alphabetical order) are AltSpace, Breakroom, Engage, LearnBrite, MootUp, SpotMe, VirBELA, and Virtway Events. (Jauhiainen, 2021). Such platforms allow people (avatars) to interact in scenarios similar to the real world for work or participation in events.

In addition to the most sought-after platforms, other easy-to-operate tools may contribute to the realization of co-creation workshops virtually, such as collaborative frameworks, learning gamification, virtual rooms, and evaluation forms, among them



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are Miro, Kahoot, Genially, Zoom, Google Meet, Schoology, Google Forms, 3D Platforms, and others.

2.2.2 Qualitative assessment of collaboration: CSM Model

Several models can be applied to collect feedback from the collaboration, including models of quantitative and qualitative assessments. In this paper, we used a qualitative assessment of collaboration, the CSM Model, suggested by Drain and Sanders (2019), contemplates a broad view of collaboration. This model can be applied to planning or evaluating collaboration. The model describes the components that form a collaborative partnership, between the designer and participant, during a participatory design project. The evaluation components are society and culture, design environment and materials, designer knowledge and participant knowledge, and design activities, as shown in figure 1.

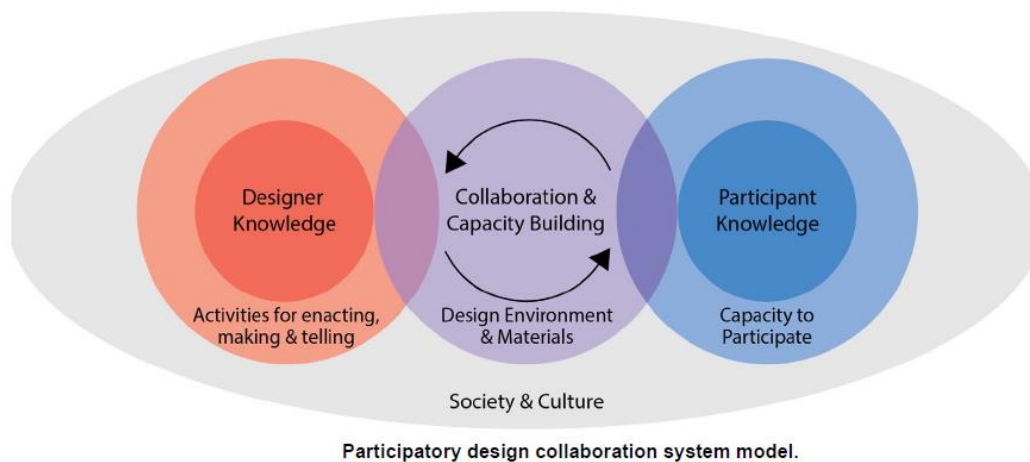


Figure 1. CSM Model. Source: Drain and Sanders (2019)

It is a model that recognizes that both the designer and the participant have knowledge and experience valuable for collaboration and that this knowledge is shared through different mechanisms. Finally, demographic data is collected from the registration forms in age, gender identity, and highest grade or level of school completed. In addition to the structured assessment models, the facilitator's observations and participants' comments during collaborative activities are highly relevant.



3. Design Research

The guiding question of this work is: *How can virtual co-creation workshops be conducted?* A series of co-creation workshops had to become virtual, and in the process, we gained some experiences worth sharing with a broader audience. There were some challenges but also some unexpected benefits. The workshop serves as an illustrative case to convey our knowledge of this growing phenomenon.

3.1 Case Setting

According to Yin, (2015), this is a unique case study of a series of virtual co-creation workshops. The series of workshops had as titled “Collaborative Research Workshop” and it was held in December 2019 for one week (5 days). The workshop sought to attract and engage researchers, students, and professionals from the tourism and environmental science, with an interest in Place Innovation and Collaborative Research. Participants had access to different contents and design tools throughout the workshops, which were of paramount importance for them to think about innovation in a place, through a co-creation approach. In connection with a project that the first author had planned of a series of co-creation, it had to become virtual and this paper intends to share our experiences. In this case, the workshops were carried out through co-design mode 2, as recommended by Mattelmäki and Sleeswijk Visser (2011), in which the participant's contribution is facilitated with (co-creative) tools provided by the designers or researchers, Holmlid et al., (2015). Thus, the co-design tools were previously chosen by the facilitator, and he conducted the co-creation activities throughout the workshops.

3.2 Procedures

According to Johnston (2005), workshops are divided into the warm-up, central part, and feedback. Four platforms were chosen to carry out the workshops, namely: Schoology, Google Meet, Miro, and Kahoot, see table 2.

Parts of the workshops	Platforms	Activities
Organization	Schoology	The participants created an individual profiles. The researcher inserted all the presentations, articles, publications, and other contents discussed in the workshops.



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Central part	Google Meet	The central video communication platform was used to facilitate the Workshops, which lasted 120 minutes per meeting, five days a week.
Central part	Miro	The tools used in this platform were: a post-it board, user journey, logbook, and a mental map.
Warm-up	Kahoot	Was used Quiz about the contents discussed in the co-creation Workshops was inserted.
Feedback	Google Forms	We used it to get feedback from participants over the days.

Table 2. Parts of the workshops

The researcher tested all the platforms and instruments used in the workshops considering the planning (script) and possible gaps in the platforms. After the five workshops, a report was generated to document the lessons learned and the results throughout the week. The information was divided into three parts, the workshop planning process, the workshop application process, and the collaboration evaluation process. Holmlid et al. (2015) warn about the importance of documenting and transforming the material produced into new articulations capable of generating a dialogue focused on the future.

3.3 Data collection

Data were collected by the primary author, who also facilitated. Data consists of recordings of the workshops, a logbook, and field notes and sketches produced by the participants. The workshops aimed to develop skills for facilitating collaborative research. After the registration and selection of participants, the Workshops were conducted with nine applicants, including students, researchers, and professors, in the area of tourism, anthropology, and the environment, belonging to eight Brazilian universities from different states.

In this paper, we used a qualitative assessment of collaboration, the CSM Model, suggested by Drain and Sanders (2019). Thus, the entire process was documented, and the gains and challenges of going virtual were discussed. The facilitator's observations were also considered throughout the data presentation.



4. Results

In this section, the structure of the workshops and the instruments used over five days will be presented, see table 3.

Workshops Day's	Focus	Content
1 ^o	Contextualization of collaborative research approaches	Introductions Calibration of expectations Co-creation theory Kahoot knowledge game
2 ^o	Contextualization of collaborative research approaches	Introductions User Diary Template by Miro Platforms (post-it tool) Co-creation theory Discussion
3 ^o	Case study reviews and methodologies to research co-creation.	Introductions User diaries in Miro Platform. Lectures with experts in collaborative research. Case study: A Culturally Sensitive Tourism in the Arctic
4 ^o	Case study reviews and methodologies to research co-creation.	Introductions User diaries in Miro platform. Kahoot knowledge game Planning of collaborative research by Miro Platforms (Mind Map tool) Co-creation methodology Day's insights by Miro Platforms (post-it tool)
5 ^o	Collaboration evaluation	Introductions User diaries in Miro platform. Workshop journey by Miro Platforms (post-it tool) Collaboration evaluation model Mural of Gratitude User diaries in Miro platform.

Table 3. Structure of the workshops

The workshops took place during the night shift, so every day, all the participants received an e-mail to strengthen engagement and create a state of motivation for the workshop. From the second day of the workshop onwards, the researcher began to send e-mails to the participants with photos referring to the previous day, aiming to create a welcoming and engaging environment for the following days of the workshop. Participants usually received the e-mail and responded by sharing that



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they were excited about another seminar. A presence list was prepared on google forms.

4.1 Recommendations for virtual co-creation workshops in place innovation

Co-creating innovation in places requires the involvement of different stakeholders and other skills to deal with technologies. The platforms adopted in the case study are intuitive and easy to operate. However, it is advisable to contemplate the time necessary for people to integrate the platforms to be used.

The internet connection is of great importance for the workshops to take place without interruptions. It is essential to inform those involved in advance that they are sure that the available internet connection is suitable for handling virtual platforms and video calls. Whenever possible, check camera functionality, audio, voice, and call speed. Well, participants need to be in suitable environments, away from noise and interruptions.

Unlike face-to-face workshops, virtual workshops have no borders, which enables the participation of people from different parts of the world. Two aspects are important: the time zones of the various locations and the language used. Therefore, it is considered important to inform the participants of the languages adopted during the workshop. When necessary, enable video recording and simultaneous translation.

The virtual world allows the locations to be simulated by computer, according to the platforms presented. Thus, affecting the virtual scenarios can add value throughout the application of the four co-creation lenses. On the other hand, the platform adopted in the Miro case study allows the insertion of videos, photographs, articles, and other resources that may be necessary to facilitate viewing.

Co-creation workshops in the virtual space require careful planning due to the possible bottlenecks when using the platforms. Therefore, it is recommended to test the media and the design tools that will be adopted. It is recommended that a team will be contributing to the Back Office and recording activities.

When conducting virtual co-creation workshops, the facilitator must use strategies of provocation and interaction with the participants, even asking what each person's reading about a given fact is? It must be ensured that geographic distance does not mean virtual distance. Empathy and humanization in conducting these virtual co-creation workshops are related to the spaces of speech, listening, and integration of stakeholders.



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5. Analysis and Discussion of Results

The analysis of the results will be presented based on data collected from CSM Model, proposed by Drain and Sanders (2019). Additionally, we will be sharing some recommendations for virtual co-creation workshops in place innovation and a structure of workshops de Co-creation virtual for place innovation.

5.1 Evaluation of Virtual Co-creation Workshops: CSM Model

The evaluation of collaboration allowed us to raise essential elements about the workshop experience from the participant's point of view. The main components can be seen in table 4.

Component	Perception of Participants
Society and culture	It was observed that the groups were well balanced between "young" men and women. Although they were from different parts of Brazil, most were from the state of Rio de Janeiro. Although they were of different ethnicities, gender, race, accents, and teaching instruction, there was no limitation throughout the activities. Professionally they were tourismologists, majoring in tourism, doctoral researchers, and engaged in trade.
Design and materials environment	Space was virtual. It was considered close virtually, however, geographically distant. It concerns online platforms such as Google Meet, Schoology, Miro, among others. The virtual environment was considered adequate to design, despite possible problems with the internet.
Designer knowledge and participant knowledge	Participants had different backgrounds and multidisciplinary knowledge. Collaborative thinking and behaviour of exchanging experiences were identified. Participants had a basic understanding of the topic, which was added by the facilitator and external guests' technical expertise of collaborative research.



Participant's ability to participate	Even among people not known personally, it was possible to work together. From the facilitator's provocations, it was possible to build and contribute to the collective understanding of the subject. Participants were open to dialogue and exchange of experiences. It was felt that participants were motivated to participate and influence the course of the workshop. There was engagement, reflection, and involvement.
Design Activities	The activities took place on collaborative platforms (Google Meet, Schoology, Miro, and others). Games that allowed reflection through Kahoot were adopted. Possibility for participants to learn about and develop skills in virtual tools. Availability of design platforms and materials for virtual meetings and interaction. The design tools used were essential for understanding the concepts and theories. To explore the imagination and facilitate verbalization about future scenarios (collective self-confrontation).

Table 4. Evaluation of Participant Collaboration

The participants were satisfied with the activities carried out, and they commented on the workshop's workload, reinforcing the desire of the participants for the expanded workload.

5.2 Discussion of results

This work shows the design and evaluation of a case with virtual co-creation workshops, aiming to contribute to the collaboration design for Place innovation. The CSM Model, suggested by Drain and Sanders (2019), proved relevant during this experience. The model can be used to assess collaboration and can be applied to plan workshops in different ways. It could be helpful for other collect points of view as participant's point of view, designer's or researcher point of view, or even, together, in which the participants and the designer/participants assess the collaboration together. Considering the design process of the virtual co-creation workshop, the



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CSM Model, suggested by Drain and Sanders (2019), can be used as a guide, also aiming to consider its components in the virtual space.

The four-lens model, as suggested by Holmlid, Stefan, et al. (2014), given the specifics of the case study, the "insight generation lens" was better explored since the workshop was aimed at an audience interested in learning about collaborative research approaches, and insights envisioning the application of methodologies are essential. However, faced with an innovation proposal involving different stakeholders, other lenses can be explored, especially regarding product and service design processes. Although the case study strategies were developed in co-design mode 2, the different methods suggested by Mattelmäki and Seasick Visser (2011) could attend to safely. Thus, mode 2 was adequate given the objectives of the workshops.

5.2.1 Structure of workshops de Co-creation virtual for place innovation

In this sense, a script for virtual co-creation workshops design aimed at place innovation could follow a journey of avatars carried out in three stages: pre-workshop, workshop execution, and Post-workshop. The pre-workshop is related to all activities that precede the application of the workshop. If we draw an analogy with the procedures of the lodging facilities, the first step would be the reservation procedures, that is, thinking about everything that precedes the arrival of the guests, in this case, the "avatars" or interested parties.

The execution of the workshop is related to the workshop application procedures. In the virtual journey of the "avatars," we could make an analogy considering this period as the check-in processes, therefore, the entry and stay period of the participants in collaborative processes. The post-workshop is related to the activities that will be developed at the end of the cycle. We could consider the check-out procedures, in which some activities involve the "avatars" or stakeholders and others only the facilitator's team and back office.



PRE-WORKSHOP (RESERVATION PROCESSES)	EXECUTION (CHECK-IN PROCESSES)	POST-WORKSHOP (CHECK-OUT PROCESSES)
1. Definition of "Place" (Case Setting): identity x components, Lindberg et. al. (2018)	1. Apply the workshop: warm-up, main and feedback strategies - Johnston (2005).	5. Collaboration Assessment: CSM Model - Drain e Sanders (2019), among others.
2. Project Development	2. Attendance Record	6. Issuance of Certificates
3. Definition of the Co-creation approach: 4 Lens Model - Holmlid, Stefan, et al. (2014); CSM Model - Drain e Sanders (2019)	3. Workshop recording	7. Lessons Learned Report
4. Co-design Mode Definition - Mattelmäki e Sleeswijk Visser (2011)	4. Logbook	8. Directions for Place Innovation.
5. Team definition - Facilitator / Back office		
6. Development of scripts		
7. Main content development		
8. Definition of dissemination strategies		
9. Opening of registrations		
10. Selection of platforms.		
11. Test Platforms: google meet, zoom, kahoot, miro, genially, schoology, google forms, 3d platforms, among others.		
12. Insertion of design techniques on platforms: post-it to brainstorm, mental map, user dairy, user journey, forms, gamification, among others.		

Figure 2. Journey of virtual co-creation workshops in place innovation. Source. Authors

6. Conclusion

How can virtual co-creation workshops be conducted? It was the guiding question of the present work. Therefore, a case was presented in which were adopted virtual co-creation workshops, it is an experience that can be considered as a reference in co-creation activities aimed at Place Innovation. It was observed that different approaches combined could be adopted to design co-creation workshops virtually. Among them, the four-lens approach suggested by - Holmlid et al. (2014) and the CSM Model developed by Drain and Sanders (2019) for collaborative planning and evaluation. Different virtual platforms can be used to conduct the workshops and numerous design tools and techniques. Some challenges must be considered when planning co-creation workshops virtually, especially for Place Innovation, among them: the participants' ability to deal with modern technologies, internet connection, considering time zones and languages to be adopted, the use of resources or platforms that allow contextualizing places as close to reality as possible, careful planning and choice of design tools and techniques, the participant and designer environment and putting an end to the ability to transform the virtual experience into a humanized experience.



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Due to the facts, when conducting the Journey of virtual co-creation workshops for place Innovation, it is recommended to think of at least three stages: Pre-workshop, Execution, and Post Workshop, as well as the tools and techniques that will be used in each phase of this journey. Therefore, some recommendations were suggested, and a roadmap was proposed for future projects.

6.1 Study limitations

It is a single case study in which co-creation methodologies to develop skills for researching collaborative approaches were applied. Therefore, the work was limited to the generation of insights envisioning the application in a real case.

6.2 Possibilities for future studies

Among the possibilities for future work, it is suggested to apply the script of the Virtual Co-creation Workshops in a practical case of Innovation in Places to test different modes of co-design. Likewise, it is recommended to try other platforms that, through simulation, approach the places in their entirety, to enhance the virtual experience of collaboration.

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