기본연구보고서 2021-9

포스트코로나 사회변화에 대응하는 언택트 어버니즘 전략 연구

Untact Urbanism Strategies in Response to Social Change on Post-Corona Era

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SUMMARY

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Since the first report of the coronavirus in November 2019, the degree of COVID-19 infection has continued to this day, repeating its spread and mitigation. In the early days of the COVID-19 Pandemic, it was expected to be alleviated in the summer due to the nature of the existing respiratory virus, but the spread of COVID-19 was prolonged due to the continuous emergence of mutant viruses. Since then, vaccines have been developed, but short efficacy periods and cases of vaccine breakthrough infections have increased, making it necessary to consider the response of the With Corona era rather than countermeasures after the end.

Research to determine the cause of this due to the prolonged COVID-19 appeared in the early stages, but the occurrence factors are unclear and it is necessary to focus on the usage behavior of the space that changes after the occurrence rather than deriving the change factors. Therefore, research on the resulting changes and future changes is currently being actively conducted. For example, there are studies on consumption, transportation, and architectural urban space changes for changes caused by changes to online-oriented lifestyles.

However, since it is unclear when the post-COVID-19 era will arrive and other

infectious diseases can cause pandemic situations, a systematic prediction study of the future of architectural and urban spaces is needed. In addition, the current COVID-19 situation continues, and comprehensive measures are needed considering both the With Corona era and the post-Corona era at a time when the government also mentioned the transition to With Corona.

Therefore, this study aims to derive applicable principles for responding to architectural and urban spaces through future predictions of social changes in the COVID-19 era and propose strategies for architectural and urban spaces that can respond quickly in the event of a social crisis. To this end, various documents related to COVID-19 will be reviewed, and text analysis and Delphi analysis will be used to derive major issues for the With COVID-19 and post-COVID-19 era and architectural and urban spaces to be predicted in the future. Furthermore, by proposing strategies for each unit space of individual spaces, I would like to comprehensively propose countermeasures in terms of architectural and urban spaces in the COVID-19 era.

The outbreak of Severe Acute Respiratory Syndrome (SARS) in 2003, swine flu in 2009, and Middle East Respiratory Syndrome (MERS) in 2015 were significant events that recognized the risk of infectious diseases worldwide. When synthesizing the existing domestic and foreign response strategies for infectious diseases, the domestic and foreign response strategies have gradually changed from the space emptying strategy to the direction of responding by utilizing space.

Unlike conventional respiratory diseases, COVID-19 infections have been prolonged and have changed people's lifestyles. As the spread continued due to high-density environments and enclosed spaces, the government implemented a social distancing policy. As a result, people live more online than offline, and accordingly, as they bring about changes in commercial districts, ultra-neighborhood living areas emerged. At the same time, in order to minimize face-to-face contact, the use of personal transportation increased instead of reducing the use of public transportation. The demand for architectural and urban spaces has changed according to social changes, and countermeasures are also changing. Representative examples include the complexity of residential spaces and the reorganization of public spaces. As such, various changes in COVID-19 are approaching as a new threat to some social classes. In the case of the elderly, there is a relatively high possibility of spreading infectious diseases as they often live in nursing facilities in narrow multi-person rooms. In the case of children, as remote

classes are activated, differences in digital competency and learning gaps arise due to lack of information education. And the prolonged spread of COVID-19 is causing small business owners to be hit economically, and facility users to have difficulty living due to service restrictions.

Therefore, this study aims to define changes in architecture and urban space based on online, ultra-neighborhood living areas, resilience, and inclusion that quickly respond to changes in various social, architectural, and urban spaces brought about by COVID-19.

In Chapter 3, in order to consider the changes in the architectural space after COVID-19, the changes in the architectural space during the COVID-19 era were reviewed using a contest. To this end, semantic network analysis was performed on the contest manuals of five contests to identify the frequency of words and perform network analysis centered on specific words. As a result, it can be seen that words such as "change," "post-corona," "architecture," "space," "citizens," "culture," "participation," "residential space," and "diversity" were frequently used, and the overall initial atmosphere of the contest can be understood.

Based on connection-centeredness, pseudo-centeredness, and proximity-centeredness, which can identify the most central words, "architecture" is of course the most central word, and "change" is the central word except for other naturally appearing words such as "conspiracy" and "idea." Looking at the words directly connected to the change, they can be said to be "daily life," "life," and "living environment" caused by COVID-19.

Next, keyword frequency analysis by period was performed to understand the meaning of the work. Although certain patterns are revealed in the changes in keywords by period, the most frequent keywords appeared in the order of green infrastructure, public space and variability, and social density control. It can be said that the most interesting factor in the contest work is green infrastructure such as green space/open space. However, the green infrastructure appearing in the contest is not just green, but green areas are design elements with various design solutions. It can be inferred that the background of new innovative spatial elements in post-Corona architecture will be related to public space, standardized mass production, and social density control.

As a result of LDA analysis, it can be seen that a topic organized in a way to temporarily and variably control social density by combining green space with movement space was

derived. Looking at the flow of topics by period, it can be seen that topic 4 appeared at a high frequency in the beginning, and topic 4 did not appear in the middle, but converged to topic 8 and topic 3 and then converged back to topic 4 in the second half.

Keyword rankings for each topic of residential and non-residential uses differ greatly, providing implications for new neighborhood life and neighborhood composition, meaning of new combinations and movement plans of residential spaces, and new types of housing as reproduction. Non-residential use proposes a concept that provides new public spaces through variable and temporary transformation, proposes not only variable and temporary public green spaces, but also applies smart technology, and encompasses production methods.

Chapter 4 reviews previous studies on future prediction techniques in the existing architecture and urban fields to predict future architecture and urban space changes in the COVID-19 era. Based on this, it was intended to derive an appropriate technique for predicting spatial changes in the post-Corona era, and finally, future predictions were conducted through Delphi surveys.

For the Delphi survey, a total of 35 trends and driving keywords were derived through future prediction studies before COVID-19, various literature reviews after COVID-19, and expert reviews. Using this, experts in each field conducted two surveys on whether to agree with each keyword, change patterns, importance, and facilities and spaces expected to change significantly accordingly, and derived expected scenarios based on the results.

As a result, looking at the top 10 keywords that showed high importance in future predictions, the main keywords were evenly derived from five major categories, but the degree of consent and change of keywords by COVID-19 period were different. Keywords affected by policies to respond to the spread of COVID-19, such as "physical distancing," "face-to-face contact control," and "super-neighborhood living areas," will not have a significant impact after COVID-19 compared to COVID-19.

At the same time, housing, educational facilities, business facilities, medical facilities, commercial facilities, roads and transportation facilities were selected for facilities and spaces expected to change significantly. Among them, a change scenario using key keywords was derived, focusing on four facilities, excluding medical facilities, types, and various commercial facilities, where expertise is not greatly.

In order to propose guidelines for responding to architectural spaces in the COVID-19 era, guidelines for each space in the COVID-19 era were proposed by synthesizing domestic and foreign guidelines along with the results of literature review, contest analysis, and expert Delphi analysis. Prior to proposing the final guidelines, the feasibility test procedure was carried out through an expert survey based on the derived content. To this end, common guidelines were derived based on eight keywords considered important in the COVID-19 era, individual guidelines (drafts) for residential facilities, educational facilities, work facilities, and road spaces derived for future predictions were proposed, and consent was investigated.

The basic directions of the guidelines for each space in the COVID-19 era by synthesizing the related analysis contents are as follows. First, it is proposed by dividing it into cities and architectures, and the building is proposed by dividing the spatial unit in detail and proposing guidelines according to the spatial unit of each facility. Urban-level considerations were classified into urban density, land use, transportation system, urban planning facilities, parks and green areas, and neighborhood shopping malls.

Next, the basic direction of spatial response to facilities was to secure physical distance between individuals, minimize face-to-face contact, control access to outsiders, air conditioning, minimizing product sharing, and maintenance, and classifying unit spaces in buildings into public spaces, semi-public spaces, reflective spaces, and private spaces. In addition, detailed spaces for each unit space for each facility were classified, and guidelines (drafts) suitable for each space were proposed for each COVID-19 era.

This study attempted to understand the changes in architecture and space in the COVID-19 era through literature review, predict the future through various analysis methods, and propose countermeasures. The contents of the study are as follows.

Unlike existing respiratory diseases, COVID-19 infections have changed people's lifestyles as they are prolonged, and have created demand for new architectural and urban spaces. In this study, this change was defined as untact parentalism, and based on this, the aspect of architecture and urban space by corona era was predicted.

First, as a result of the contest analysis, green infrastructure, public space, variable, and social density control were derived as keywords for future change. This means that the value of green infrastructure as a space for green space, rest space, and reproduction is

drawing attention, and that social density control due to the spread of public space, standardized mass production, telecommuting, and online classes will be a major trend in the post-Corona era.

Next, as a result of Delphi analysis, as a result of performing Delphi for experts twice, major keywords in five fields were derived. Physical distancing, face-to-face contact control, and anti-virus air conditioning were derived in the field of change, online remote services, unmanned services, home work, and logistics industry were derived in the building scale, and "ultra-neighborhood living zone" and "smart city" in the city scale. In addition, "housing," "education facilities," "business facilities," "medical facilities," "commercial facilities," and "road and transportation facilities" were selected in various facilities and spaces where changes are expected.

The guidelines for the post-Corona era were largely divided into guidelines that can be applied to urban spaces and guidelines for each facility. Among them, guidelines for major facilities divided unit spaces into public, semi-public, semi-private, and private spaces, and suggested customized countermeasures for each space and the COVID-19 era.

Although this study is significant in that it proposes a countermeasure against architectural and urban spaces in response to the COVID-19 era, it has the following limitations. First, it is difficult to consider the part where the lifestyle changes due to COVID-19 continue to change according to the COVID-19 situation. Continuous research on this seems to be needed. Second, it is necessary to study countermeasures for architecture and facility types other than the four main facilities. Third, it is necessary to study specific system improvements or specific standard proposal directions for standard change.

Despite the above limitations, this study is valuable as a comprehensive study of the direction of development from the past, the current changes caused by COVID-19, and the future living space that these changes will bring through existing infectious disease cases. In addition, the current COVID-19 situation continues, and with the government mentioning the transition to With Corona, it is valuable as a comprehensive guideline considering both the With Corona and the post-Corona era.