

REVIEW ARTICLE

Public Service Coproduction During the COVID-19 Pandemic: A Systematic Review

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Abstract

The public services coproduction is an important way to prevention and control the COVID-19. This article presents a systematic review of research on public service coproduction during the COVID-19 pandemic. It analyses the antecedents and outcomes of public service coproduction. The results show that the antecedents include organizational/institutional capabilities, engagement/involvement of citizens, effective collaboration and relational context, representatives, digital enabled services, individual capabilities. And the outcomes are quality of life, satisfaction and behavioral intentions, well-being and government governance capacity. Most studies focus on the identification of influential factors, while hardly any attention is paid to the outcomes. Future studies could focus on outcomes of coproduction processes; more quantitative studies should be concerned, such as case study, field study, etc.

Keywords: Coproduction, Covid-19, Citizen, Public Service, Systematic Review.

1. Introduction

Coproduction represents one of the more prevalent means of citizen participation within the realm of public services. Citizens directly participate in public services, exerting a tangible impact on the content of services as well as the implementation of service projects, particularly in certain services where the attainment of established goals hinges on the cooperation of citizens. The concept of coproduction has been in existence for several decades since it was initially put forward by Elinor Ostrom in the 1970s. It can be broadly defined as the engagement of the government with citizens who make substantial contributions during the service design and service delivery processes. Researchers hold the belief that the coproduction of citizens in public services is conducive to enhancing the quality and efficiency of public services (Miao et al., 2021; Eriksson et al., 2021; Rendall et al., 2022).

The COVID-19 crisis has exerted numerous negative impacts on citizens. Nevertheless, citizen involvement has witnessed a significant boost during this

pandemic. The demand for public services has surged so abruptly and drastically that governments have no alternative but to rely on citizens for coproduction. This ranges from complying with social distancing measures, providing informal care, to manufacturing medical and other goods that can prevent the spread of the pandemic and alleviate its social and economic consequences. Coproduction is perhaps more conspicuous than ever before: public health policies work only because citizens have chosen to cooperate masse and voluntarily. By mobilizing the self-service and mutual-aid services within civil society, public services will no longer be dependent on the government's high-level financial investment. Instead, higher - quality service outcomes can be achieved. From the perspective of the role of coproduction, it enhances the quality and quantity of public goods and services provided, which is of great significance for the legitimacy of public organizations, democratic governance, and the development of the modern welfare state (Steen & Brandsen, 2020).

The multifaceted nature of the COVID-19 crisis undoubtedly opens up new research directions,

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including its diverse effects on individual - level participation in public service provision. During the COVID-19 crisis, the most prominent examples of citizens' active involvement were related to curbing the spread of the virus by providing information, keeping themselves informed, staying at home, self-quarantining, practicing social distancing, wearing masks, and washing hands, thereby avoiding creating negative value. Coproduction plays a vital role during the COVID-19 period. On the one hand, governments around the world have utilized a wide range of communication channels to appeal to citizens to contribute to limiting the virus's spread and to protect and support those at risk (Ji et al., 2024; Meng et al., 2024). In response, or spontaneously, citizens organized assistance for neighbors who were required to stay indoors. Local governments, in turn, used their websites to provide free insurance to those volunteers and to connect volunteers with people in need. On the other hand, parents collaborated with teachers and their children to conduct homeschooling (Cicatiello et al., 2023; Lovell et al., 2022). The pandemic has also generated the need for new services for vulnerable populations (e.g., the elderly, the unemployed, the mentally ill). Many community groups have worked with local governments to rapidly implement these services, such as grocery shopping for the elderly or providing remote companionship to those living alone. More generally, the pandemic has brought about a long - overdue acceleration in the digital transformation of public service delivery (Anessi - Pessina et al., 2020; Zou and Zhao, 2021), laying the foundation for broader citizen and user involvement as coproducers. The response to COVID-19 has required individual citizens to adapt to new rules that have altered lifestyle patterns at a fundamental level. None of these measures could have been successful without the collaboration of citizens, given the limited possibilities for enforcement or encouragement. During the crisis, the implementation of coproduction has proven to be essential and has been driven by the prominence and emergency of the situation.

In the literature of public administration, the introduction of user-generated knowledge in public service delivery through the involvement of individual citizens and groups is referred to as 'coproduction' (Steen & Brandsen, 2020; Zhao & Wu, 2020). The existing literature has examined the definition and typology of coproduction, explored instances of it in various public service domains across the globe, and investigated the impacts of the characteristics of coproducers (Gazley, LaFontant, Cheng, 2020; Nabatchi, Sancino, Sicilia, 2017; Sicilia et al., 2016;

Xu & Tang, 2020). In the context of the COVID-19 pandemic, scholars have conducted some research on coproduction during this period (Metzler & Am, 2022; Cepiku et al., 2021; Zhao & Zou, 2021). Consequently, this article endeavors to summarize the research progress of coproduction since the outbreak of COVID - 19, reaffirm the significance of coproduction, and attempt to lay the groundwork for future research.

The article proceeds as follows. In the section 'Research strategy', we will describe the methodology used to conduct the review. The section 'Results of the systematic review' will present the result of our review. We conclude our analysis in the section 'Conclusion and future research', with a conclusion and a future research agenda on coproduction after the COVID-19.

2. Research Strategy

Systematic reviews are founded on replicable and transparent steps. The methods of systematic review permit a comprehensive evaluation of the current state of knowledge by implementing rigorous, objective, and transparent procedures, along with criteria for drawing conclusions from a collection of scientific literature (Voorberg et al., 2014). In contrast to traditional literature reviews, a systematic literature review is capable of identifying all potentially relevant literature through transparent and explicit steps. In the field of public administration, such systematic reviews are growing in popularity. They make it possible to pinpoint the areas where significant progress has been achieved and where future research could be focused (Li, 2019; Voorberg et al., 2014).

Four search strategies were used. First, Web of Science database was searched using the terms "coproduction" or "co-production" and "COVID19" or "COVID-19" in the topic and this yielded 388 articles. The last search was run on 15 November 2024. Second, articles or reviews were selected to ensure the quality of the papers included, and this yielded 306 articles. Third, the sample included papers from the Public Administration domain. This yielded 61 articles. And then, the found studies were screened on the title and abstract and, when needed, by reading the full text, and 52 articles were reserved. English written records were selected given the practical difficulties of translation and the replicability of the review

The screening of all articles ultimately led to the inclusion of 52 articles. Our selection process is presented in Figure 1. The next section describes the results of our systematic review.

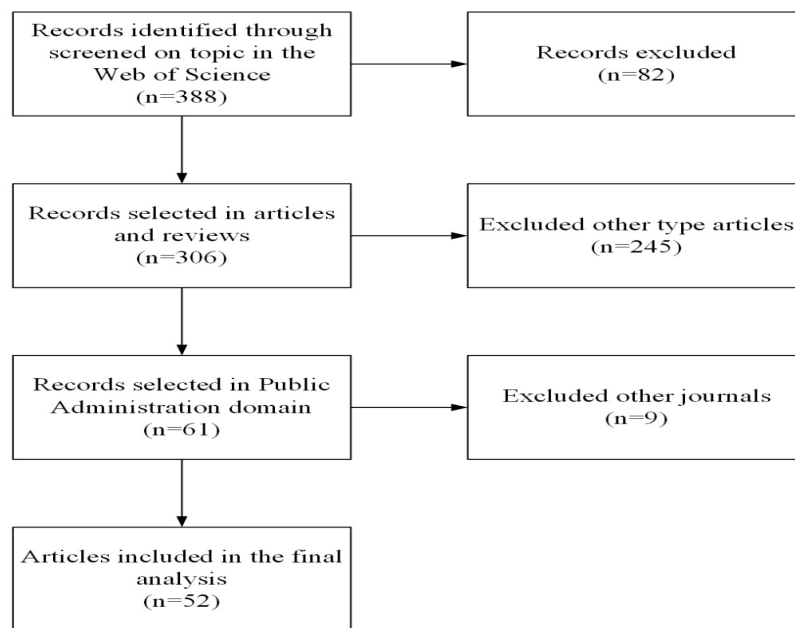


Figure 1. Flow diagram of the search strategy

3. Results of the Systematic Review

3.1 Research Overview

The search considered papers that have been published since the onset of COVID-19 up to the present moment. These papers are distributed across

Table 1. Journals included in the analysis

Journal Title	Number	Percentage (%)
Administration & Society	1	1.92
American Review of Public Administration	4	7.69
Australian Journal of Public Administration	3	5.77
BMJ Global Health	1	1.92
Chinese Public Administration Review	1	1.92
Critical Asian Studies	1	1.92
Frontiers in Public Health	2	3.85
Global Public Policy and Governance	1	1.92
Governance	1	1.92
Human Service Organizations Management Leadership & Governance	1	1.92
IDS Bulletin-Institute of Development Studies	2	3.85
IET Smart Cities	1	1.92
International Journal of Public Sector Management	1	1.92
International Review of Administrative Sciences	1	1.92
Journal of Chinese Governance	1	1.92
Journal of European Public Policy	1	1.92
Journal of Public Affairs	1	1.92
Journal of Public Budgeting Accounting & Financial Management	1	1.92
Journal of Social Policy	1	1.92
Policy and Politics	2	3.85
Politics and Governance	1	1.92
Progress in Community Health Partnerships-Research Education and Action	1	1.92
Public Administration Review	3	5.77
Public Management Review	7	13.46
Public Money & Management	1	1.92

34 journals in the fields of public policy, public services, management, and healthcare. The *Public Management Review* accounts for approximately 13.5% of the publications, which might reflect the significance that the coproduction of value holds for public services (Table 1).

Public Performance & Management Review	1	1.92
Transforming Government- People Process and Policy	1	1.92
Security Dialogue	1	1.92
World Development	2	3.85
Science and Public Policy	1	1.92
Social Policy & Administration	1	1.92
Sustainable Development	1	1.92
Review of Policy Research	1	1.92
Revista De Administracao Publica	2	3.85
Total	52	100

The literature concerning coproduction during the COVID-19 period is predominantly composed of empirical studies (94.23%) that rely on qualitative research approaches. These empirical studies are mainly carried out in China (20.83%). Moreover, nearly one fifth of the research involves more than one country (18.75%) (Table 2).

Table 2. Overview of coproduction-related literature during COVID-19

Methods	Number	Percentage (%)
Conceptual	3	5.77
Empirical		
<i>Quantitative methods</i>	8	15.38
<i>Qualitative methods</i>	36	69.23
<i>Mixed method</i>	5	9.62
Subtotal	52	100.00
Geographic focus	Number	Percentage (%)
China	10	20.83
U.S.A.	5	10.42
Italy	4	8.33
Scotland	3	6.25
Sweden	2	4.17
Israel	2	4.17
Northern Ireland	1	2.08
Ireland	1	2.08
Brazil	1	2.08
Bristol	1	2.08
Columbia	1	2.08
Germany	1	2.08
Kenya	1	2.08
Nepal	1	2.08
Nigeria	1	2.08
South Korea	1	2.08
South Africa	1	2.08
U.K.	1	2.08
Zimbabwe	1	2.08
More than one country	9	18.75
Subtotal	48	100.00

With regard to the research focus, the most prominent theme pertains to the factors that drive, affect, and influence coproduction during the COVID-19 pandemic. Considerable attention has also been devoted to the role of coproduction in generating

relevant outcomes. Ultimately, the least frequently explored theme emphasizes research that investigates theoretical frameworks, approaches, and mechanisms to gain a better understanding of or to further develop coproduction.

3.2 Influential Factors of Coproduction During COVID-19

An overarching line of research captures the factors that can impact and/or mold the development of value coproduction during the COVID-19 period. This theme encompasses six topics, with the majority being related to the role of citizen engagement/involvement factors in facilitating coproduction.

3.2.1 Organizational/Institutional Capabilities

Coproduction can be made more “citizen-oriented” and form part of the value creation process for citizens (Moon & Cho, 2022) by leveraging organizational/institutional capabilities, such as the level of workload, the extent of bureaucracy, resource provision, support systems, and communication channels (Lovell et al., 2022; Erik et al., 2021). Specifically, a rational task allocation scheme promotes active participation, while an efficient workflow enhances production efficiency. Organizations possess the ability to integrate various resources and achieve complementary advantages, which is a crucial aspect of coproduction. Meanwhile, organizations have the capacity to establish effective communication channels, which is of vital importance for coproduction. The establishment of such channels facilitates the flow of information, enabling the organization to play a coordinating and communicating role in the coproduction process, thereby resolving conflicts among different parties. Other dimensions include: (1) Allocating time within services to increase the time available for coproduction; (2) Providing community-based support to those who experience higher levels of socioeconomic deprivation or isolation; (3) Conducting publicity, education, and training for citizens by introducing health education both in schools and at a broader community level (Lovell et al., 2022); and (4) Ensuring transparency by providing adequate information to citizens (Wu et al., 2021).

3.2.2 Engagement/Involvement of Citizens

Due to the infectious nature of COVID-19, the role of citizen engagement (also known as “participation” or “involvement”) in coproduction during the COVID-19 pandemic is being reexamined and has been receiving increasing attention. The positive attitudes towards citizen involvement appear to be especially conspicuous among health professionals and clinicians who are working in multidisciplinary teams (Leite & Hodgkinson, 2021). The COVID-19 pandemic is expected to lead to a resurgence of citizen participation, as their voluntary, active involvement and coproduction practices are anticipated to increase

(Moon & Cho, 2022). Some citizens have taken the initiative to participate in coproduction activities in fields such as epidemic prevention and control, education, public health, and the environment. During the COVID-19 epidemic, some authors have further expounded on this view, emphasizing the importance of involving citizens in coproduction efforts (Miao et al., 2021). For example, Walker et al. (2022) report that citizens’ participation in coproduction can enhance the interaction between citizens and the government, thereby enabling an effective long - term response to the coronavirus.

3.2.3 Effective Collaboration and Relational Context

A collaborative and relational context determines whether actors are willing to engage in coproduction. Wu et al. (2021) demonstrated that, at a micro level during the COVID-19 epidemic, the clarity of information, the level of trust between citizens and the government, as well as the emotional, cognitive, social, and behavioral responses of both parties, all influence the experiences and the willingness to participate in coproduction. Additionally, resource sharing via professional relationships and the combination of skills and knowledge in resource integration contribute to supporting functional professional coproduction (Buccus, 2021; Weng et al., 2020). Ultimately, the collaborative design is being increasingly acknowledged among scholars as a mechanism for coproduction and for user - owned public services to explore new ways of service provision (Colovic et al., 2022).

3.2.4 Representatives

Studies emphasize the significance of involving individuals to act as representatives for hard-to-reach group members. This approach may assist in incorporating the interests of disadvantaged inhabitants and group members into the process of coproduction (Cicatiello et al., 2021; Buccus, 2021). Cicatiello et al. (2021) pointed out the utilization of coproduction representatives to enhance immigrant parents’ satisfaction with online education during the COVID-19 epidemic. Lindvall & Ronnerstrand (2023) analyzed the vaccination rates and the underlying reasons among different groups in Sweden using questionnaire data. They hold the belief that when individual risk factors are present, people with low trust have a relatively smaller impact on vaccine hesitancy. Similarly, some scholars deliberated on the participation of students, women, low-income individuals, and volunteers during the COVID-19

epidemic, and contended that representatives played a crucial role in facilitating coproduction (Miao et al., 2021; Buccus, 2021; Brudney et al., 2021).

3.2.5 Digital Enabled Services

New digital technologies have been increasingly acknowledged as valuable means to promote coproduction. Zou and Zhao (2021) explored an analytical framework to disclose the theoretical relationship between digital technology and coproduction. Subsequently, they utilized the case of neighborhood governance during the COVID-19 lockdown in Hangzhou to exemplify this framework. The case study reveals that the stakeholders have employed digital technologies as a tool in numerous ways to carry out coproduction, thereby safeguarding neighborhood health and generating public value.

Furthermore, digital services offer a coproduction platform for parents and stakeholders of children with congenital anomalies through the use of social media, and also help to identify associated research, ethical, and technical challenges (Markussen, 2023; Perikangas et al., 2024; Zou, 2023; Zou, 2024). Digital services enable the intelligent governance of epidemic prevention and control, demonstrating great potential in public health crisis management (Zhao & Zou, 2021; Zou, 2023).

However, the new technologies during the epidemic have presented both conveniences and obstacles. New technologies demand professionals to apply them, and their implementation needs to take into account factors such as the background, organizational politics, and crisis response (Uster, 2024). Consequently, how to combine new technologies with collaborative supply constitutes a crucial consideration for the future.

3.2.6 Individual Capabilities

Individual capabilities and characteristics are identified as factors that can facilitate coproduction, including physical and mental health, age, and educational background. Good physical qualities can enhance people's ability to take an active part in matters related to their health and coproduction. It is likely that women, younger individuals, and those with a higher level of education would be both capable and willing to engage in coproduction (Buccus, 2021; Brudney & Yoon, 2021).

3.3 Outcomes of Coproduction During COVID-19

3.3.1 Quality of Life, Satisfaction and Behavioral Intentions

Recently, the COVID-19 pandemic has spurred

citizens to re-engage in the policy process, while also enhancing citizens' behavior and their willingness to voluntarily and actively take part in coproduction activities (Moon & Cho, 2022). Cicatiello et al. (2021) have demonstrated the role of coproduction in education during the epidemic. Specifically, parents' participation in home education can boost their satisfaction with online education services. In addition, coproduction not only directly influences the use value but also impacts the interests of students, such as their satisfaction and loyalty. The use value has a direct effect on the interests of students, and it is more crucial to enhance the interests of students on the online education platform than coproduction itself (Cicatiello et al., 2023).

Similarly, coproduction in American medical schools has facilitated the education and development of medical students during the pandemic (Lovell et al., 2022). On the one hand, during the co - design to co - delivery phase of citizen participation in decision - making, patients, caregivers, and staff are given a voice in the process, thereby improving the quality of care (Cepiku et al., 2021; Leite & Hodgkinson, 2021; Osborne et al., 2022). On the other hand, the role of telemedicine in public health during the epidemic, involving the coproduction of doctors and patients, has increased patient satisfaction and their recovery rate (Leite & Hodgkinson, 2021).

3.3.2 Well-Being

The connection between coproduction and well-being outcomes is currently under investigation. Citizen participation is a crucial factor in generating value for public services (Cicatiello et al., 2021). Citizens' engagement can be conceptualized as the 'pursuit of a valued outcome', which exerts long-lasting positive impacts on people's well-being (Shen et al., 2024; Melo & Cabral, 2020). For example, Shen et al. (2021) indicate that enhanced well-being is a valuable outcome of the coproduction process at the micro level. Coproduction can effectively enhance the efficiency and quality of public service provision, enabling citizens to obtain more and better public services and consequently improve their well-being. Carminati et al. (2021) have illuminated the strategies of disability coproduction in Italy and discovered that coproduction can boost the self-efficacy and well-being of young people with disabilities.

3.3.3 Government Governance Capacity

The participation of residents and community organizations can enhance the interaction between

citizens and the government, and prompt the government to improve its governance capacity and efficiency. Walker et al. (2022) discovered, through studying the coproduction involving different entities during the COVID-19 pandemic in Switzerland, that the participation of citizens and community organizations in coproduction can improve the interaction between citizens and the government, thereby enabling an effective long-term response to the novel coronavirus. Anessi-Pessina (2020) reported that when citizens participate in government budgets, as well as in the co-delivery and evaluation of citizen participation services, it can accelerate the transformation of the social digital government and enhance the government's governance capabilities and efficiency.

4. Conclusion and Future Research

By synthesizing the research on coproduction during the COVID-19 pandemic, this article expounds on the significance of coproduction in public service provision as well as the complexity of its influencing factors, and also proposes directions for further research.

It has been observed that during the COVID-19 pandemic, citizens are regarded as crucial partners in the provision of public services. Previously, citizens were often passive recipients of public services, but now they have become active initiators and coproducers of public services. Throughout the COVID-19 period, citizens have actively participated in the coproduction of education, medical treatment, public health, and environmental services, and have taken the initiative to provide public services. Through conducting a literature review, we can gain a better understanding of the development status of coproduction among citizens during the COVID-19 pandemic, become aware of the overall development situation of coproduction, and thereby offer some references for the government. As governments address the new circumstances brought about by the COVID-19 pandemic, they can involve citizens in the delivery of public services.

As a socialized and innovative approach to providing public services, coproduction has emerged as a frontier area and a hot topic in international public administration research, and has gradually evolved into an important means of government governance. During the COVID-19 pandemic, coproduction has played a significant role in education, medical care, community governance, and public service provision.

Coproduction broadens the role of the government from being merely a producer, buyer, supervisor, and subsidy provider to a much wider scope. It also extends the role of the citizen from being just a customer of the government to a co-provider of public services and a co-responsible party for the quality of the services. The coproduction model constructs an interactive and cooperative relationship between the government and citizens, affording citizens the opportunity to participate in public affairs. This truly surpasses the traditional mindset regarding the relationship between the government and citizens in the process of public service production and provision (Colovic et al., 2022; Zhao & Zou, 2021; Rendall et al., 2022).

The coproduction model integrates the experience and knowledge held by different entities and can effectively achieve the allocation and integration of resources. It makes a substantial and positive contribution to the enhancement of government service functions, performance, and quality. Moreover, through face-to-face interactions among people, citizens can strengthen their sense of loyalty to communities and organizations (Yeo & Lee, 2021; Rendall et al., 2022). Figure 2 illustrates the main aspects of the coproduction literature during the COVID-19 pandemic.

Despite the fact that economy, politics, culture, and technology all have an impact on coproduction, we further contend that public organizations need to comprehend citizens' diverse information preferences in order to achieve effective communication that is conducive to coproduction. In the future, we should promote the development of coproduction from the perspectives of citizens, governments, as well as the channels and platforms of coproduction. On the one hand, it is essential to stimulate citizens and boost their willingness and capacity to engage in coproduction. On the other hand, it is necessary to refine the government's organizational structure, administrative culture, and the attitudes of civil servants to draw more citizens into coproduction. Finally, internet technology and social media ought to be developed as well to offer more diversified means of participating in coproduction. Moreover, greater consideration should be given to empirical and quantitative research. The literature on coproduction depends to a large extent on case studies. This is understandable considering the significance of comparing contextual factors. However, empirical and quantitative research can demonstrate the significance of influential factors, and their results are more objective.

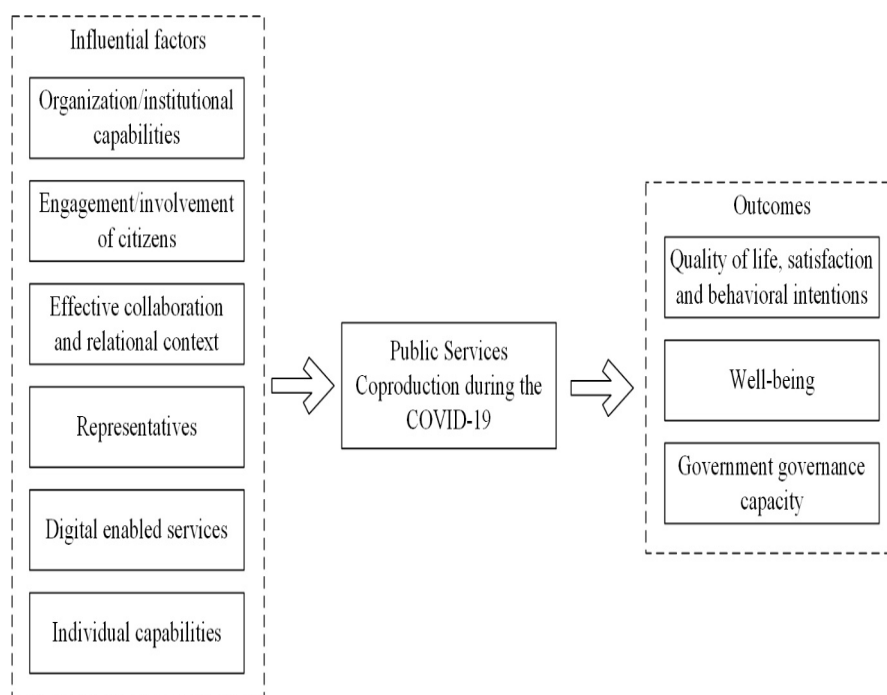


Figure 2. Main content of the coproduction literature during the COVID-19

In conclusion, we have organized and presented the significance, influencing factors, and outcomes of coproduction by means of a literature review. However, it is inevitable that there will be certain shortcomings. The primary selection criterion we adopted was that the journal article should include either the word “coproduction” or “co-production” along with either “COVID19” or “COVID-19” in its title, abstract, or keywords. It is possible that some studies were focused on the topic of coproduction but did not use these specific words in their keywords, abstract, or title, and thus we might have missed out on relevant studies. The complexity of coproduction also implies the abundant research possibilities, and it is hoped that future research on coproduction can elevate this area to a higher level.

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