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PhD in Sociology

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Abstract

In the 21st century, the world has faced a multitude of unexpected challenges, ranging from the Global Financial Crisis of 2007-2008 and Ebola Disease Outbreaks to regional conflicts, refugee crises, social movements like Black Lives Matter, and the COVID-19 pandemic. These events have profoundly impacted humanity, causing economic hardship, mental stress, and even loss of life. While the challenges are often unpredictable, we have the capability to prepare for facing such challenges and to mitigate their negative effects.

This thesis explores the roles of the Dialogic Approach, Scientific Evidence with Social Impact, and the Cultural Knowledge of Migrant Groups in fostering societies that are more dialogic, informed, and inclusive, particularly during times of crisis. These dimensions are vital in the co-creation and the achievement of social impact from scientific knowledge.

To elucidate these aspects, the thesis includes three distinct studies: a literature review and two empirical research. The first study employs sociological theories from dialogical democracy to highlight the underscoring the social impact achievable through dialogic approaches. The second study analyzes social media posts from the early phase of COVID-19 on Sina Weibo and X (previously known as Twitter), focusing on the critical role of disseminating scientific evidence with social impact and countering misinformation to citizen science education. The final study examines narratives from certain Chinese migrants in Spain during the early stages of the COVID-19 pandemic, shedding light on the potential of integrating migrants' cultural knowledge in crisis management and in turn could improve societal inclusion.

In conclusion, this thesis emphasizes the significance of the Dialogic Approach, Scientific Evidence with Social Impact, and Cultural Knowledge of Migrant Groups in the co-creation and the achievement of social impact from scientific knowledge, thereby contributing to the development of more dialogic, informed, and inclusive societies. In this vein, it reduces the negative impacts of future challenges and improve societal well-being in our interconnected world.

Resumen

En el siglo XXI, el mundo se ha enfrentado a una multitud de desafíos inesperados, que van desde la crisis financiera mundial de 2007-2008 y los brotes de enfermedad del Ébola hasta conflictos regionales, crisis de refugiados, movimientos sociales como Black Lives Matter y la pandemia de COVID-19. Estos acontecimientos han impactado profundamente a la humanidad, provocando dificultades económicas, estrés mental e incluso pérdida de vidas. Si bien es impredecible, es nuestra capacidad prepararnos y mitigar los efectos negativos de tales desafíos.

Esta tesis explora los roles del Enfoque Dialógico, la Evidencia Científica con Impacto Social y el Conocimiento Cultural de los Grupos de Migrantes en el fomento de sociedades más dialógicas, informadas e inclusivas, particularmente en tiempos de crisis. Estas dimensiones son vitales en la cocreación y el logro de impacto social a partir del conocimiento científico.

Para dilucidar estos aspectos, la tesis incluye tres estudios distintos: una revisión de la literatura y dos investigaciones empíricas. El primer estudio emplea teorías sociológicas de la democracia dialógica para resaltar el impacto social alcanzable a través de enfoques dialógicos. El segundo estudio analiza los posts en las redes sociales de la fase inicial de COVID-19 en Sina Weibo y X (anteriormente conocido como Twitter), centrándose en el papel fundamental de difundir evidencia científica con impacto social y contrarrestar la desinformación en la educación científica ciudadana. El estudio final examina las narrativas de ciertos inmigrantes chinos en España durante las primeras etapas de la pandemia de COVID-19, arrojando luz sobre el potencial de integrar el conocimiento cultural de los inmigrantes en la gestión de crisis

y, a su vez, podría mejorar la inclusión social.

En conclusión, esta tesis enfatiza la importancia del Enfoque Dialógico, la Evidencia Científica con Impacto Social y el Conocimiento Cultural de los Grupos Migrantes en la co-creación y el logro de impacto social a partir del conocimiento científico, contribuyendo así al desarrollo de sociedades más dialógicas e informadas. y sociedades inclusivas. En este sentido, reduce los impactos negativos de los desafíos futuros y mejora el bienestar social en nuestro mundo interconectado.

Resum

En el siglo XXI, el mundo se ha enfrentado a una multitud de desafíos inesperados, que van desde la crisis financiera mundial de 2007-2008 a los brotes de enfermedad del Ébola, conflictos regionales, la crisis de refugiados, movimientos sociales como Black Lives Matter o la pandemia de COVID-19. Estos acontecimientos han impactado profundamente en la humanidad, provocando dificultades económicas, estrés mental e incluso pérdida de vidas. Si bien los desafíos son a menudo impredecibles, tenemos la capacidad de prepararnos para enfrentarlos y mitigar sus efectos negativos.

Esta tesis explora el papel del Enfoque Dialógico, de la Evidencia Científica con Impacto Social y del Conocimiento Cultural de los Grupos de Migrantes en el fomento de sociedades más dialógicas, informadas e inclusivas, particularmente en tiempos de crisis. Estas dimensiones son vitales en la cocreación y el logro de impacto social a partir del conocimiento científico.

Para dilucidar estos aspectos, la tesis incluye tres estudios diferenciados: el primero consiste en una revisión de la literatura y los otros dos son investigaciones empíricas. El primer estudio emplea las teorías sociológicas de la democracia dialógica para resaltar cómo se puede alcanzar impacto social a través de enfoques dialógicos. El segundo estudio analiza posts en las redes sociales Sina Weibo y X (anteriormente conocido como Twitter) durante la fase inicial de COVID-19. Sus conclusiones resaltan el papel fundamental de difundir la evidencia científica con impacto social y de contrarrestar la desinformación con la educación científica ciudadana. El tercer estudio examina las narrativas de ciertos inmigrantes chinos en España

durante las primeras etapas de la pandemia de COVID-19, arrojando luz sobre el potencial de integrar el conocimiento cultural de los inmigrantes en la gestión de momentos de crisis, lo que a su vez, puede mejorar la inclusión social.

En conclusión, esta tesis enfatiza la importancia del Enfoque Dialógico, de la Evidencia Científica con Impacto Social y del Conocimiento Cultural de los Grupos Migrantes en la co-creación y el logro del impacto social a partir del conocimiento científico, contribuyendo así al desarrollo de sociedades más dialógicas, informadas e inclusivas. En este sentido, reduce el impacto negativo de futuros desafíos y mejora el bienestar social de nuestro mundo interconectado.

摘要

在 21 世纪，世界面临着众多意想不到的挑战，这些挑战包括 2007-2008 年的全球金融危机、埃博拉疫情的爆发，以及地区冲突、难民危机、"黑人的命也是命"等社会运动和新冠肺炎疫情。这些事件深刻影响了人类，造成了经济困境、精神压力，甚至人员伤亡。尽管挑战难以预料，但我们有能力应对并减轻其消极影响。

本论文探讨了对话方法、具有社会影响力的科学证据，以及移民群体文化知识在培养更具对话性、知情度和包容性的社会中的作用，特别是在危机时期。这些要素对于科学知识的共同创造和社会影响的实现至关重要。

为深入阐释这些方面，本文包含了三项不同的研究：一项文献综述和两项实证研究。第一项研究运用对话民主的社会学理论，强调通过对话方法可以实现的社会影响。第二项研究分析了新浪微博和 X 平台（前称为 Twitter）上 COVID-19 早期阶段的社交媒体帖子，着重探讨了传播具有社会影响力的科学证据和反驳错误信息在公民科学教育中的关键作用。第三项研究聚焦于 COVID-19 大流行初期在西班牙的中国移民群体，揭示了将他们的文化知识融入危机管理中的潜力，以及这一做法如何提升社会包容性。

总的来说，本文强调了对话方法、具有社会影响力的科学证据和移民文化知识在共创科学知识和实现社会影响方面的重要性，这对于发展一个更加对话的、知情的和包容的社会具有重要意义。本研究的精神有助于减少未来挑战的负面影响，并提升我们这个相互联系的世界的社会福祉。

Index

1. Introduction

1.1 Presentation

The advent of COVID-19 in 2020 dramatically reshaped the global context. The emerging challenges of the pandemic, characterized by economic instability, health insecurities, and societal disruptions, necessitates a broader exploration into fostering resilient societies. As a result, the thesis examined three critical dimensions—Dialogic Approach, Scientific Evidence with Social Impact, and Cultural Knowledge of Migrant Groups. These three dimensions are crucial in the co-creation and the achievement of social impact from scientific knowledge, which are essential for fostering dialogic, informed, and inclusive societies.

The *Dialogic Approach* is explored as a means to facilitate egalitarian dialogue and engagement across diverse societal sectors, promoting the exchange of varied perspectives and enhancing mutual understanding. This approach is instrumental in breaking down communication barriers and creating a dialogic society (Flecha, 2022) where multiple voices are heard and valued. Studies has demonstrated the social impact of applying the Dialogic Approach in scientific research and projects to co-create knowledge that includes both academic professionals and laypeople, including traditionally marginalized groups (Puigvert, 2014; Gómez et al., 2010; Gómez and Jiménez, 2018). The importance of *Scientific Evidence with Social Impact* is emphasized in today's digital era where an abundance of information and misinformation coexists. Effective communication of scientific findings and evidence-based

information that can led to social improvement is essential for empowering individuals to make informed decisions, promote public education, and influence evidence-based policy-making. This aspect is particularly significant in addressing complex challenges like health crises and environmental issues. The *Cultural Knowledge of Migrant Groups* is highlighted for its role in enriching societal understanding and offering unique insights from diverse cultural backgrounds. This knowledge could lead to innovative problem-solving in their host communities, thereby contributing to social inclusion and cohesion.

The thesis aims to analyze these three dimensions' roles in creating more dialogic, informed, and inclusive societies, especially during times of crisis. To achieve this, three specific objectives have been established: 1) to analyze the role of the dialogic approach within sociological theories, 2) to investigate scientific evidence with social impact on social media during the pandemic, and 3) to examine coping strategies of migrant groups in host communities during the pandemic.

The first of the specific objectives is addressed through a literature review. Thus, chapter two, which presents the article 'Sociological Theory from Dialogic Democracy' (Torras-Gómez et al., 2019), revealing the social dialogic shift that in many domains of life is more evident. Citizens are voicing their eagerness to engage in finding solutions to their problems, while demanding on access to information that empowers them to utilize their recently acquired liberties efficiently. The review also underscores the significant role of the dialogic approach in designing research methodologies that are geared towards creating social impact. Among

these methodologies, the Communicative Methodology (CM) stands out for its emphasis on dialogic principles. CM, notable for its scientific, political, and social impact, has been employed as the foundational methodology in the articles presented in Chapters three and four of this thesis. This methodology distinguishes itself by actively incorporating egalitarian dialogic interactions between researchers and research subjects, facilitating a deeper and more meaningful engagement with research subjects, and ultimately fostering results of the research that have a tangible social impact on society.

Chapter three presents a study aligned with the second specific objective. The article 'False news around COVID-19 circulated less on Sina Weibo than on Twitter. How to overcome false information?' (Pulido et al., 2020) investigates the spread of false and science-based information during COVID-19's early stages on Sina Weibo and X (formerly known as Twitter). The findings emphasize the necessity of identifying effective strategies to curb the spread of false information and highlight the crucial role of researchers in disseminating up-to-date scientific evidence on social media, thereby facilitating an ongoing dialogue between science and society so that fostering informed societies.

Chapter four introduces the third specific objective, focusing on the experiences of Chinese citizens in Spain during the early stages of the COVID-19 pandemic. The COVID-19 outbreak initially affected Chinese citizens in China. Spain, which hosts a sizable Chinese community, subsequently has been affected as well. The article presented in chapter four, 'Coping of Chinese Citizens Living in Spain during the COVID-19 Pandemic: Lessons for Personal Well-

Being and Social Cohesion' (Guo et al., 2020) reveals the different coping strategies adopted by two cultural groups, Spanish and Chinese, living in the same territory (Spain) during the development of the COVID-19 pandemic. It emphasizes the value of integrating migrant knowledge into epidemic prevention and management strategies.

The final sections of this thesis synthesize the findings and discussion aligning with the established research objectives and conclude the thesis. Additionally, the annex section contains formal documents affirming the scientific validity and excellence of the scientific contributions incorporated in this thesis.

1.2 Justification

In the 21st century, humanity has grappled with a series of unexpected and impactful challenges that transcend regional boundaries and pose significant threats to the well-being of humanity. From the Global Financial Crisis to Ebola outbreaks, regional conflicts, migration crises, social movements like Black Lives Matter, and the ongoing COVID-19 pandemic, the global community has confronted a spectrum of complexities. These events highlight the unpredictability of challenges and the urgency for societies to bolster their resilience, not just in stable times but especially during crises. This resilience is deeply rooted in societies that are dialogic, informed, and inclusive. At the heart of this lies the co-creation and the achievement of social impact from scientific knowledge, incorporating diverse voices and grounded in scientific evidence with social impact.

Knowledge co-created through egalitarian dialogue between different social actors ensures no single viewpoint dominates. Thus, it contributes to comprehensive solutions that are considerate of different social needs and contexts. Staying informed with the latest research and evidence with social impact allows societies to adapt informed strategies that enhance overall well-being. Furthermore, learning from the cultural knowledge of migrant groups not only helps in adapting solutions that have worked elsewhere, but also fosters innovative strategies and a sense of global solidarity and inclusion.

In face of these challenges, the Dialogic Approach, Scientific Evidence with Social Impact, and the Cultural Knowledge of Migrant Groups stand out as crucial pillars for knowledge generation and dissemination which in turn promote more dialogic, informed, and inclusive societies.

The Dialogic Approach with its roots in both Eastern and Western ancient civilizations, has gained renewed emphasis in last century's sociological theories such as George Herbert Mead's Symbolic Interactionism (1936) and Jürgen Habermas' Communicative Action (1984). In this century, where citizens increasingly yearn to actively involve in seeking solutions to societal issues and participating in the transformation of their communities, a 'social dialogic turn' is reemerging in various aspects of life. This dialogic shift challenges us to reconsider the social theory focusing on dialogue with social impact, providing insights into addressing current social challenges. In line with this, pioneering sociological frameworks, like public sociology (Burawoy, 2005) and dialogic sociology (Flecha, 2022) advocate for a dialogic democracy that is inclusive of all voices.

Science, as emphasized by Flecha (2022), has been a transformative force in the lives of both individuals and society as a whole. Scientific evidence with social impact shapes public perception, enhances citizens' lives and guides policy responses, particularly in crises. The increasing emphasis on making scientific evidence with social impact publicly accessible aligns with the rights declared in Article 27 of the Universal Declaration of Human Rights, advocating for everyone's right to partake in scientific advancement and its benefits (Halverson

et al., 2021). Accurate scientific information with social impact empowers individuals and communities to make informed choices decisions, while the dialogic public policies combining such evidence ensures scientifically guaranteed successful outcomes, as evidenced by their remarkable social impact (Álvarez et al., 2020). However, the challenge of misinformation, or 'infodemic' as termed by the World Health Organization (World Health Organization, 2023), complicates this landscape. Understanding the dynamics of both scientific evidence and misinformation dissemination is crucial in our digital age, aiding in refining communication strategies and ensuring public access to reliable information.

In our globalized world, many countries are home to immigrant communities that bring with them a wealth of cultural heritage and insights. Yet, these valuable perspectives are often underappreciated or faced with discrimination, leading to a societal blind spot regarding the immense cultural knowledge that migrants contribute. This knowledge, encompassing academic understanding, practical know-how, linguistic skills, and action-oriented capacities, enables individuals to navigate diverse social spheres and contribute to collective wisdom. As outlined by Flecha (2000), cultural intelligence is inherent in everyone. Engaging with and learning from those around us, particularly valuing the diversity of perspectives and experiences within a group, is crucial for personal development and societal enrichment. This idea resonates with the teachings of the ancient Chinese text 'Confucian Analects', which emphasizes the importance of drawing from a variety of perspectives. According to these teachings, embracing diverse sources of knowledge not only fosters personal growth but also enriches society as a whole.

In summary, this thesis aims to analyze how the Dialogic Approach, Scientific Evidence with Social Impact, and Cultural Knowledge of Migrant Groups play crucial roles in fostering more dialogic, informed, and inclusive societies, particularly during challenging times. It demonstrates the importance of these dimensions in building resilient societies capable of effectively responding to global crises.

1.3 Objectives

Human beings are frequently confronted with unexpected challenges and crises. While predicting or entirely avoiding these challenges is often impossible, we have the capacity to boost our societal resilience and reduce the potential harm they can cause. This enhancement is contingent upon empowering communities to become more dialogic, informed, and inclusive. A central aspect of this empowerment involves generating and disseminating knowledge that is diverse, inclusive, and rooted in scientific evidence with significant social impact. Such an approach is vital for communities to comprehend and effectively tackle a range of challenges.

Accordingly, the objective of this PhD thesis is to explore the role of Dialogic Approach, Scientific Evidence with Social Impact, and Cultural Knowledge of Migrant Groups in fostering societies that are more dialogic, informed, and inclusive, particularly in the face of crises. This overarching goal is divided into three specific objectives, each corresponding to a distinct dimension of these critical factors:

SO1: To analyze the role of the dialogic approach within some sociological theories

SO2: To investigate scientific evidence with social impact on social media during the pandemic

SO3: To examine coping strategies of migrant groups within host communities during the pandemic

Table 1 summarizes which of the articles that integrates this thesis respond to each of the established objectives:

Table 1. Relationship between published articles and specific objectives of research

Title of the article	Objective (s) it contributes to
Sociological theory from dialogic democracy	SO1
False news around COVID-19 circulated less on Sina Weibo than on Twitter. How to overcome false information?	SO2
Coping of Chinese citizens living in Spain during the COVID-19 pandemic: lessons for personal well-being and social cohesion	SO3

SO1 seeks to provide an overview of the role of the dialogic approach within some realm of sociological theories. This objective is closely aligned with the insights from Article 1, titled *'Sociological Theory from Dialogic Democracy,'* presented in Chapter Two. The article delves into the historical and contemporary significance of the dialogic approach across various sociological theories, demonstrating its potential in navigating societal challenges and crises. It emphasizes the transformational impact of dialogic democracy in social research and societal development, highlighting how dialogic processes contribute to shaping informed and inclusive societies. The Communicative Methodology (CM), based on egalitarian dialogue

principles, serves as a bridge between academic research and real-world social dynamics, empowering citizens to actively engage in social transformation and aiding in the development of crisis-resilient societies.

SO2 focuses on the spread of both scientific veracious information and false information on social media during the pandemic, as discussed in Article 2, *'False News Around COVID-19 Circulated Less on Sina Weibo Than on Twitter. How to Overcome False Information?'* in Chapter Three. This article conducts a comparative analysis of the types of posts on Sina Weibo and tweets on Twitter related to COVID-19, distinguishing between false and scientific information during the early stages of the pandemic. Its findings inform strategies to navigate misinformation on social media, a crucial element during global health crises. By exploring ways to combat false information and promote scientifically backed content, this research contributes to enhancing the quality of information on social networks and fostering an informed, resilient society.

SO3 aims to delve into the coping strategies of migrant groups within host communities during the pandemic. This objective is fulfilled through Article 3 titled *'Coping of Chinese Citizens Living in Spain during the COVID-19 Pandemic: Lessons for Personal Well-Being and Social Cohesion'.* The article explores the experiences and perceptions of ten Chinese citizens in Spain during the initial stages of the COVID-19 pandemic. It examines how their cultural insights and background shape their coping strategies in the face of the crisis. Importantly, this study highlights the significant potential of integrating cultural knowledge

from migrant communities into broader crisis management practices. This integration not only addresses immediate challenges but also enhances societal inclusivity. The research provides valuable insights into developing holistic responses to crises, leading to more resilient, inclusive, and diverse societies.

1.4 Methodology

The current PhD thesis is framed within the framework of Communicative Methodology (CM) (Gómez and Jiménez, 2018). CM has been effectively implemented across various disciplines in social sciences, including sociology (Flecha & Soler, 2014), psychology (Redondo-Sama et al., 2020), education (Gairal-Casadó et al., 2019), and gender studies (Vidu et al., 2014). Distinguished by its principles of egalitarian dialogue and co-creation principles, CM fosters a collaborative process of knowledge construction between researchers and participants, valuing contributions from all, regardless of their background (Gómez et al., 2011). It overcomes traditional dualisms in social sciences harmonizing academic knowledge with real-world experiences (Oliver et al., 2023; Flecha & Soler, 2014). Its effectiveness in engaging participants throughout the research process, from question formulation to result interpretation, has been demonstrated in various contexts, including research with vulnerable groups and during crises like COVID-19 (Viñas, 2019; Racionero-Plaza et al., 2021).

As outlined in the presentation, the current thesis comprises three scientific articles. Table 2 provides details these articles, their publication specifics, and the databases.

Table 2. Summary of the thesis articles

Title of the article	Year	Authorship (*corresponding author)	Journal	Database
Sociological theory from dialogic democracy	2019	Torras-Gómez, E*., Guo, M., & Ramis, M.	RIMCIS	SCOPUS (Q1, 2022)
False news around COVID-19 circulated less on Sina Weibo than on Twitter. How to overcome false information?	2020	Rodríguez, C. P., Carballido, B. V., Redondo-Sama, G., Guo, M., Ramis, M*., & Flecha, R.	RIMCIS	SCOPUS (Q1, 2022)
Coping of Chinese citizens living in Spain during the COVID-19 pandemic: lessons for personal well-being and social cohesion	2020	Guo, M., Joanpere, M., Pulido, C. M, & Padros Cuxart, M*.	Sustainability	JCR (Q2, 2022) SCOPUS (Q1, 2022)

The first article, 'Sociological Theory from Dialogic Democracy,' presented in Chapter Two, is based on literature review. This review utilized keyword searches through scientific databases SCOPUS and JCR, guaranteeing the high-quality and reliability of the studies cited. Moreover, it was enriched by incorporating authoritative scientific books.

The remaining articles comprising this thesis are grounded in empirical research. In the case of the article 'False News Around COVID-19 Circulated Less on Sina Weibo Than on Twitter: How to Overcome False Information?' featured in Chapter Three, the methodology employed is Social Media Analysis, under Communicative Content Analysis (Pulido et al., 2020), integrating principles of the Communicative Methodology. To conduct this research, the research team engaged in a dialogic process to establish criteria for selecting social media data samples. Data, strictly limited to publicly shared information, was collected under the oversight of an experienced ethics committee. A dialogic codebook was developed for analysis, combining predefined and emergent categories. A total of 3,846 tweets and posts (1,923 from each social network) were systematically analyzed. Fact-checking tools and reliable sources, including scientific articles and WHO information, were utilized for verification. Discrepancies or uncertainties were resolved through egalitarian dialogue within the research team, ensuring the accuracy of the analysis. A secondary review was subsequently conducted to rectify any errors, ensuring the thoroughness and accuracy of the analysis.

Another article 'Coping of Chinese citizens living in Spain during the COVID-19 pandemic: lessons for personal well-being and social cohesion', presented in Chapter Four, utilized communicative interviews to gather insights from Chinese individuals residing in Spain. The study involved ten participants aged between 16 and 55, with at least five years of residence in Spain. Recruitment was facilitated through advertisements in Spanish Chinese Community Groups on WeChat. The study abstained from using a structured questionnaire, instead

encouraging participants to freely express their perspectives in open conversations. Interviews were treated as communicative acts, with attention to verbal and non-verbal language and the study's context. A thorough line-by-line manual analysis of each interview was conducted. The diverse research team engaged in extensive discussions to analyze and interpret the data. Before publication, findings were shared with participants for validation and consent, adhering to the ethical standards of communicative research. Written informed consent was obtained from all participants, including parental consent for the minor participant. Participants were given time to read all the provided information and researchers were readily available to address any queries. All participants willingly consented to having their interviews recorded.

2. Sociological theory from dialogic democracy

2.1 Presentation

Social science (as other sciences) has been created through dialogue and are developed with dialogue. Sociology is born and part of democracy...Democracy was created so that diverse citizens could live together in agreement to what is considered socially and legally good (such as freedom) and bad (such as rape).

Ramon Flecha - Dialogic Society

The emergence of the social sciences, particularly sociology, is intricately linked with the evolution of democratic societies. At its core, sociology has historically aimed to empower citizens with analytical tools for informed decision-making, a mission that gains heightened significance during times of crisis.

In the early years of the 21st century, marked by economic and social turmoil, the role and efficacy of bureaucratic science, including social science, faced scrutiny. This period, particularly in Europe as noted by Flecha (2022), witnessed a critical discourse that questioned the utility and funding structures of scientific programs in the Social Sciences and Humanities (SSH). Central to this discourse, as Gómez and Jiménez (2018) highlight, was the challenge in demonstrating the tangible social impacts of SSH research. A notable debate in this context

was the allocation of funds for poverty research versus the direct provision of financial assistance to the impoverished. Additionally, public slogans and movements echoed a demand for science to demonstrate tangible improvements for citizens.

The evolving societal landscape has led to a reevaluation of the Dialogic Approach within the field of sociology, which advocates for egalitarian dialogue among different social actors. In the realm of scientific research, this approach is pivotal for co-creation of knowledge between researchers and citizens, ultimately leading to outcomes that have a significant social impact. Ramon Flecha, in his book 'Dialogic Society' (2022), emphasizes that dialogue is more than the mere exchange of ideas; it evolves into a synthesis of knowledge, emotions, arguments, sentiments, values, and desires that define the human experience.

Several influential theories underscore the importance of dialogue and communication, such as Jürgen Habermas's theory of Communicative Action (1984), George Herbert Mead's concept of Symbolic Interactionism (1936), Paulo Freire's Pedagogy of the Oppressed (1970), Michael Burawoy's notion of Public Sociology (2005), and Ramon Flecha's Dialogic Sociology (2022). Each of these theories, in its own way, highlights the critical role of dialogue and interaction in understanding and shaping societal dynamics.

In the current societal landscape, there is a social need for a dialogic turn, refocusing on the Dialogic Approach. The article 'Sociological theory from dialogic democracy,' presented in this chapter, aligns with this thesis's first specific objective by outlining sociological theories

relevant to dialogic democracy. It also underpins the methodological design of the thesis, grounded in the Communicative Methodology (CM). This approach, based on egalitarian dialogue, bridges systematic knowledge with experiential insights, narrowing the epistemological gap between researchers and participants. The efficacy of CM in fostering societal transformation, particularly among vulnerable populations, is supported by various studies (Gómez and Jiménez, 2018; Racionero-Plaza et al., 2021; Aiello et al., 2013), positioning citizens as key agents of societal transformation.

In summary, the Dialogic Approach offers a framework for developing more dialogic, informed, and inclusive societies. It emphasizes the creation of knowledge that addresses social demands and the importance of integrating diverse voices in responding to complex societal challenges.

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2.2 Manuscript

Sociological Theory from Dialogic Democracy

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Sociological Theory from Dialogical Democracy

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Abstract

Despite the long dialogical tradition both in Eastern and Western societies, in recent years the social dialogical turn is more and more evident in many domains of life. Citizens increasingly demand to have a saying in the seeking of solutions for their problematics, and advocate for a more democratic approach to science that fosters the inclusion of all voices and enhances the agency of citizens in social transformation. Therefore, global scientific research is progressively more oriented towards co-creation as a means to ensure social impact. In this context, social theory can provide the theoretical foundations to better address the societal challenges of concern, as well as the mechanisms to properly design research oriented to produce social impact, such as communicative methodology, and to monitor and evaluate such impact. Social theory would then serve its ultimate goal: to contribute to the improvement of societies. Sociology was born as part of the democracies to provide citizens with elements of analysis that would make it possible for them to make their decisions with the prior evidence of the consequences of each option. After a process of democratization, we return to the original sense, but now in a more democratic situation.

Keywords: dialogic democracy, communicative methodology, social impact, co-creation, citizenship

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Teoría Sociológica desde la Democracia Dialógica

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Resumen

A pesar de la larga tradición dialógica tanto en las sociedades orientales como occidentales, en los últimos años el giro social dialógico es cada vez más evidente en más y más ámbitos de la vida. Los ciudadanos demandan que su voz sea tenida en cuenta en la búsqueda de soluciones para sus problemáticas, y abogan por un enfoque más democrático de la ciencia que fomente la inclusión de todas las voces y mejore la agencia de los ciudadanos en la transformación social. Por lo tanto, la investigación científica global está progresivamente más orientada hacia la co-creación como un medio para garantizar el impacto social. En este contexto, la teoría sociológica puede proporcionar los fundamentos teóricos para abordar mejor los desafíos sociales de interés, así como los mecanismos para diseñar adecuadamente la investigación orientada a producir impacto social, como la metodología comunicativa, y para monitorear y evaluar dicho impacto. Desde este enfoque, la teoría sociológica servirá entonces a su objetivo final: contribuir a la mejora de las sociedades. La sociología nació como parte de las democracias para proporcionar a los ciudadanos elementos de análisis que les permitieran tomar sus decisiones con la evidencia previa de las consecuencias de cada opción. Después de un proceso de democratización, volvemos al sentido original, pero ahora en un contexto más democrático.

Palabras clave: democracia dialógica, metodología comunicativa, impacto social, co-creación, ciudadanía

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W hen Michael Burawoy visited the community of researchers *CREA* he said, *'I speak of public sociology, but you do not only describe it, you also do public sociology'*. The communicative methodology developed by this research community contributes to a dialogic construction of knowledge that not only eliminates the relevant methodological gap between the researcher and the researched subject, as Habermas had proposed, but also achieves the political and social impact that citizenship in democratic societies demand today. The European Commission, in its new research framework program *Horizon Europe*, has already defined the indicators that will assess the political and *societal* impact. Moving away from the often wield criticism that such evaluation only favors applied research - anchored in dichotomies already overcome - today, the framework of dialogic democracies demands a sociological theory that is able to support the social creations that make these impacts possible and, in short, that contributes to the improvement of society.

It has almost been forty years since Habermas (1987) raised the issue of the disappearance of the qualitatively relevant gap between the researcher and the person under research. Hence, the hierarchical relationship that placed social theorists as the ones who could see beyond the common sense of researched people disappeared. The social movements of recent years have challenged these hierarchical relationships with slogans such as *'they do not represent us'* or "not in my name". Earlier, as well, in the big demonstrations, the representatives of big organizations, who were also speaking at the final conferences, were in the front row. That is also changing. There are cultural groups, such as the Roma people, who are pronouncing themselves in an increasingly majority way against investigations that are not carried out with communicative methodology; they do not accept others to talk about them without their voices being equally considered. All these changes are part of the progress of dialogic democracy in more and more countries and areas, thus recovering the original sense of democracies as Elster rigorously analyzed. And it is, in fact, in democratic societies and in the demands towards more dialogic democracies, that science becomes in turn more democratic and dialogic following those same movements and processes.

A part of sociological theories is oriented more or less intensely to direct collaboration in this dialogic democracy. The goal of those who are dedicated to it is not to make many conferences, publish many books, some of which, as Giddens said in his last years, were to be sold in airport bookstores. On the contrary, the objective is to make theoretical contributions together which citizenry in order to foster democratic transformations. That objective is what Burawoy (2014) described as organic public sociology, referring to the Gramscian concept of organic intellectuals who make contributions, in this case from sociological theory and research, to foster social transformation. In this line, we define with the concept of social creations (Aiello & Joanpere, 2014; Soler-Gallart, 2017) all those contributions from the social sciences that manage to transform realities, such as creating jobs where there is unemployment, as improving educational results where there is failure, or as generating social cohesion where there was violence. Just as in the medical sciences, where a discovery that enables a new vaccine or a new treatment is made, and thus, creates something new that improves people's lives; in the social sciences there are sociologists who contribute social creations that also contribute to the improvement of the life of all citizens.

Indeed, the emergence of social sciences is linked to that of democracies. Citizens demanded evidence with which they could effectively exert their newly gained freedom. This required science-based knowledge that allowed to understand the consequences of each possible option prior to making a choice. Thus, this dialogic turn reconnects sociological theories with their original aim, by providing new solutions that now incorporate a type of knowledge - the experience of lay people - that has often been disregarded and disdained from science.

However, the dialogic approach does not only exist in Western countries, but also in Eastern countries, even with roots in their ancient cultures, as is the case of the Indian tradition, The Nobel Economy Prize laureate Amartya Sen, in his book *The argumentative Indian* (Sen, 2005)*,* explains that already in the ancient epics of the Ramayana and the Mahabharata, the two major epic poems of the Indian culture full of arguments and counter-arguments supporting the continuous debates, contrary antagonistic moral positions and viewpoints were often confronted through dialogue. An example of this are

the doubts and arguments of Arjuna and Krishna, two characters in the Mahabharata. Their discussions are still very relevant in the contemporary world: *one must commit to his/her personal duty; but must he/she do so at any cost?* This idea can be linked to Weber's contribution moving from ethics of intention to ethics of responsibility where, beyond our intentions, the consequences of our acts need to be taken into consideration as well. In the same nature, and delving into the study of dialogue and argumentation, Arjuna and Krishna's debates -and the ways these dialogues led to- can also be linked to Habermas' elaboration of the above-mentioned Webberian concept, making the original contribution more dialogic.

At a political level, the plurality of options and the respect towards all of them also follows a long tradition in the Indian society. This can be seen in the early Indian Buddhists, who highly vindicated dialogue as a means for social progress, as well as on the ruler Ashoka, who in the third century BC formulated one of the earliest rules for public discussion. In a similar vein, Emperor Akbar strongly supported open dialogue based on reasoning as the tool to address disagreements between those with different faiths. Thus, the preservation of democracy or the defense of secularism in India find its roots in the heterodoxy of thoughts and beliefs and the public debate around them that has traditionally been guaranteed (Sen, 2005). In this vein, the dialogic approach and the argumentative nature of the Indian tradition are key elements that allow to explain the seeking of social justice and the overcoming of social inequalities. Indeed, far from being something exclusive of the elites, language and dialogue offer all individuals, even the most excluded ones, the opportunity to have a saying in any matter of concern. In this line, dialogue, when set on an egalitarian basis, puts all participants, no matter their origin, status or studies, at the same level, since the strength of claims is based on the validity of the arguments that support them rather than on rethorics or power relations.

Moreover, dialogism has also roots in the Chinese tradition. The Analects, one of Confucius (2019) classic works, gathers that one should never *'feel embarrassed to ask and learn from lesser people* (5.15)' (in Chinese: *Bu Chi Xia Wen*) or, in a similar vein, that *'When three people walk together, there must be one person who is a teacher* (7.22)' (in Chinese: *San Ren Xing, Bi You Wo Shi Yan*). These ancient teachings highlight how all

individuals are capable of making sense about the world around them and transmit that knowledge to others. Because of life experiences, each individual's ways and methods of learning and understanding are different. This implies that taking as many different perspectives into account as possible contributes to unveiling new insights of the issue under study. Similarly, the "Book of Documents" (Chinese: *Shu Jing/ Shang Shu*) (Anonymous, 2009), which is the earliest compilation of historical documents in China (Shen & Qian, 2019), highlights that *'someone who likes to ask, will have ample knowledge, but if someone only relies on himself instead of communicating with others, his knowledge will be shallow'* (Chinese: *Hao Wen Ze Yu, Zi Yong Ze Xiao*). Thus, the idea of the intersubjective construction of knowledge was already present in ancient China, were intellectuals following the Confucian teachings understood how a deeper understanding of the world can only be reached in interaction with others.

In line with the dialogic turn of societies (Giddens, Beck & Lash, 1994; Habermas, 1987), this tradition shifts the focus from positions of power - those from lesser positions ought to learn from those in higher stands- to the acknowledgement that everyone has something to contribute and everyone can become a teacher as every person has cultural intelligence (Flecha, 2000). In this context, dialogue becomes the tool to build collective meanings that go beyond the addition of individual understandings. Indeed, communicative interactions allow for intersubjective constructions of knowledge in which the contributions of the participants are collectively shared, contrasted and reformulated into new knowledge that could not have been reached outside of the debate (Flecha, 2000). Han Yu, an important Confucian intellectual who influenced later generations of Confucian thinkers and Confucian philosophy (Shen & Shun, 2008), listed the positive and negative examples in his argumentative writing "Shi shuo". He emphasized that having a dialogue with the teacher was necessary to achieve the purpose of learning and he highlighted that regardless of the status, the age or the location the truth exists where teaching exists, thus acknowledging the potential of any individual to be both teacher and student in communicative interactions.

In the history of China, one of the most flourishing period of schools and thoughts was during the Spring and Autumn period (770 BC - 476 BC) and the Warring States period (475 BC - 221 BC) of ancient China (Tan, 2012). This time is known as the period of "Hundred Schools of Thought". In its context, the place that promoted the prosperity of different ideas and provided an equal and free dialogue environment was the Academy of the Gate of Chi (Chinese: *Jixia Xue Gong*) which almost simultaneously emerged with the Plato Academy in Greece (Needham & Ling, 1956). The Academy of the Gate of Chi gathered several philosophical schools such as Confucianism, Taoism, Mohist, Legalist, Logicians, all of which have been active in promoting the principles of free debate, mutual absorption, integration and development (Zhang, 2009; Zhao & Chen, 2019). In short, the dialogic approach present in ancient Chinese culture and school reached its peak in that period and it still has a wide impact in China today.

Communicative Methodology and Dialogic Construction of Knowledge

Now, recent changes in all sciences create possibilities for contributing from research to the development of more dialogic societies. Among these, one can find the communicative methodology, its relationship with the concept of co-creation - or dialogic creation of knowledge - and how that process contributes to the advancement of dialogic democracies. As well, the orientation towards social impact and its evaluation in scientific research programs are also discussed as a step forward in this democratic advance of society.

Communicative methodology of research involves in every step of research the people or the communities which are the focus of the study. Following this approach, both researchers and research subjects are invited to participate in an egalitarian dialogue; the former provide the expert knowledge and science-based evidence, will the latter provide their experience and their understanding of the context under study. Thus, communicative methodology seeks and promotes an active participation of citizens in science, including that of those vulnerable groups and minorities which are often excluded from scientific research. This approach has a twofold benefit: on the one hand, it provides tailored evidence-based

solutions that scientists on their own would not have been able to find. On the other hand, it actively engages citizens in the improvement and transformation of their social realities (Gómez, Padrós, Ríos, Mara & Pukepuke, 2019).

Almost two decades after it was first applied, Communicative Methodology has allowed to unveil evidence of transformative and exclusionary practices and elements for the contexts under research, allowing to foster the former and to overcome the latter; informing, in turn, citizens, scientists and policies that then incorporate the generated knowledge to improve people's lives (Valls & Padrós, 2011).

Indeed the fundamental postulates of Communicative Methodology include: language and action as inherent and universal attributes of all human beings; all individuals' capacity of agency and social transformation; the use of language based on communicative rationality to reach understanding, the consideration of lay people's common sense as valid knowledge, the abolition of the interpretative hierarchy based on power relations in favor of egalitarian interpretations, the creation of spaces that guarantee the equal epistemological level of all participants and the understanding of the dialogic nature of knowledge, as a result of intersubjective interactions.

Thus, unlike in ethnographies, participant research or action research (to name a few), the main objective of communicative methodology of research is the dialogue set between the accumulated knowledge in the scientific community and the experience lived from everyday life. Therefore, communicative methodology does not intend to collect the voices of the people being researched, but to dialogue with them in an egalitarian basis. Following this idea, the researcher does not participate in the researched context as if he were an equal, but, being aware of his position of power, he or she establishes the basis for an egalitarian dialogue (in the sense of Habermas, 1987).

The analysis of the communicative acts in the research process shows us how there are power interactions, from the fieldwork to the creation of advisory bodies with representatives of the citizens that are the target of that investigation. Only through the acknowledgement of their existence, these power relationships can be overcome, while, at the same time, the dialogic

communicative acts between researchers and researched subjects can be achieved (Sordé & Ojala, 2010).

Co-creation, Impact and Dialogic Democracy

Encouraging people to engage and participate in science is a practice that falls far in time. Before the emergence in the 19th century of science as a discipline there are some accounts of amateur scientists engaging non-experts in the collection of data around natural history observations (Miller-Rushing, Primack & Bonney, 2012). This type of participation allowed for the building of key collections of animals, plants and minerals, among others, and highly contributed to the advancement of the scientific fields that promoted these practices (Miller-Rushing et al., 2012). In fact, this kind of contributions not only continued with the professionalization of science but also got progressively perfected, providing researchers with extensive amounts of datasets that would otherwise have been impossible to gather through with only the involvement of scientists. Moreover, technological advancements and the development of the Internet and connected devices deeply boosted this collaboration, both in terms of citizens involved and data collected (Bonney, Phillips, Ballard & Enck, 2016). For instance, in medicine (Chrisinger & King, 2018), citizens can now participate in science through monitoring their well-being through the use of modern apps or through the promotion of healthier habits (Chrisinger et al., 2018). However, these kinds of collaborations follow the same style as in the 1900s, where citizens carried out fieldwork, merely observing, taking pictures and counting.

Thus, citizen participation in science needed to be reviewed in order to ensure that the voices of research subjects were included and taken into account in every step of research. This meant actively engaging citizens in finding solutions to their own problems and ensuring to a larger extent the social impact of the outcomes of scientific research. In this context, the concept of co-creation re-emerged with the aim to give citizens the spot they deserve in scientific research, not as passive providers of data, but as active agents in the creation of scientific knowledge.

However, and once again, this idea is not exclusively a Western development. In ancient China, the participation of different schools of thought in the period of "Hundred Schools of Thought" had and effect not only at the time where the knowledge developments were taking place, but also in contemporary China. The impact is not only at an intellectual level, but also at a social one. Gu Yanwu (2017), who follows the ideology of Confucianism emphasizes the responsibility of all citizens to construct a better society. The author states the difference between "Desperate country" (Wang Guo) and "Desperate society" (Wang Tian Xia) and he also emphasizes the consistency of the individual and society, understanding society as the enlargement of the family. In *Ri Zhi Lu*, he suggests the idea that the 'rise and fall of a society rests with every one of its citizens' (Chinese: *Tian Xia Xing Wang, Pi Fu You Ze*). Therefore, any citizen has the inherent capacity to contribute to the improvement of the society in which he or she lives. These ideas are linked to the concept of co-creation.

Co-creation refers to the participation of citizens in the creation of scientific knowledge together with those who work professionally in this task. The first example of scientific research with social impact based on co-creation principles within the European Framework of research is that of WORKALÓ (WORKALO Consortium, 2001-2004) . WORKALO was an FP5 research project, coordinated by CREA, which incorporated in all phases of research the participation of subjects traditionally excluded from the scientific community and debates, as the Roma community. In one of the training seminars organized within its framework, Professor Michele Wieviorka was presenting his concept of mixed identities. He explained how people whose families shared different origins experienced different identity fractions. According to the professor, someone who had different or shared different origins from the country in which he or she lived could feel, for instance 50% Algerian and 50% French. In that same seminar, attended by citizens of different cultural groups, a young Roma woman raise her hand to intervene in a forum with scholars and other stakeholders and told him 'I do not agree with your statement because I am Roma and French and I do not feel 50% Roma and 50% French, but 100% Roma and also 100% French'. To this intervention, the sociologist replied, 'I will have to check my concept'. When research and the subsequent process of knowledge

production follow these dialogic processes, sociological theory contributes to social improvements that impact citizens and the societies involved. Thanks to this process, non-academic Roma people made key contributions to the WORKALO research project, the results of which were approved by the European Parliament in 2005 and by other parliaments of member states that have made possible concrete policies and programs that have led to direct improvements in the life of Roma people.

Co-creation became already a keyword in *Horizon 2020* and it is now at the very core of the Horizon Europe framework programme, informed on social theory. Indeed, in *Horizon Europe*, one further step is taken, since citizen participation is considered an essential part of social impact. Hence, this participation becomes evaluable and decisive for the approval of projects *ex-ante*, as well as *in-itinere* and *ex-post*. In fact, placing social impact at the core of research puts us on the path to a transformative relationship between science and society based on the improvement of society through the results and findings of research projects. This brings up a new scenario in which sociology and especially social theory, become particularly relevant and necessary. However, there is a part of sociological theory that does not agree with that process and will continue to make contributions to the social sciences and society from other perspectives. But there is also another part of sociological theories that not only addresses that challenge but is already co-directing the current transformations of all sciences and their consequences for the transformations of society.

The European Commission has decided to guide its new research framework program, Horizon Europe, following the document "Monitoring the impact of EU Framework Programs" (van den Besselaar, Flecha, & Radauer, 2018) in which the foundations on how to collect scientific, economic, political and societal impacts in science are laid. The pathway impact indicators highlight the path to the UN sustainable development goals - global goals for all citizens - and the path for citizens to be able to benefit from the knowledge created and research results. This social impact is achieved in the short, medium and long term. The short-term refers to the process of co-creation of knowledge with citizens; the medium-term to the use that citizens make of that knowledge beyond the research project, and the long-term, to the appropriation of knowledge and social improvements

experienced by the citizens themselves. The sociological theory that is linked to this dialogic co-production of knowledge based on a communicative approach is already in line with what is now a priority in Europe, as well as in advanced sciences in general.

The orientation of research towards social impact is part of the transformation of science within the framework of societies that want to be increasingly more democratic. Indeed, a new wave is now democratizing the scientific system with the concepts of "open access" and "open science" - including FAIR principles (findable, accessible, interoperable and reusable) that alludes with a pun to what is 'just' for science and humanity. There are top-level scientific journals such as PLoS that in two weeks can make a scientific discovery available not only to colleagues in their discipline, but to all citizens. Movements such as scientific literacy (which are not new, but now recovered) or the "march for science", are realities that indicate that citizens want to know and want to participate when they see that science improves their lives.

However, these advancements rely in many cases on ancient practices and classic social theory contributions. For instance, Sen (2005) explains that in the introduction of the first ever printed book with a date, an 868 Chinese translation of a Sanskrit text (Dimond Sutra, 402 CE), it could already be read that the book could be freely distributed. Also, as mentioned above, one of the essences of the Confucian learning methods is communicative interaction. In this vein, learning and the development of knowledge and though highly depend on dialogue with intellectuals as well as with lay people.

More recently, in the nineteenth century Weber stated that social theory is necessary to orient social research. Weber's (2004) *Ethics of Responsibility* is a highly relevant concept when considering social impact. This concept gives us a key to orient our work since it reminds us that is not the means we use in our research what matters most but is the results it produces. As well, the science system that Merton (1968) studied, with its functions and dysfunctions, has undoubtedly been an advance at the service of humanity, surpassing what was once sacred, opaque or incomprehensible to the majority and in the service of a few. Moreover, Merton's (1968) *Ethos of science* is behind current scientific advancements such as the open access

movement or the emergence of repositories such as the Social Impact Open Repository - SIOR, the first scientific repository in which research projects with social impact are indexed. Merton's contributions also remind us that even if technocrats want to narrow the approach to social impact to rankings and indicators, what it is truly necessary is to return to theoretical contributions and build from those, on the shoulders of giants.

Nevertheless, the contributions of social research to social impact have not only been top-down, from theory to practice, but also bottom-up. An example of this is that of *Real Utopias*, conceptualized by Erik Olin Wright (2011). Following this idea, social theory can provide the keys to understand the conditions under which these realities emerge, so they can be replicated and transferred to other contexts. An example of how this emancipatory social sciences approach can be applied to research is that of the research project SOLIDUS (Solidus Consortium, 2015-2018). In this case, theory and a rigorous methodological design allowed for the identification of the indicators of transformative solidarity actions through the case study of solidarity actions in Europe.

Another case of bottom-up contribution to social impact from social theory is Burawoy's public sociology, aforementioned. This sociological approach, directed at providing answers for social needs, has succeeded at making sociologist aware of the need to consider societal concerns and provide an explanation from research. This contributes to the creation of new knowledge around SSH that emerges directly from societal problematics as an answer to those problematics. An example of these are all the research within the field of sociology that are being produced in order to give an explanation to the social determinants around cases of gender based violence, for instance, or the focus on the UN's SDG.

Collective Contributions to Theory and Democracy

Today the creation of knowledge, in all disciplines, is not understood without collaborative teamwork, without collaboration with the other colleagues who are on those same issues around the world based on open knowledge. But moreover, nowadays the demand is focused on the collaborative work of social theorists and scientists in dialogue with citizens,

establishing co-creation processes that have the potential to transform social realities or which are already doing it.

Creating knowledge nowadays in any scientific discipline is more than ever the result of interaction, of different scientists from also different disciplines, providing their knowledge, but also creating new one, through their cooperation. Knowledge has become more open and free and anyone can add onto others' developments through different means for the sake of scientific progress. There are many initiatives based on an open dialogue meant to improve science and also our lives such as the Wikipedia dynamic process of knowledge creation and improvement, or the European Union's public consultations on a wide array of topics. All these initiatives aim at responding to citizen's expressed needs (Consultations, 2019).

Interaction and cooperation have always improved knowledge, although the current moment is the best one in history in terms of increased contexts of interaction that facilitate this progress. What is now facilitated through online open dialogue and collective creation of knowledge, was once extraordinary. In a seminar with Ulrich Beck, a bachelor student alerted him that he was saying just the opposite of what his own book said. When he replied inquiring about the reasons why she said that, she indicated the specific page where he had written it. Instead of getting angry, he exclaimed: '*Where is the miracle?*'. The student had read all of his books and was also part of a Seminar With the Book in Hand where researchers from different disciplines, academic categories and professions, read the main works of social sciences and other sciences (eg Weber's *Economy and Society*, Adam Smith's *Wealth of Nations*, Sen's *Idea of Justice*, Kandel's *Principles of Neuroscience*, Einstein's *Evolution of Physics*, etc.) debating from specific paragraphs.

Habermas has made great contributions to sociological theory that have been key pieces and especially in the face of the postmodern and neoliberal offensive of the eighties of the twentieth century, have been key pieces. But working individually has increasing limits in current societies. In this seminar, reading and debating the Theory of Communicative Action and the Speech Acts of Searle, we discovered that Habermas had not understood the Searle's contributions to the theory of speech acts and only partially understood the contributions of the creation of this theory, Austin. Later, we

had the opportunity to have long and profound talks with Searle. He criticized Habermas for writing a lot about his theory and the theory of his professor and friend Austin without understanding both and making simple mistakes. The same happens, among others, with the theory of Parsons. One member of CREA had the opportunity to talk with Merton about the mistaken analysis. Habermas knows very well several books of Parsons but not at all the last ones, the ones in with develop his idea of societal community. This lack made Habermas to get angry with Parsons theory, abandon his contribution of societal community and replace it by one of the worst concepts elaborated by Habermas: the patriotism of constitution.

If even the best present sociological theorist has this kind of errors, which ones could make the others if we insist on working individually? The future of sociological theory and its contribution to society is promising because an increasing number of young theorists are already working collectively. We are aware that one of us cannot read seriously and profoundly all the books and papers that need to be taken into account in order to elaborate a real social theory. Besides, we are working closer to researchers from other sciences where is very common the collective work; papers from some sciences are signed by many authors, while in social sciences still most of them are signed individually.

The Seminar *With the Book in Hand* has been one of the main sources of theoretical and social creation of the research community mentioned in this paper. It involves both professors and undergraduate students as well as people outside the university. The only requirement is that to speak you have to reference the page which your idea comes from. This principle of equality, which is in the line of open science and the democratization of science, has made the contributions to the debate much richer. As mentioned before, great intellectuals, like Habermas, however much he has read, cannot cover everything. However, a working team, with people from very different disciplines, occupations, experiences, cultural backgrounds, religions, political options, sexualities, interests, working in a dialogical way can create much more.

Conclusions

In this paper we have argued that the dialogic approach has long been present in both Eastern and Western societies. Intellectuals from both traditions have widely pointed at the capacity of humans to learn from one another, beyond status, educational level or age, and to collectively build their understanding of the world. More recently, modern societies have started to experience a dialogic turn that incorporates these traditional ideas in an attempt to further improve democratic societies. In this context, more and more citizens, including those belonging to vulnerable groups, are demanding the inclusion of their voices in different fields, so their experience and viewpoints are also taken into account in the seeking of solutions to overcome the social challenges of our era. This turn is visible in scientific research, where scientists are more and more demanded to plan for the social impact of their research and to gather evidence of the extent to which that impact was achieved. In this scenario, methodologies such as the communicative methodology of research, become increasingly relevant, since they promote the inclusion of all voices and the co-creation of scientific knowledge which citizens as a means to improve both science and society. Drawing on this methodological approach, citizens not only contribute their knowledge at every step of the research but become agents of social transformation. Social sciences were born with democracies, so that citizens would have the necessary knowledge to rule over themselves. Through the principle of co-creation and with scientific impact at the very core of its design, scientific research is serving citizens more than ever, with social sciences leading the shift.

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3. False news around COVID-19 circulated less on Sina Weibo than on Twitter. How to overcome false information?

3.1 Presentation

Facilitating access to scientific evidence in relevant societal issues is a means to counter disinformation and therefore change citizens' opinion in matters of concern.

De Botton, L. et. al —Scientifically Informed Solidarity: Changing Anti-Immigrant Prejudice About Universal Access to Health

The exponential growth and ubiquity of Internet platforms, particularly social media, have revolutionized the way information is disseminated globally. Platforms such as X (formerly known as Twitter) and its Chinese counterpart, Sina Weibo, have become formidable presences in this digital era. With user bases of over 368 million and 593 million monthly active users respectively (Statista, 2022; 2023), they play a pivotal role in science communication (Gierth and Bromme, 2020). However, this vast reach also brings the risk of spreading rumors and unreliable information (Cinelli et al., 2020).

The power of social media lies in its immediacy and extensive reach, which can significantly amplify content impact. Accurate scientific information, when shared on these platforms, can rapidly educate the public on vital issues ranging from health to environmental concerns. On the flip side, the spread of misinformation or "fake news" on social media can

have detrimental consequences (Barua et al., 2020; Paul and Yesmin, 2023). This phenomenon was evident in a study by Vosoughi et al. (2018), showing that on Twitter, falsehoods tend to be spread more extensively, rapidly, and deeply than truthful information, commanding a 70% higher likelihood of being retweeted. This trend persisted even when accounting for factors like account age, activity level, and follower counts. Moreover, misinformation tends to be marked by originality, attracting more attention than established facts (Vosoughi et al., 2018).

The early phase of the COVID-19 pandemic, beginning in 2020, highlighted the critical importance of accurately and promptly disseminating scientific evidence. During this nascent and confusing period, the swift sharing of research findings via social media was crucial for guiding public health measures and informing the public. Nevertheless, these platforms were also inundated with misinformation, from unfounded conspiracy theories about the virus's origins to incorrect prevention methods. The World Health Organization referred to this deluge of misleading information as an "infodemic" (Zarocostas, 2020).

This chapter presents the article "*False news around COVID-19 circulated less on Sina Weibo than on Twitter: How to overcome false information?*" The article delves into the dynamics of false information and science-based information on Twitter and Sina Weibo during the crucial early days of the pandemic. Focusing on the dates of February 6th and 7th, 2020, it examines how these platforms managed the dissemination of information amid the outbreak. This study aligns with the specific objective of investigating the spread of accurate scientific information on social media during the pandemic, as outlined in this thesis. It

underscores the paramount importance of fostering scientific literacy among the general

populace, a key factor in preventing the spread of misinformation and building an informed

society.

This article was published as Online First in April 2020 and holds the distinction of being co-

authored in a journal indexed in SCOPUS Q1, 2022.

3.2 Manuscript

False News Around COVID-19 Circulated Less On Sina Weibo Than On Twitter. How To Overcome False Information?

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PLEASE SCROLL DOWN FOR ARTICLE

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Untold False News Around COVID-19 Circulated Less On Sina Weibo Than On Twitter. How To Overcome False Information?

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Abstract

Since the Coronavirus health emergency was declared, many are the fake news that have circulated around this topic, including rumors, conspiracy theories and myths. According to the World Economic Forum, fake news is one of the threats in today's societies, since this type of information circulates fast and is often inaccurate and misleading. Moreover, fake-news are far more shared than evidence-based news among social media users and thus, this can potentially lead to decisions that do not consider the individual's best interest. Drawing from this evidence, the present study aims at comparing the type of tweets and Sina Weibo posts regarding COVID-19 that contain either false or scientific veracious information from February 6 and 7 of 2020. To that end 1923 messages from each social media were retrieved, classified and compared. Results from this analysis show that there is more false news published and shared on Twitter than in Sina Weibo, at the same time science-based evidence is more shared on Twitter than in Weibo but less than false news. This stresses the need to find effective practices to limit the circulation of false information.

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Las Noticias Falsas Sobre COVID-19 Circularon Menos En Sina Weibo Que En Twitter. ¿Cómo Superar La Información Falsa ?

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Resumen

Desde que se declaró la emergencia de salud de Coronavirus, muchas son las noticias falsas que han circulado sobre este tema, incluidos rumores, teorías de conspiración y mitos. Según el Foro Económico Mundial, las noticias falsas son una de las amenazas en las sociedades actuales, ya que este tipo de información circula rápidamente y a menudo es inexacta y engañosa. Además, las informaciones falsas se comparten más que las informaciones basadas en evidencia entre los usuarios de las redes sociales y, por lo tanto, esto puede conducir a decisiones que no consideran el mejor interés del individuo. A partir de esta evidencia, el presente estudio tiene como objetivo comparar el tipo de tweets y publicaciones de Sina Weibo con respecto a COVID-19 que contienen información veraz falsa o científica durante el período del 6 y 7 de febrero de 2020. Para ese fin, se recuperaron 1923 mensajes de cada red social, clasificados y comparados. Los resultados de este análisis muestran que hay más noticias falsas publicadas y compartidas en Twitter que en Sina Weibo, al mismo tiempo, la evidencia basada en la ciencia se comparte más en Twitter que en Weibo, pero menos que las noticias falsas. Esto enfatiza la necesidad de encontrar prácticas efectivas para limitar la circulación de información falsa.

Palabras clave: información falsa, información basada en evidencias científicas, impacto social, redes sociales, COVID-19

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Recently, attention has risen on the COVID-19 health emergency. On December 31, 2019, the first case of the disease was reported in Wuhan, China. On April 9th, more than four months later, there are 1436198 confirmed cases worldwide, with over 170 affected countries from all continents, except from Antarctica (World Health Organization, 2020a). Due to its rapid worldwide spread and affectation, on March 11th, 2020, the World Health Organization labelled the situation as of "pandemic" (World Health Organization, 2020b). However, beyond the health emergency, the World Health Organization (WHO) also flagged the existence of an *Infodemic* (World Health Organization, 2020c), due to the large amount of information being produced and shared on this topic and the difficulty to sort truth from falsehood. Even if the diffusion of false information is not something new, it certainly is an increasing phenomenon worldwide (Vosoughi, Roy & Aral, 2018). Being exposed to falsehood increases the likelihood of individuals to believe the information they encounter (Del Vicario et al., 2016).

For this reason, the circulation of false information has become a social threat. Indeed, the World Economic Forum made such a remark in 2013 in a report entitled "Digital wildfires in a hyperconnected world" (Howel, 2013). This fact is of special concern when false information refers to health since the behavior of misinformed citizens, practitioners or public leaders can have severe consequences for public health (Scheufele & Krause, 2019). In this scenario, the present paper aims at exploring and comparing how false information and science-based information circulated on Twitter and Sinia Weibo, two social media platforms, over a two-day period during the coronavirus disease outbreak, specifically 6 and 7 February of 2020.

Twitter is an international network with 152 million daily active users worldwide (Clement, 2020). It is most popular in the United States, where it counts on 59.35 million users as of January 2020, followed by Japan and the United Kingdom (Clement, 2020). In China, Iran, and North Korea the platform has been blocked by the government (Wikipedia contributors, 2020). On Twitter, 140-character messages, called Tweets, are shared, and users can post messages (Tweet) and repost (Retweet) or like (Like). Users can keep track of the posts of others (follow) and are tracked by other users (followers). They can register with their real names or with nicknames.

These features make this network highly interactive and allow rapid and broad dissemination of information.

Sinia Weibo is the one biggest social media platform in China similar to Twitter, although it now has many other functionalities found in other social networks, such as Instagram or Reddit, and no longer has the 140-character limit (Statista Research Department, 2019). In mid-2019, the platform reached over 480 million monthly active users and it has been estimated that, in 2018, 42.3% of Chinese Internet users were present on this platform (Statista Research Department, 2019). More specifically, most users of Weibo are located in China, even though the platform is now available in some other countries. Users in Sina Weibo need to use their real names due to government requests. The social network is also under strict government surveillance and censorship (Zhu et al., 2013). Both Twitter and Sina Weibo are popularly used to share novel information online, allowing users both to access and disseminate their content of choice.

However, even if the Internet has democratized access to knowledge, contributing to the "demonopolization of the expert knowledge" (Giddens, Beck & Lash, 1994), the diffusion of false information is a challenge to democratic values (Allcott, Gentzkow & Yu, 2019). In our modern societies, social media, blogs, and other online sites have become one of the main platforms for the fabrication and diffusion of false information (Lazer et al., 2018). Internet platforms lack the conventional forms of quality assessment and reliability (Lewandowsky et al., 2012), so in these online contexts false information, including myths, hoaxes and fake news (i.e. fabricated news that do not respond to reality (Lazer et al., 2018)), circulate more freely and often uncontested. Research has shown that people tend to accept without questioning ideas and information that are in accordance with their system of beliefs (Lazer et al., 2018). Indeed, individuals tend to have a preference for this kind of information (Lewandowsky et al., 2012), while ignoring or rejecting other inputs that question it (Lazer et al., 2018). Thus, when individuals and institutions base their choices and actions on information that is false, these can backfire and turn against their best interest (Merino, 2014). In addition, social media do not only influence our relationship with news and informative content but also with relevant others (Lazer et al., 2018). Media users often get together by interest, which fosters

"confirmation bias, segregation, and polarization" (Del Vicario et al., 2016, p. 558) and leads to an echo chamber effect (Shu et al., 2017).

Public relevant issues that trigger polarized opinions, such as the US presidential election (Bovet & Makse, 2019) or climate change (Farrell, McConnell & Brulle, 2019), have mobilized different sorts of misinformation. For instance, both beliefs in conspiracy theories and the need for cognitive closure (i.e. resistance to scrutiny of acquired beliefs before other evidence) have shown to play a key role in the diffusion of false information (Bessi et al., 2015). As well, the circulation of false information is often associated with novelty, time-critical events, and emergencies, due to the rising number of emerging issues in such events, and the difficulty to verify these against existing evidence-based knowledge (Shu et al., 2017). Indeed, false information is often more novel than true information and novelty is more likely to be retweeted than information which has circulated for a while (Vosoughi, Roy and Aral, 2018). Thus, the COVID-19 health emergency creates a favourable context for the flourishing of false information.

Regarding the circulation of scientific vs. conspiracy-based information, a study showed that polarized consumers of conspiracy content then tend to consult information that agrees with their system of beliefs and are more likely to share such conspiracy content (Bessi et al., 2015). Conversely, consumers of science-based information are less likely to share such content and more likely to comment on conspiracy theories to debunk them. Similarly, other research which focused on the dissemination of information online found that science news is disseminated in a higher degree and more quickly, but that a longer lifetime does not correlate with the interest such content attracts. Conversely, conspiracy content takes longer to be disseminated, but there is a correlation, in this case, between lifetime and attired interest (Del Vicario et al., 2016). However, these two studies were conducted on Facebook, and the trends on Twitter seem to be different. A research which investigated how true, false, and mixed (i.e. information containing veracious and false facts) diffused on Twitter, from its inception to 2017, found that false information had circulated "significantly farther, faster, deeper, and more broadly than the truth in all categories of information" (Vosoughi, Roy and Aral, 2018). Indeed, such information had

reached a greater number of unique users and had been 70% more likely to be retweeted than the truth (Vosoughi, Roy and Aral, 2018).

Nevertheless, the circulation of information during health emergencies seems to present a different trend. A research (Fung et al., 2016) that analyzed the circulation of misinformation on Twitter and Sina Weibo during the Ebola crisis in 2014–2015 found that only 2% of posts on Twitter and Sina Weibo contained Ebola-related misinformation. Indeed, most posts contained information related to news (36%–58% of the posts) and science-based health information (19%–24% of the posts). Nevertheless, Fung and colleagues (2016) specifically highlighted the fact that China's Internet market is government-controlled as an explanation to why posts related to misinformation were scarce among Sina Weibo posts, while these were freely distributed on Twitter. They also alleged Twitter's diversity of topics of discussion to this same reason.

Considering the difference between both networks, and the infodemic situation flagged by WHO, the present paper aims at shedding new light on the circulation of fake-news and science-based information in these two social media platforms, Twitter & Sina Weibo. This will allow unveiling the trends in the production and sharing of both types of information in the event of a health emergency. It will also open up the discussion on how each platform set up mechanisms to limit the circulation of fake information and fostering the spread of evidence-based information.

The research questions that oriented this research are; RQ1 What percentage of tweets and Weibo posts contain false news? What percentage of retweets and Weibo reposts do these get? RQ2 What percentage of tweets are based on scientific base evidence? What percentage of retweets and Weibo reposts do these get?

Method

The methodology used is social media analysis under the Communicative Content Analysis (Pulido et al., in press), through which is based on dialogic co-creation of knowledge between researchers and citizens. That way researchers offer the scientific evidence currently. This methodology is aligned with the demand of European Programs of UE, through which this

dialogue between science and citizenship is requested (Redondo-Sama et al., 2020). This methodology is based on the contributions of the Communicative Methodology that is addressed to identify exclusionary and transformative dimensions of the research topic selected.

Data Collection

To develop this study, the first step was to select the sample of social media data to analyze. The selection is composed by the following criteria:

Criterion 1. The first criterion was to select a social media source from Western countries (Twitter) and one from China (Weibo). Both are social media where information about COVID-19 is constantly being posted and shared.

Criterion 2. Selection of the keyword. In this case, we have selected the keyword "coronavirus" for searching tweets and Weibo posts and capturing those messages. At the time of retrieval, the disease was commonly called "coronavirus" or "novel coronavirus" and the term "COVID-19" had not yet been created by WHO.

Criterion 3. The period in which tweets and Weibo posts were published. We have selected tweets and Weibo posts published on February 6th and 7th, 2020. The seventh of February coincides with the death day of Dr. Li Wenliang at Wuhan Central Hospital.

Criterion 4. Software used. The extraction of the messages from the two social media selected (Twitter and Weibo) has been carried out through Python programming language, promoted by non-profit corporation Python Software Foundation (PSF). This python software extracts information from social media through the application programming interface (API).

Criterion 5. Selection number of messages. Given the limited information on Weibo, we extracted the information offered by this social media. More precisely, it was 957 posts on February 6th and 966 posts on February 7th. Then, we extracted the tweets published on those two days choosing the same amount of Weibo posts starting with the last published tweets of the corresponding day.

The total amount of tweets and Weibo posts is 3,846, specifically, 1,923 Weibo posts and 1,923 tweets. This sample was processed through an Excel sheet.

Ethical Requirements

The collection of data during the COVID-19 outbreak was approved and supervised by the ethics committee of the research centre to which the authors belong. This committee has a long and wide experience on ethical evaluation for international top research projects, publications and universities. Only data publicly shared online was the focus of the data collection, and the data set made available has been fully anonymized to prevent the identification of the author of a specific message, as explained under the "data availability" section.

Dialogic Codebook

The dialogic codebook was defined by researchers who are experts in social media data and the detection of false information and evidence-based tweets. Moreover, the research team is also composed by diverse scientists, both western and Chinese, which guarantees intercultural dialogue and the correct understanding of the messages published in Weibo.

The unit of the analysis includes the text and the information provided in the link if it is included in the tweet or Weibo post. The elaboration of the codebook was dialogic, combining predefined categories with those categories that emerged during the analysis. The categories used were those of a previous study (Pulido et al., in press): 1) *False news*, 2) *Science-based evidenc*e, 3) *Fact-checking tweets* and 4) *Mixed Information*, 5) *Facts*, 6) *Other*, 7) *Not valid*. But a new category emerged in this study 8) *Emerging science*, since we detected messages that contained information of studies under development, but that had not yet been published in scientific journals. This new category – emerging science allows to detect what are the new evidence founded in primary stages of the research to be updated of the new advances to overcome COVID-19. Meantime the scientific journals are

doing a great effort to publish quickly the new knowledge aimed to accelerate the discoveries.

Table 1.
Dialogic codebook

N	Category	Description
1	False news	Tweets or Weibo posts containing false information, including rumours, conspiracy ideas, myths, hoaxes, etc., that are false and have a negative impact in the public sphere.
2	Science-based evidence	Tweets or Weibo posts containing science-based information ensuring the content's reliability. This content is checked with evidence published in scientific sources such as international scientific journals.
3	Fact-checking tweets/Weibo posts	Tweets or Weibo posts containing veracious information aimed at debunking false information. These messages aimed to reply false information published and overcome it.
4	Mixed	Tweets or Weibo posts containing information that is partially true and partially false, The same message combines some facts with false information but aimed to confuse and not to show the true information.
5	Facts	Tweets or Weibo posts containing facts contrasted with reliable information sources.
6	Other	Tweets or Weibo posts mainly containing opinions (some of them are solidarity expressions, other racists' messages, etc), jokes or unrelated information. All the messages that did not belong in the previous categories were classified in this one.
7	Not Valid	Tweets or Weibo posts in which is not possible to verify if the information is true or false are valid for the analysis. Only those that could be checked were included in the final sample for elaborating the results.
8	Emerging science	Tweets or Weibo posts referring to research being carried out by expert institutions but not yet published on scientific journals. Although the communication of the primary results are done with scientific approach.

In-depth Dialogic Data Analysis

The team of researchers responsible for analyzing the messages of the two social media was composed of a Chinese person and European researchers with knowledge about fact-checking and science-based evidence. Two people have maintained a constant dialogue to confirm or not a category of analysis for each of the publications. This multicultural and multidisciplinary team thus secured one of the barriers of Weibo (Zhu et al., 2013). Researchers checked all the messages (tweets and Weibo posts), comparing them with their original publications. For this verification, the whole unit of analysis was analyzed (including text, link information, and audio-visual content if it is). In order to check each of the publications, researchers used various fact-checking programs such as Fake News Detector, Maldito Bulo, Google Image, Tineye and/or InVID. In addition, researchers consulted reliable original sources, scientific articles, publications of the WHO website. After being checked, each of the posts was categorized. Subsequently, a second review was done to correct any mistakes. For instance, an example of fact is those messages that contain the official numbers of people infected by COVID-19 provided by WHO, an example of mixed is those messages that combine numbers of cases of flu victims with a real number but integrating false information about the victims of COVID-19 aimed to show that it is no so bad this new virus, and example of fake new for instance are information published as true under conspiracy approach without evidence.

Once all tweets from the dataset we analyzed, we elaborated the quantitative and qualitative evidence found. The analysis of results combined both, under the communicative methodology analysis, which allows detecting transformative and exclusionary dimensions. In this study, the transformative dimension includes all the tweets and Weibo posts that contain true information (science-based evidence, fact-checking tweets/Weibo posts, facts and emerging science) and the exclusionary dimension refers to tweets and Weibo posts that contain false information, as well as mixed information.

Dialogic Reliability

The dialogic reliability consists in a dialogue among researchers based on scientific evidence and facts for contrasting the information selected in the sample. The in-depth dialogic analysis also includes the cultural dimension in the verification process of the retrieved information. The tweets or Weibo posts that could be contrasted directly were coded as "not valid" for the final analysis.

Results

The 3846 messages (tweets and Weibo posts) extracted were classified in the eight categories defined; False news (1), Science-based evidence (2), Fact-checking (3), Mixed (4), Facts (5), Other (6), Not Valid (7) and Emerging Science (8), as displayed in Table 1.

Regarding extracted posts, on Weibo, the majority belonged under the category of "Facts" (20.54%), followed by "Mixed" (5.04%), "False News" (3.69%), "Science based evidence" (2.13%), "Fact Checking" (1.66%) and "Emerging evidence" (1.30%). On Twitter, most posts belonged under the category of "Facts" (27.20%), followed by "False news" (9.20%), "Science based evidence" (3.85%), "Mixed" (1.51%), "Fact Checking" (0.99%) and "Emerging evidence" (0.05%).

Regarding shared messages from the dataset, those which were more shared in Weibo were coded as "Mixed" (74.52%). This high result is due to the fact that one of the Mixed Weibo posts coded obtained 22,971 Weibo reposts. This was an infographic about 30 truths of COVID-19, containing information that is verified and true, together with other information that could not be contrasted. For this reason, it was coded as "mixed". The other most popular categories were "Facts" (12.84%), followed by "Fact-checking" (0.48%), "Science-based evidence" (0.31%), "False news" (0.09%) and "Emerging science" (0.06%).

Most shared posts retrieved from Twitter were coded as "False news" (52.31%), followed by "Science-based evidence" (20.77%), "Fact-checking" (9.74%), "Mixed" (7.18%), "Facts" (3.08%) and "Emerging evidence" (1.79%).

Table 2.
Frequency and percentage of retrieved messages (tweets and Weibo posts) and corresponding RT and WR*

		Weibo				Twitter			
		Weibo posts		Weibo repost		Tweets		Retweets	
Code	Name	Freq	Percent.	Freq.	Percent.	Freq	Percent.	Freq	Percent.
1	False news	71	3,69%	28	0,09%	177	9,20%	204	52,31%
2	Science-based evidence	41	2,13%	97	0,31%	74	3,85%	81	20,77%
3	Fact-checking	32	1,66%	148	0,48%	19	0,99%	38	9,74%
4	Mixed	97	5,04%	2310	74,52%	29	1,51%	28	7,18%
5	Facts	395	20,54%	3981	12,84%	523	27,20%	12	3,08%
6	Other	787	40,93%	1827	5,89%	784	40,77%	10	2,56%
7	Not valid	475	24,70%	1800	5,80%	316	16,43%	10	2,56%
8	Emerging evidence	25	1,30%	19	0,06%	1	0,05%	7	1,79%
	TOTAL	1923	100%	31009	100%	1923	100%	390	100%

* For the analysis, the categories of "not valid" and "other" were excluded.

For the obtained dataset, the following sections develop in detail the results obtained regarding the presence of false news and science-based

evidence in the two social media selected, as well as the comparison between them both.

False News Were Less Frequent and Less Shared On Weibo Than On Twitter

Regarding RQ1, in the analyzed sample, 9,20% of tweets were coded as false news, before 3.69% of Weibo posts. When we explored the number of retweets and Weibo reposts shared, the result were similar. There were more retweets of false-information on Twitter (52.31%) than Weibo reposts (0.09%) coded under this category. Figure 1 shows this comparison.
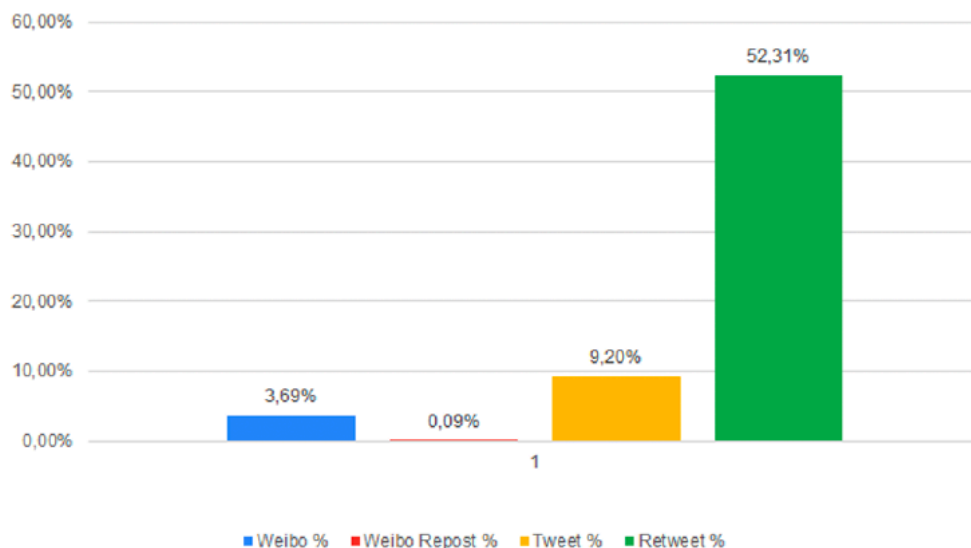
Figure 1. Comparison of false news in Weibo and Twitter

In the Weibo batch, posts that contained false news mainly referred to the reporting of effective medicines and treatments against COVID-19 (i.e. from drinking herbal tea, conventional flu vaccines, treatments to eliminate malignant free radicals). A biochemical war between China and the United States is also commented. In the Twitter batch, the main tweets coded as false news reported COVID-19 as a bioweapon, different medications and

actions to prevent or cure it (i.e. Lysol spray, the flu vaccine or HIV medications), the discrediting of official information through personal opinions and subjective theories, COVID-19 as a result of pharmaceutical interests, and false accounts of infection cases and cured individuals.

For instance, the tweet containing false information with more RT (119) did a false comparison between the conditions of the Wuhan hospital with the hospital conditions of the Spanish flu case in 1918 (through images), with the aim to say that both are unsanitary and worst numbers could be expected, taking into account the magnitude of the Spanish flu case, thus the false information is to say that conditions of Wuhan Hospitals were the same that Hospital during the Spanish flu case. This false information reinforces racist prejudices and not facts, which does not help citizens. Regarding the most reposted Weibo post containing falsehood (14 shares), it focused on spreading false information about the difference between COVID-19, flu and common cold, the information provided is not contrasted with evidence-based science. This leads to mistakes in the understanding of this new virus with potential negative consequences.

Science Based Evidence Was More Frequent And More Shared On Twitter Than On Weibo

Regarding RQ2, 3.85% of tweets in the Twitter batch contained science-based evidence, while 2,13% of Weibo posts were coded under this category. When we explored the number of retweets and Weibo reposts shared, the result was similar. 20,77% of retweets contained science-based information, whereas only 0.31% of the Weibo reposts shared such information. Figure 2 shows this comparison.

Users of both selected social media published messages coded as science-based evidence. However, we found 1.72% more messages with scientific publications on Twitter than on Weibo. We found messages linked to scientific articles indexed in international databases, press articles, and Audiovisual content that links to these scientific articles. Other information found linked to WHO reports, as well as scientific testimonials that share science evidence in press conferences.
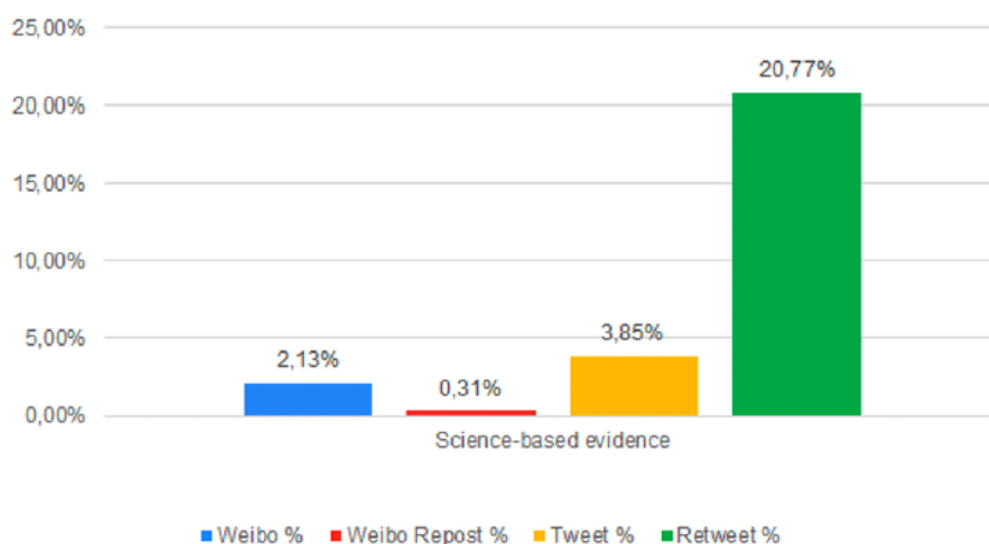
Figure 2. Comparison of science-based evidence in Weibo and Twitter

The evidence-based tweet with more RT (66) in the Twitter batch contained an infographic done by the Canadian government. This image included key prevention messages with scientific-based evidence in order "to protect yourself and others", highlighting the relevance to wash hands often; elbow sneeze; avoid touching eyes, mouth, nose with hands; cough in tissue and throw away; and avoiding contact with sick people. On Weibo, the most reposted science-based post (94) contained the scientific analysis of the disinfectants that are effective and a list of non-effective ones.

Discussion

The analysis of the results extracted from the selected sample on Twitter and Sina Weibo show some crucial differences and similarities concerning false news and science-based evidence published from their corresponding users. This comparison between the two social media platforms enables to reflect on new improvement measures to be taken by citizens, social media platforms, and the scientific community together for overcoming the circulation of false information.

A limitation in this study was the fact that, on Sina Weibo, messages are available at the Weibo web response, but the information on how the web response is sampled or ranked is not provided, as described in another article (Hu et al., 2020). For this reason, we decided to extract the same number of tweets than Weibo posts. We did not have the possibility to choose the most shared of the day, and we had to limit our sample to this availability. Regardless, the results analysed are an example of which type of information is published and shared in these two social media platforms, and of how results obtained for each platform compare to one another.

On the one hand, regarding to the exclusionary dimension some published tweets and Weibo posts contained false news concerning COVID-19. This result is in line with previous results on how false news is spread in social media (Howel, 2013). False news is present in social media platforms of democratic countries as well as social media platforms controlled by the government, and such is the case of China. However, it is observed that the Twitter batch contained 5.51% more false news than Weibo batch. This result indicates that users from international social media (Twitter) were more exposed to false news and shared it more (Del Vicario et al., 2016) than those on Weibo. The false information is a negative consequence for the online public sphere, considering the negative effects that could have to the public health of the citizens, for this reason false information is a exclusionary dimension of the messages spread in social media platforms, and for this reason is crucial to detect successful strategies to overcome it.

On the other hand, the results on the number of retweets and Weibo reposts is even more alarming. In the case of Twitter, false news comprised 52.31% of retweets in relation to the sample selected. This result is in line with previous research, such as that led by Vosoughi and colleagues (2018), according to which false content is more shared. In line with this, research also shows that people have more probability to believe this false information as they prefer information confirming their preexisting attitudes and beliefs (Galarza Molina, 2019). In contrast, the Weibo reposts of false news only represented 0.09% of the Weibo batch. This result shows that over the two-day period covered by the sample, Chinese users on Weibo relied less on false news, and avoided spreading it. In this sense, they did better than Twitter users. The reason that explains why Weibo users share

less false information than Twitter users could be deeply analyzed in future research. In any case, the decision to share false information is an exclusionary decision. That affects not only their health. In this case, public health is affected due to sharing this false information, and more responsibility needs to be assumed by social media users to avoid the free circulation of false information around the globe.

Regarding transformative dimension, Twitter and Weibo users published and shared science-based evidence, which shows the existence of a worldwide interest for the evidence found on the COVID-19. However, in both, the Twitter batch and the Weibo batch, science-based evidence appeared less than false news. Consumers of scientific literature tend to share less information and take action against fake post news (Merino, 2014). In the analysed sample, Twitter users were more proactive in sharing scientific evidence to overcome false news in the online public sphere, and one possible explanation is because, on Twitter, there are more false news shared than on Weibo. Thus, it is more urgent to debunk this false information. However, more science-based publications and sharing are needed. Public health also depends on the information circulating and overcoming the infodemic situation is key, according to WHO. To promote and share more messages of science-based evidence is a crucial way to overcome false information. Citizens that share this type of information are engaged to overcome false information and prevent the negative consequences of this into the public sphere. In this sense, researchers, agencies, institutions should be more committed to sharing this type of information to deliver it to citizens that are willing to share scientific evidence.

A novel result observed is how emerging scientific information is shared. We found that the authors of the messages in our sample were alert to the emerging evidence shared by scientists before being published in international journals. This fact shows how some people are willing to know the latest evidence found. This emerging science category was more present on Weibo than on Twitter, and one possible explanation is that in the moment of the social media data extraction, China was the most affected zone by COVID-19, and Chinese citizens paid more attention to the new evidence found.

False information was present in both social media analysed. However, Twitter had more false information published and shared with more frequency than Weibo did. In this sense on the one hand. Sina Weibo has a greater control over the platform, and the other hand, Chinese citizens shared less false information than Twitter users over the two-day timeframe chosen for the data extraction. Regardless, for the same time period, the need to share science-based evidence is more present on Twitter than on Weibo, which is one of the strategies to overcome false information. In the case of Twitter, more responsibility within the platform should be taken in order to limit the amount of false information published. However, the most secure way to overcome this type of information is that citizens become more actively engaged in limiting the circulation of such information, as Weibo users do in the sample analysed, while keeping up the diffusion of science-based evidence The reason of the difference why Twitter users spread more false information than Weibo users in the sample analysed could be a topic for future research, further studies will clarify the reasons of this difference. In this scenario, researchers should also be more committed to disseminating the latest evidence with social impact in social media through different channels, enabling a constant dialogue science-society.

Data Availability

The dataset and calculation done is available in the supplementary files. The raw Twitter data cannot be directly shared as it would infringe the Twitter Developer Terms as well as the General Data Protection Regulation (GDPR). Although, we can share the tweet ID, time and number of RT obtained. In the case of Weibo there are limitations also. We were limited to the messages available from the Weibo web response, and we do not have information from Sina.com regarding how the web response is sampled or ranked, as described in previous articles (Hu et al., 2020). We shared the Weibo post ID, time and number of Weibo Repost obtained in order to respect the legal terms.

Competing interests

Authors declare no competing interests in the submitted manuscript

Supplementary information

We have added the dataset analysed as well as the calculation done in excel file considering the criteria explained in the data availability.

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4. Coping of Chinese citizens living in Spain during the COVID-19 pandemic: lessons for personal well-being and social cohesion

4.1 Presentation

When three people walk together, there must be one person who is a teacher.

Disciples of Confucius—The Analects

Immigration has always been a key factor in shaping societies, with recent times seeing significant cross-border movements. As of 1 July 2020, the United Nations (United Nations, 2023) reported approximately 281 million international migrants, about 3.5 percent of the global population, marking a notable increase from past decades. Immigrants enrich the cultural and economic tapestry of their host countries, despite frequently encountering challenges like discrimination and employment barriers (Garcia Yeste et al., 2020; Rhee et al., 2015).

Contrary to common misconceptions, immigrants often contribute positively to the economy of their host nations. Research by Jaumotte et al. (2016) indicates that in developed countries, a 1 percentage point rise in the share of migrants in the adult population can increase GDP per capita by up to 2 percent in the long term. Discrimination against immigrants,

therefore, not only violates human rights but also hinders the potential benefits they bring to host communities.

The onset of the COVID-19 pandemic in late 2019 further complicated the global scenario. The impact of the pandemic varied, with China implementing strict measures early on, while Europe faced increasing cases and fatalities. This disparity means that countries experiencing the pandemic earlier could offer valuable insights into effective health responses.

In this context, the cultural knowledge of immigrants, particularly those maintaining connections to their countries of origin, becomes invaluable. Immigrants, such as Chinese citizens in Spain, often stay informed about developments in their home countries. This transnational engagement allows them to access and share knowledge not readily available in their host communities, contributing to a more inclusive and adaptive societal response to crises.

The article *"Coping of Chinese Citizens Living in Spain during the COVID-19 Pandemic: Lessons for Personal Well-Being and Social Cohesion,"* presented in this chapter, investigates the perceptions and coping strategies of Chinese immigrants in Spain during the pandemic. This study aligns with Specific Objective 3 of the thesis: examining the coping strategies of migrant groups within host communities during crises. It reveals how the cultural knowledge of immigrants can aid in pandemic management and foster an inclusive environment, highlighting the importance of embracing diverse perspectives in global challenges.

In summary, this research underscores the vital role of immigrants in crisis situations like

the COVID-19 pandemic. It not only contributes to a deeper understanding of their experiences but also illuminates how societies can benefit from their unique insights, thereby enhancing social cohesion and inclusivity in host communities.

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4.2 Manuscript

sustainability

MDPI

Coping of Chinese Citizens Living in Spain during the COVID-19 Pandemic: Lessons for Personal Well-Being and Social Cohesion

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Abstract: Chinese citizens in China were the first affected by the COVID-19 outbreak. Nevertheless, the disease rapidly spread around the world, leading to the worst pandemic experienced in modern societies. Spain has become one of the countries more severely affected by it, while having a large Chinese community. This study aims to explore the perception of Chinese citizens living in Spain regarding the outbreak in their host country. Communicative interviews were conducted with ten Chinese men and women who had been living in Spain for at least five years. Results show cultural differences in the coping strategies of the Chinese as a response to the pandemic, which differ from those observed by the participants in their fellow Spanish citizens. These findings unveil the potential of integrating the cultural knowledge and coping strategies of migrant groups in the host communities in managing a pandemic, as well as the negative outcomes for social cohesion and well-being from new racism emerging in the context of COVID-19.

Keywords: COVID-19; coping strategies; well-being; cultural knowledge

1. Introduction

The COVID-19 pandemic has raised unprecedented challenges all over the world [1]. It has quickly impacted governments and public health systems, and significantly altered the lives of millions of people [2–4]. But besides the imminent health crisis that came with the spread of the virus, social issues affecting people's well-being have also emerged, including those related to coping with the crisis [5]. China and Spain are at different stages of the COVID-19 outbreak, and the cultural and personal coping strategies towards the COVID-19 emergency of citizens from both countries are also distinct. This study provides new insights on the cultural differences in the coping strategies reported by Chinese citizens living in Spain during the COVID-19 pandemic. Findings unveil the potential of including the cultural knowledge and strategies of migrant groups both for them and for the host community.

As Whitworth affirms, the World Health Organization (WHO) received a report of 29 pneumonia cases of unknown aetiology in Wuhan (Hubei, China) on 31 December 2019. One week later, it became clear that the initial cases were associated with a seafood market. The virus was quickly identified as a novel beta-coronavirus and the genetic sequence was shared on 12 January 2020 [6]. The Chinese authorities conducted active case finding and testing, contact tracing, and quarantining of cases and contacts. The public was advised to stay at home if sick to control the spread of the virus [6]. According to worldodmeter data, China has had a total of 22,270,866 cases infected by COVID-19 and 782 deaths since the onset of the pandemic [7]. On 23 January, the number of infected had risen to

581 globally, with 17 casualties [8]. Facing this situation, a nationwide quarantine was established and medical resources were mobilized from all over the country. The outbreak was declared a Public Health Emergency of International Concern (PHEIC) a month after its first detection [9], when the number of affected countries and regions (excluding China) reached 18, with 7818 infected citizens and 170 casualties. On 11 March, the WHO declared COVID-19 a pandemic [9]. This decision was made due to the disease's expanding geographic location and the increased number of affected people around the world, reaching 11,8319 infected and 4292 casualties [10].

The first case of COVID-19 in mainland Spain was detected on 24 February 2020. As a response, the Spanish Government called on the public to remain calm and trust its medical system and travel recommendations to avoid countries with a high number of cases were then issued for the first time. On 2 March, the Spanish Ministry of Health emphasized that there was no need for cancelling public events [11], while, that same day, the WHO called for top priority of containment of COVID-19 for all countries, urging them to take early aggressive measures to "stop transmission and save lives" [12]. Despite the calls from WHO and evidence of the impact of the disease in nearby countries, on 8 March more than 200,000 people marched across Spain on Women's Day, when the number of cases confirmed in the country was 430 [13]. Less than a week after that, 4231 cases and 120 casualties [14] were registered, which led the Spanish President to proclaim the State of alarm and issue measures for social confinement [15]. By 30 March, when the fieldwork for this paper was completed, confirmed cases of COVID-19 in Spain had reached 78,797, and the number of casualties had risen to 6528 [16]. That same day, WHO declared Europe the new epicenter of the COVID-19 pandemic. Diverse studies evidenced that China had slowed down the cases from the imposed lockdown of the population of Wuhan as well as the entire Hubei province [17], while Spain had become one of the countries where COVID-19 was taking a higher toll.

This brief summary of the evolution of the disease in China and Spain shows how its development took different paths in both countries. While the Chinese government opted for strict measures early on, the Spanish government put them in place at a much later stage, which may have caused different perceptions of and behaviors towards COVID-19 among both populations. Research has shown that when there is no effective vaccine for a new infectious disease, its management largely depends on the preventive behavior of the population [18], which, in turn, relies on risk perception (i.e., subjective judgments regarding the probability of an undesirable event to occur) [19]. For people to voluntarily engage in precautionary actions, first they need to perceive the risk [18]. Indeed, some studies bring forward evidence on how a population's risk perception can significantly affect the spread of an epidemic in quantity by substantially slowing the epidemic spread or by determining different final epidemic sizes, as well as in quality, by altering the epidemic dynamics through human behavior [20,21]. In addition, the earlier a warning about the epidemic is released, the greater are the chances of reducing the peak prevalence, and of reaching the end of the epidemic. Similarly, Brewer et al. [22] studied the relation between risk perceptions and risk behavior and observed that higher risk perception can encourage people to engage in protective behavior against a disease. These findings are in line with those of Paek and Hove [19], who concluded in their study that if people are not confident that they can carry out recommended actions (self-efficacy) or if they doubt those actions can control the threat (response efficacy), they will not adopt the recommended behavior. In addition, it must be considered that even when information about a disease is released with the aims to raise awareness and increase the responsiveness or alertness of the population, some people choose not to take action as a coping strategy [23]. Recent studies have focused on responses to government measures to prevent the spread of COVID-19. They point out that, when both emotional intelligence and personality are in the same equation, with the latter being controlled, the force shows incremental variation and the influence of personality factors is reduced [24].

A study led by the University of Cambridge has been developed in ten different countries with the aim to know the perception of risk. Besides the personal experience with the virus, individualistic and prosocial values, trust in government, science, and medical professionals, staff knowledge of

government strategy, strategy, and personnel and collective efficacy researchers affirmed that there was a substantial variation across cultures [25]. Low risk perception can also be accompanied by an unrealistic sense of optimism or "optimism bias." This refers to the subjective belief of an individual to underassess his or her chances of being at risk, in comparison to that of others [26]. During a pandemic, optimism may result in a lack of precautions and false feelings of security [18,21,27], as well as denial of a potential threat [28]. Hence, an optimism bias towards an infectious disease can not only be a threat to an individual's health, but also endanger the health of those around him or her. Studies conducted during COVID-19 also support this evidence. The online survey conducted by Wise and colleagues [29] with 1591 Americans indicates that even though most respondents are aware of the risk caused by the disease to some extent, they typically underestimate their personal risk relative to that of others. This has been related with the spread of infodemia, or false news about COVID-19 and the policies to prevent it [30,31].

Both risk perception and unrealistic optimism play a key role on how people react and behave during a health emergency. This includes the strategies people use to cope with situations that cause them stress. Coping is defined as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" [32] (p. 141). It involves strategies which can generally be classified as problem-focused or emotional-focused. In problem-focused strategies, the goal is on managing the source of stress (e.g., finding solutions, seeking information, etc.), while in emotion-focused coping, the goal is on regulating the emotional response produced by a stressor (e.g., self-control or avoidance) [32].

Indeed, during an epidemic, people can respond with different coping strategies, including problem and emotion-focused strategies. Regarding the latter, a study [33] conducted with Americans during the 2009 H1N1 influenza pandemic found that about 16 to 25% of the participants in their study engaged in avoidance behaviors, such as avoiding places where many people were gathered, like sporting events, malls, or public transportation, and 20% reduced contact with people outside their household as much as possible. Moreover, in the pandemic's first weeks, almost two thirds of American participants said that they or someone in their family had begun to wash their hands or clean them with sanitizer more frequently, and a majority (55%) had made preparations to stay at home in case themselves or a family member got sick. Regarding COVID-19, more novel research conducted in Germany [34] reveals that participants mostly used problem-focused coping strategies. In this vein, individuals in the study reported that they followed the advice of experts, carefully considered what they should do, and tried to behave calmly. In more detail, most of them reported that they washed their hands more often than usual, avoiding public places, events, and transportation.

As for emotional-focused strategies, the research of Marjanovic and colleagues [35] shows that the Canadian nurses participating in their study reported avoidance behavior due to emotional exhaustion during the SARS 2003 outbreak. This included minimizing direct contact with patients, missing work, and refusing patient assignments. In a similar vein, Lee-Baggley and colleagues [36] found an association between the Asian, American, and European participants in their study who felt threatened during the epidemic and their use of wishful thinking as coping strategy, affecting, in turn, their personal well-being and that of others. However, wishful thinking did not appear to facilitate them to use hand washing and using disinfectants to clean potentially contaminated surfaces as a coping strategy. This supports other research [37] that identified that individuals reporting wishful thinking during SARS and West Nile were no more or less likely to report engaging in recommended health precautions for either viral infection. Their results show the possibility that wishful thinking predicts more extreme and potentially dysfunctional behaviors, without promoting the recommended precautions necessary to effectively respond to threats to health. In addition, they point at the need to explore such psychological and behavioral reactions for their potential damaging consequences on social well-being. In this way, early studies in psychology are already being published about the current situation, which talk about traumatic stress symptoms or stigmatization, abandonment, and isolation, among others [38].

Empirical research has also provided evidence of cultural differences in coping strategies. For instance, Bailey and Dua [39] found that newly arrived Asian students in their research tended to use more collectivist coping strategies (e.g., seeking emotional social support and seeking instrumental social support) than the Anglo-Australian subjects in the study. In addition, the longer the Asian students remained in the Australian culture, the less they tended towards the use of a collectivist coping strategy. Their results not only indicate that coping strategies differ across Asian and Australian cultures, but also that culture can mediate the chosen coping strategy. These findings are also in line with the research conducted by Tweed and colleagues [40] with European Canadians, East Asian Canadians, and Japanese participants. Their results revealed that participants from Asian backgrounds tended to engage in more internally targeted control strategies (e.g. using self-control, waiting, accepting responsibility, and accepting the situation) to cope with stressful situations, while self-enhancement was the only internally targeted control strategy more prevalent among Western participants. Similarly, the study of de Zwart and colleagues [41] found differences in response to efficacy and self-efficacy between participants from China and participants from other countries in the sample (Denmark, Poland, Netherlands, Spain, Singapore). A recent study analyses cultural differences between China, Germany, Hungary, Japan, Malaysia, the Netherlands, the USA, and Vietnam in recognition of the error and ability to rectify and create shared strategies to deal with the workplace. The analysis is performed through the application by the Cultural Values Scale cultures. It states that individuals in high power distance countries, such as China, tend to accept that differences between individuals exist along the lines of wealth, presence, and power contrary to low power distance countries, such as the USA or Germany [42] (p. 196). In this line, another study focused on university teachers deepens these differences between China and Spain. It states that the Spanish teachers showed a comparatively greater preference for individualism ($M = 4.5$) than the Chinese teachers ($M = 5.19$) who demonstrated a collectivist orientation [43] (p.78). Compliance with the rules and respect for the community in China have allowed them to take the lead in building a community of shared futures to fight the epidemic. China has provided anti-epidemic material assistance to 82 other countries and international organizations, as Japan, Korea, Italia, France, Spain, and Serbia. Following recent studies, more importantly, China is willing to share its experience with the rest of the world [44] (pp. 16–17). In this vein, response efficacy and self-efficacy for SARS were higher in respondents from Asian countries compared to those from European countries. Another apparent difference between the response to SARS in the East and the West has been perceptions on the use and value of masks as a means of personal protection against the infection [45]. Recent studies added also the perspective of the increase of the prejudice or racism against Asian people predicting that the ongoing coronavirus pandemic can affect attitudes toward foreign nationalities [46]. Historically, epidemics have been linked to others coming from outside. The sentiment of the unknown, which is related to social and economic uncertainty, has created a feeling of fear of the citizenry that may in turn create racism or xenophobia with racialized and discriminatory responses [47].

Drawing on all the above, this article explores the perceptions of Chinese citizens living in Spain during the COVID-19 situation. Results show that while this population had acquired knowledge that led them to a more accurate risk perception of the situation, and thus, to more efficient coping strategies, their fellow Spanish citizens showed an unrealistic optimism that led them to inefficiently cope with the emergency before them. The findings support previous research on cultural differences in coping strategies between Western and Eastern citizens, both at individual and interpersonal levels. The study also advances this field of knowledge by showing such differences between two different cultural groups (Spanish and Chinese) living in the same territory (Spain) during the development of the COVID-19 pandemic. Finally, the results unveil how host societies can learn from the acquired experience and knowledge of migrant groups regarding efficient coping during a pandemic, starting from the prevention phase.

used social application for Chinese people. In the advertisement, criterion of participants, the purpose of the study, voluntary principle, and data protection principles are stated. The persons who were interested in participating in the study could contact one of the researchers who spoke their native language through the contact information on the advertisement. When the number of participants applied reached ten, the analysis of the interviews achieved data saturation and researchers terminated the recruitment of participants. Among these ten participants, five of them knew or had had some previous contact with one of the researchers, but had no personal relationship with her. In order to ensure the truthfulness and effectiveness of the information as much as possible, the interviewer fully informed the interviewee that the content of the study will not be used for other purposes except for research and the confidentiality principle.

The researcher who speaks their mother tongue fully informed them about the study, and then gave them a written "informed consent" form, containing all the details of the study. This included a brief scientific explanation of the matter under study, the aim of the research, and the method and procedures to be followed. The consent form also included a field informing participant of their right to withdraw from the study at any point and without having to provide an explanation, and another one ensuring the full anonymity of their participation. One of the participants was a minor, so according to current guidelines on ethics in social sciences and humanities, consent was obtained from his parents, and he was given an assent form to sign. Participants had time to fully read the information and consent form and were given the opportunity to ask any questions regarding the research and their participation. The researcher who contacted them gave any and all necessary explanations in their mother tongue clarifications when necessary. Due to the lock-down circumstances in the time of the data collection, the interviews were conducted online (using the Wechat platform). All participants agreed to their interview being audio-recorded.

Each subject participated in an individual communicative interview. At the beginning of the interview, the researcher gave a brief outline of the study which included the objectives of the research, of their dialogue, emphasized that participants are an active part of the study, and then gave a self-introduction. To establish rapport with participants, the interviewer took a high degree of relational and emotive involvement which are the factors of empathy strategy, especially when the participants shared their perception of any great emotional intensity. Meanwhile, the interviewer showed an open attitude in the interview and avoided to use jargon, technical language, or an authoritarian demeanour [54]. No questionnaire was designed by the researchers. Rather, the topic was introduced to the participants, and this shared their points of view and feelings in an open conversation in which the following themes were tackled: (1) perception about the COVID-19 situation in Spain, (2) perception about the behaviours and reactions of the Spanish citizens before this situation, (3) personal feelings before the current situation. Interviews had a duration ranging from 8 to 15 min. All of them were conducted in Chinese to facilitate participants to express themselves, and all of them were audio-recorded, as accepted through the consent form. Interviews were then transcribed in Chinese and translated to Spanish for their analysis.

2.4. Data Analysis

Following the principles of Communicative Methodology [48], the interviews were analysed as communicative acts. Both verbal and non-verbal language was considered, as well as the context generated by the reality under study. In this article, only verbal language has been taken into account. The categories were discussed among the researchers and the content of the interview was finally classified in the categories shown in Table 2.

2. Materials and Methods

2.1. Study Design

The study has been designed following the Communicative Methodology of research (CM). This methodology allows for an in-depth understanding of social realities, based on the inclusion of all voices at all stages of research [48]. In this vein, researchers share the scientific evidence on the subject under study with the participants. These, in turn, contribute with their own understanding of the social reality under study. CM builds on Habermas' Theory of Communicative Action [49], according to which all humans are capable of transforming their social reality, based on their innate capacity to communicate and act through language. Indeed, this methodological approach has at its very core co-creation principles, and has been validated through research in a variety of fields ranging from minority studies [50] to institutionalized education [51], proving its potential in the achievement of social impact [52].

2.2. Participants and Sample Description

Ten Chinese people residing in Spain for at least 5 years participated in the study. According to the qualitative approach of the study and to its aims, we were not looking for representativeness in the sample, neither were targeted for key informants. Participants were both men and women between 16 and 55 years of age. Their level of studies ranged from no education, to university degree and their professional occupations were diverse. The interviewees live in Barcelona, Madrid, and Alacant, Spain. All participants interacted with Spanish people because of their professional activity, but the main personal relationships of most of them are with Chinese communities. Table 1 summarizes the characteristics of the sample:

Table 1. Participants.

Pseudo	Gender	Age	Years in Spain	Professional Occupation	Level of Studies	Main Personal Relationships	City
P1	Man	16	10	Student	Secondary Education	Chinese	Barcelona
P2	Woman	50	14	Seller at a Bazaar	Baccalaureate	Spanish	Alacant
P3	Woman	49	19	Manager at a beauty parlour	No studies	Chinese	Barcelona
P4	Man	31	11	Cook at a Japanese restaurant	University degree	Chinese and Spanish	Barcelona
P5	Man	48	19	Worker at a storage unit	Secondary Education	Chinese	Barcelona
P6	Man	55	22	Cook at a Chinese restaurant	Baccalaureate	Chinese	Madrid
P7	Woman	25	13	Waitress at Chinese restaurant	Secondary Education	Chinese	Barcelona
P8	Woman	28	12	Accountant	University degree	Chinese	Barcelona
P9	Woman	27	5	Waitress	Baccalaureate	Chinese	Madrid
P10	Man	38	10	Hairdresser	Baccalaureate	Chinese	Alacant

2.3. Materials and Procedures

The current research complies with the European Commission's Ethics Review Procedure (2013), the Data Protection Directive 95/46/EC, the EU's Charter of Fundamental Rights (2000/C 364/01), and the Declaration of Helsinki [53]. The study was approved by CREA's Ethics Committee (Ref. 20200802).

The fieldwork for this study was completed in March 2020; at that time, Spain was in a state of emergency. To recruit the potential participants, the researchers elaborated on an advertisement and posted it on various Spanish Chinese Community Group in Wechat which is the most commonly

Table 2. Categories of analysis.

(a) Chinese citizen's perception of the COVID-19 crisis in Spain	Accounts from Chinese citizens residing in Spain of the current social situation resulting from the COVID-19 health emergency
(b) Coping strategies used by Chinese citizens in response to the COVID-19 crisis	Accounts from Chinese citizens of how they coped with the health emergency
(c) Chinese citizens' perceptions of the coping strategies of Spanish citizens in response to the COVID-19 crisis	Accounts from Chinese citizens of their perceptions before the coping strategies of Spanish citizens regarding the COVID-19 health emergency
(d) Emotional well-being of the Chinese citizens in Spain	Accounts from Chinese citizens of their own emotional well-being during the COVID-19 health emergency situation in Spain

Each interview was analysed in depth, following a line-by-line technique, without a specific software. The team of researchers have different backgrounds and perspectives on the topic and fully discussed the analysis and interpretations. Before publication, the analysis and results of the research were shared with the participants with the aim to discuss and ensure their validity, as well as their conformity with their publication.

3. Results

The content of the interviews was classified into the four aforementioned categories: (a) Chinese citizen's perception of the COVID-19 crisis in Spain; (b) Coping strategies used by Chinese citizens in response to the COVID-19 crisis; (c) Chinese citizens' perceptions of the coping strategies of Spanish citizens in response to the COVID-19 crisis, and (d) Emotional well-being of the Chinese citizens in Spain. The following subsections develop in detail these aspects:

3.1. "Spain and Other European Countries Should Not Have Had This Situation": How Chinese Citizens in Spain Perceive the COVID-19 Emergency in Their Host Country

During the interviews, participants shared their own perception of how the COVID-19 crisis had developed in Spain. Participants share the view that the Spanish administration did not take the outbreak seriously enough. They believe that the outbreak scaled-up because of the lack of adequate measures taken by the government. More precisely, some participants, such as P3, mention a specific event that they believe should have been cancelled:

> "If everyone's home, the emergency can be cut off quickly. But if one person leaves the house today and two leave tomorrow, the emergency will last forever. At that time, tens of thousands of people marched in a demonstration on March 8, which was terrible. It sounds to me like, at that time, there were only a few dozen infected cases. After the demonstration, the number of people infected in Spain increased rapidly." (P3)

The testimony of P3 shows how she feels that prevention was not carefully considered, and that cancelling mass events, such as the Women's Day demonstration, would have been more sensible in light of the global health emergency. In a similar vein, some participants express how they believe COVID-19 is a nation-wide, if not worldwide, problem, and thus, the government should have taken action to protect the population. An example of this is the statement of P6, mentioning that Spain should not have gotten to the current situation, since all countries had the experience of China to learn from:

> "I think Spain and other European countries should not have had this situation. Because China gave them an example two months ago, the leaders of other countries should have prepared and protected their citizens against the coronavirus and taken it seriously [...]

> The government is also ignorant [...] The Spanish government does not give top priority to the safety and lives of its citizens." (P6)

The testimony of P6 exemplifies how some participants do not feel safe before the COVID-19 outbreak in Spain. Moreover, the lack of a determined governmental intervention towards the protection of citizens is seen as a characteristic shared by Western countries. Indeed, they assess that the measures taken by the Spanish government at the time of their interview are still too flexible, and that an effective response to overcome the current situation demands harsher measures. From this perspective, they feel that there is a big difference in the extension and depth of the measures implemented by China and Spain to tackle the pandemic:

> "First, government policy here is not at all strict. Look at China's policy: closing a city is really closing it, closing the shops is really closing. They all quickly solved this problem together." (P3)

Participants like P3 show no confidence on the government, the measures applied to overcome the health emergency, or the capacity to enforce them. They perceive an overall incapacity of the Spanish government to effectively manage the situation, and they have low expectations on the current measures leading the country to get through the outbreak.

3.2. "We Tried to Warn Them": Coping Strategies Implemented by Chinese Citizens in Spain in Response to the COVID-19 Outbreak in Their Host Country

Before the COVID-19 emergency situation in Spain, Chinese citizens residing in the country coped with the crisis by taking control and carrying out problem-focused strategies aimed to improve the situation. In this vein, one of the undertaken actions shared by most participants was sharing information with their fellow Spanish citizens, with the aim to warn them about the upcoming risks of COVID-19. Most participants share through their narratives how they explained to Spanish people that COVID-19 was not like the common flu, with its effects being much more serious. This can be seen in the account of P3:

> "The Spanish don't listen, I warned them it wasn't just a simple flu, but they didn't believe it, what can we do?" (P3)

This excerpt is an example of how participants tried to warn their fellow Spanish citizens. Moreover, beyond letting them know about the characteristics of COVID-19, they encouraged them to take preventive measures. In this vein, participants explain how they purposely talked to friends and clients about the gravity of the situation and the need to take precautions, in an attempt to raise awareness about the risks. P6, who works at a restaurant, explains how from the very beginning they talked to their customers about the health emergency:

> "Before the emergence of the coronavirus in Spain, when we talked to our customers, we informed them about the protection measures used in China. [...] Some customers came to the restaurant to ask, and we told them." (P6)

Similarly, all participants shared their concern around the measures taken by the government and the Spanish population and felt the need to share the coping strategies that Chinese citizens were following. These included actively taking precautions, such as buying more food, avoiding crowded spaces, buying sanitizing gel, or wearing masks. P2 talks about this measure:

> "The outbreak of coronavirus began in Spain, and the Chinese workers in our store began to wear masks, and we told our Spanish colleagues that it is better to wear masks, [...] and we provided them with free masks. [...] In our store, we also posted an ad in Spanish at that time, and we recommend that everyone wear masks." (P2)

The testimony of P2 reflects how participants actively coped with the crisis by enforcing effective measures to minimize contagion and contribute to the prevention of the negative outcomes of the pandemic. Participants explain how severe the experience in their home country was, and how this pushed them to reach their fellow Spanish citizens, so they could effectively prevent the forthcoming situation and not have to endure the same consequences that Chinese citizens endured in China.

3.3. "They're Not Listening": Chinese Citizens' Perceptions of the Coping Strategies of Spanish Citizens in Response to the COVID-19 Crisis in Spain

Besides their efforts to actively cope with the crisis by sharing their knowledge on COVID-19 with Spanish citizens, all participants feel that in most cases their advice was not considered or was even dismissed. In this vein, they share the feeling that Spanish people coped with the situation by avoiding the problem. To their view, Spanish citizens did not believe COVID-19 to really be a threat, and that most repeated what was being said in TV: "it's like the flu." In this sense, the account of P4 exemplifies the reaction of Spanish people before the advice of Chinese citizens:

> "I feel that they thought that this disease is happening in China or Asia, it has nothing to do with them. [...] They didn't think it would affect them, they thought it was someone else's business. Even when Spain had just exploded, they were still blindly optimistic. [...] They felt that what the Chinese do is exaggerated. Some people believed that this is just a flu, a disease that can be treated by just taking a medicine, like Ibuprofen." (P4)

This excerpt shows how Spanish citizens did not take the virus seriously. Indeed, P4 highlights how the Spanish citizens with whom he had contact were "blindly optimistic." Similarly, many participants share the feeling that Spanish citizens have underestimated the impact of the virus from the beginning, even though they had the evidence of what had happened in China, or what was happening in Italy. Some, as seen in P4's account, share the view that their Spanish fellow citizens felt that the Chinese were exaggerating and being over-anxious. Participants also share how these attitudes in some cases led to mocking or even racist attitudes:

> "They shook their heads when they saw the Chinese with masks [...] I don't know what they think. And they didn't believe it. [...] They were laughing at us [...] They were the ones who had no conscience about the coronavirus, and we told them already, but they laughed at us and didn't take it seriously." (P5)

P5 testimony exemplifies how Chinese participants did not only feel they were not being heard, but also underestimated. This attitude was explained by some participants by a lack of collectivism in European societies in general, and in the Spanish case in particular. They believe Western societies to be driven by a feeling of individualism, that puts individual rights before collective interests:

> "Asia has collectivism and Europe has individualism [...] The coronavirus outbreak was not only a slow response from the government, but also the result of years of European claims of "freedom" .... [...] Collectivism pays more attention to the feelings of others. What the Chinese think is that we are in the crowd, we don't cause problems for others, and we want to prevent others from catching it, so we wear masks. Europeans and Americans pay too much attention to themselves." (P4)

The unconcerned and avoidant attitude shown by some Spanish citizens is seen by some participants as careless. They feel that Spaniards are in general focused on their individual demands and needs, and they lack a collectivist mentality. This issue appears in the interviews connected to practices such as wearing masks, or behaviours such as going out in a moment in which citizens are asked to stay home. Particularly, some participants stress the attitude towards older people:

"They felt that only old people can get infected, and they believed that what is going to happen will always happen [. . .] At that moment they felt it was a little cold. They told me that even though the hospital will be full if it continues to spread, as I am young, I don't have to worry about that." (P8)

As shown in this excerpt, some participants were concerned about the fact that some Spanish people were not considering the life of older people to be important and would avoid taking measures that could help to protect them. Nevertheless, participants also shared some good remarks about the coping strategies of their Spanish fellow citizens. This positive perception is linked to a change of mentality by some people, seen as accepting responsibility and taking action, including a willingness to follow the preventive measures.

3.4. "I'm Worried; Spain Is Our Second Country": Emotional Well-Being of Chinese Citizens in Spain during the COVID-19 Outbreak in Their Host Country

The governmental measures and the perceived coping strategies in the Spanish population affected the emotional well-being of participants in different ways. In light of the situation, most participants share feelings of despair, hopelessness, and resignation. They do not see a positive outcome to the health emergency, while they also feel that there is nothing else they can do:

"Looking at the attitude of the Spanish now, I feel desperate. Almost 60,000 people are now infected in Spain, but there are still people walking around outside without masks, and they don't seem to be worried. I really don't know what they think. I really feel hopeless." (P1)

The testimony of P1 reflects how they feel helpless before the current situation, and this makes them lose hope. Some feel it is too late for the measures now implemented and think that Spain will need help to overcome the emergency. This fact also leads some of them to report sadness, consternation, and deceit. They feel that human lives are not valued enough and that people that need help will be left behind:

"I saw some older people disconnected from the respirators, because you have to give these respirators to young people, I feel sad and very disappointed . . . Are rights more important or is life more important? Which right do we speak of when human life is gone? When people die, they have no rights. Neither freedom." (P2)

P2 reflects on how the human right to life is neglected in favour of individual freedoms that become meaningless before death. This situation makes other participants to report fear and worry. They feel that there are no boundaries to this disease and careless, and selfish people will cause a lot of suffering to others. Some remark that Spain is their second country and that they do care for what happens there. Hence, some participants feel that Spain does not deserve to receive help from China:

"I do not think that China should donate so much material to other countries for free. [. . .] Europeans do not usually thank anyone. For example, China now donates masks to many countries, but people in these countries still insult China." (P2)

This feeling of frustration is very much linked to the perceived inaction and a proud attitude in the Spanish people around them, as well as racist attacks, both negatively affecting their emotional well-being. Thus, some feel that a country which does not show appreciation should not receive help. Nevertheless, before the current situation, other participants feel more hopeful. This is for instance the case of P10, who believes that the measures taken by the Spanish government are now slightly better. As P10 reflects "There's a future."

4. Discussion

This study aims to explore the perception of Chinese citizens living in Spain regarding the COVID-19 pandemic in their host country. The results found in this research show differences in the coping strategies of the Chinese participants when compared to those observed by the same participants in their fellow Spanish citizens.

Overall, Chinese participants in the study show a higher risk perception than their fellow Spanish citizens. In line with other studies, this can account for their higher preventive behaviour [18], including their willingness to share their knowledge with others. Moreover, their behaviour supports other research which stresses that an adequate risk perception can contribute to tackling the spread of the epidemic, both quantitatively and qualitatively [20,21,25]. On the contrary, the attitudes displayed by the Spanish citizens, as reported by the Chinese participants, show that the former felt overconfident and repeatedly downturned the threat. Both behaviours are in line with studies examining optimism bias and low risk perception [18,28,34]. In addition, one can also see, in line with Kiss and colleagues [23], how some Spanish citizens turned a blind eye on the information they were given by the Chinese participants regarding the risks of COVID-19.

As in other research, cross-cultural differences have been identified in the coping strategies used by each group [47]. In this vein, the results show how Chinese participants in the study report mostly using problem-focused strategies, centred on handling the threat. Strategies such as avoiding public spaces, maximizing hygiene measures, or making preparations to protect their families are in line with those reported by participants in Gerhold [34] and SteelFisher and colleagues [33]. Indeed, the Chinese participants in this study report taking a proactive approach, which can be explained by the self-efficacy already identified in Chinese participants in other studies regarding their capacity to prevent and manage epidemic outbreaks [41], as well as by their sense of responsibility and self-control [24,40]. The feelings some of the participants share about a positive outcome of the situation can also reflect their self-efficacy, as well as the response efficacy of an intervention by the Chinese government, as shown in other studies [41]. Moreover, Chinese citizens in the current study also tried to raise awareness among their fellow Spanish citizens, which would be in line with studies reporting collectivist coping strategies in Asian participants [39].

On the contrary, participants perceive that Spanish citizens were more likely not to confront the problem or to engage in wishful thinking, which would be consistent with the coping strategies identified in other research on epidemics [36,37]. Furthermore, previous research [37] has shown an association between wishful thinking and potentially dysfunctional behaviour, including a lack of adherence to the recommended precautions to stop the spread of the disease. An example of such differences, as perceived by the Chinese participants, can be seen in the fact that Spanish people did not value the use of masks as a means of personal protection against the infection. This would be in line with other studies exploring the differences between Eastern and Western countries in their response to epidemics [45].

Besides, participants show a lack of confidence in the government to handle the crisis. This is particularly important because doubting the efficacy of those actions to control the threat decreases their likelihood to adopt the recommended behaviour [19,29]. In addition, they perceive that such management is related to cultures that value individual rights more, which, as participants believe, is more present in Western societies [39,43]. Despite not being explicitly said, this is also related to the strongest state of China versus a state with less citizen control [55]. The lack of governmental intervention, as well as the inaction of their Spanish fellow citizens led to situations of distress for some participants. In this vein, through their accounts they manifest feelings such as hopelessness, fear, sadness or worry, all of which have a negative impact on well-being. This is in line with the study of Qiu and colleagues [56], who found that the initial stress generated in the Chinese population during COVID-19 started decreasing after the implementation of effective measures by the government to control the outbreak. Accordingly, since at the time of the interviews the health emergency continued to worsen in Spain, that can account for a majority of negative feelings among the Chinese participants.

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All in all, these results also show how the knowledge acquired by Chinese citizens from other epidemics, as well as from COVID-19, could have played a significant role in the prevention of the health crisis in Spain. If people can acquire awareness from outbreaks in other regions before the start of the local epidemic, the number of infections and the final size of an epidemic can be reduced [57]. Even an individual that did not receive centralized information, observation, or mouth-to-mouth information from others can also reduce their susceptibility to a disease [58]. Thus, social exchanges of information and efficient coping strategies can bring forward key knowledge for prevention of management in the event of a health emergency. However, not only did this not happen but also hate attacks against Asian individuals increased in this context, threatening social well-being [37] and coexistence between the host and the home communities.

4.1. Limitations

The current study reflects the testimonies of Chinese citizens living in Spain during the COVID-19 pandemic. In this vein, all accounts of the behaviour, reactions, and coping strategies of Spanish citizens are based on the perception of the Chinese participants. Thus, a limitation of the study is that the voices of Spanish citizens were not included in the research.

In addition, the data collection of the current study was undertaken when WHO stated that Europe had become the new epicentre of the pandemic, making it a relevant moment to identify the perceptions of the targeted population. Nevertheless, it must be taken into account that the health emergency crisis has developed since then and still is, so results must be considered within the context in which they were obtained.

4.2. Further Research

In order to answer the limitations identified, further studies can incorporate the view of the host community in order to contrast their own perceptions with those of the migrant group. Because the research was conducted at a very precise moment of the pandemic, further research could explore how the coping strategies and feelings identified in the present study have evolved once the pandemic is under control.

Furthermore, the present study points at the potential of incorporating the knowledge of the migrant groups in their host communities as a strategy towards both the prevention and management of epidemics, and the enhancement of citizen well-being and social cohesion. In this vein, future research should explore how such cultural and social exchanges of knowledge can be fostered, as well as the results of their implementation.

Authors should discuss the results and how they can be interpreted in the perspective of previous studies and of the working hypotheses. The findings and their implications should be discussed in the broadest context possible. Future research directions may also be highlighted.

5. Conclusions

This article explores the perceptions of Chinese citizens living in Spain during the COVID-19 pandemic. Results support previous research on cultural differences in coping strategies between Western and Eastern citizens, both at individual and interpersonal levels. In this vein, Chinese participants show that they had already acquired knowledge that led them to a more accurate risk perception of the situation, and thus, to more efficient coping strategies. This included taking action to inform those around them so they could implement the recommendations as well to mitigate the spread of the virus. Nevertheless, according to the participants, the Spanish ignored those recommendations about COVID-19 that the Chinese shared with them and missed an opportunity that could have contributed to the reduction of the spread of COVID-19 and the magnitude of the crisis.

In addition, the results unveil the potential of integrating the cultural knowledge and coping strategies of migrant groups in the host communities in managing a pandemic. In this vein, creating mechanisms to foster such cultural exchanges is a measure that could be effective in managing a

pandemic, already from the prevention stage. Moreover, such an inclusive approach could have a positive impact on personal well-being and social cohesion. Regarding the former, it could prevent the perception of not being heard generated and of inefficiency, which in turn affected the personal well-being of the Chinese participants. As for the latter, positive cultural exchanges could contribute to evidencing the value of migrant populations for the host communities, while preventing attacks and discrimination.

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5. Results & Discussion

Humanity often encounters unforeseen challenges that necessitate strengthening social resilience and preparing ourselves to mitigate potential harm. In this context, the present PhD thesis further analyzes the role of Dialogic Approach, Scientific Evidence with Social Impact, and Cultural Knowledge of Migrant Groups in fostering more dialogic, informed and inclusive societies, particularly during challenging times. These three dimensions contribute to the co-creation and the achievement of social impact from scientific knowledge.

The achievement of this general goal is pursued through three specific objectives. The findings derived will be presented and examined in relation to each of these objectives in the subsequent subsections.

5.1 Dialogic Approach: Toward Co-creation of knowledge with Social Impact

As articulated in the article "Sociological Theory from Dialogic Democracy" (Chapter 2), our current societal landscape is undergoing a shift towards a more dialogical structure. This shift is driven by citizens asserting their desire to participate in finding solutions to their issues while demanding access to evidence that enables them to make informed decisions effectively.

In response to this societal demand for a more inclusive science, researchers in the past decade have sought to create novel connections between scientific communities and laypeople (Antonakis, 2017). This trend aligns with a societal shift towards dialogue (Beck et al., 1994; Habermas, 1984), marked by a growing recognition of the inherent cultural intelligence within each individual (Flecha, 2000). In line with this, the current European scientific research programme, Horizon Europe, emphasizes two key priorities: co-creation and social impact. Co-creation here implies the collaborative generation of knowledge through dialogue among those in scientific fields and the wider population. It positions every individual, not just predominant groups, as valuable contributors. Social impact focuses on applying this co-created knowledge to enhance the lives of various communities and individuals (FECYT, 2022).

The Dialogic Approach plays a crucial role in realizing co-creation and social impact. It interweaves a diverse array of interconnected conversations and inclusive interactions among individuals, communities, and institutions. By valuing diverse perspectives, this approach cultivates an environment conducive to mutual understanding and collaboration. It acts as a foundational element in bridging societal divides, promoting cohesive communities, and enabling collective problem-solving. Ultimately, this approach transforms dialogue from mere communication into a catalyst for societal transformation, nurturing empathy, equity, and informed decision-making.

Actions focusing on Dialogic Approach such as the Dialogic Model of Prevention and Conflict Resolution (DMPCR), Dialogic Pedagogical Training (DPT) and Dialogic Literary

Gatherings (DLGs), have been recognized as some of the Successful Educational Actions (SEAs) identified by the European R&D Project INCLUD-ED (2006-2011). SEAs are evidence-based solutions that are transferable to different environments and universe (Flecha, 2014). For example, DMPCR, that actively involves families and community members in collaboratively creating an environment free from violence (Garcia Yeste et al., 2019), has shown promise in countering cyberbullying, fostering trust among children, and encouraging them to report violent behavior, contributing to safer school environments (Campdepadrós-Cullell & De Botton, 2021; Duque et al., 2021; Villarejo-Carballido et al., 2019). Successfully implemented in several schools organized as Learning Communities, it also shows its contribution to empower children to reject violence and collectively resist against perpetrators of violence (Rios-Gonzalez et al., 2019). As for DPT, it promotes continuous professional development for educators, grounded in dialogic principles (Campos et al., 2015). Studies also show the role of DLGs in supporting children at risk of marginalization and exclusion (Garcia-Carrión et al., 2020; Molina Roldán, 2015).

Additionally, the ongoing social dialogic shift signifies changes within various scientific fields, fostering the development of more dialogic societies. Among these developments, the Communicative Methodology (CM) (Flecha & Soler, 2014; Gómez et al., 2011) is noteworthy. CM serves as a bridge between researchers and study subjects, enabling the co-creation of knowledge between citizens and scientific professionals. Based on egalitarian dialogue, CM challenges traditional power structures and empowers citizens to actively participate in shaping social transformations. The significant social impacts of Communicative Methodology,

especially among marginalized groups, are well-documented (Gómez & Jiménez, 2018; Aiello et al., 2013). Drawing upon the postulates of Communicative Methodology (CM), novel approaches like Social Media Analytics (SMA) and Communicative Content Analysis (CCA) have been developed, offering fresh insights into content analysis in social media contexts (Pulido et al., 2021; Pulido et al., 2020). In the former approach, every stage and procedure are deliberately and collaboratively discussed through egalitarian dialogue to achieve genuine consensus. This facilitates further collective generation of knowledge. The dialogical method applied in analyzing social media transcends traditional discussions about the utilization of manual, automated, or hybrid techniques. It offers fresh insights into the application of Communicative Methodology (CM) in social media contexts (Pulido et al., 2021). In the latter approach, the primary objective of communicative data analysis is to enhance the social impact of the research. A key attribute of Communicative Content Analysis (CCA) is its method of scrutinizing data. Within this context, a thorough dialogic examination of data involves a detailed human assessment of every single tweet (Pulido et al., 2020).

Dialogue, therefore, emerges as a potent tool for enhancing social cohesion, amplifying marginalized voices, and addressing social inequalities. Especially during challenging times like the COVID-19 pandemic, the value of dialogue is further underscored. Studies utilizing Communicative Methodology within a dialogic framework during this crisis have provided deeper insights into the perspectives and circumstances of those studied (Khalfaoui et al., 2023; Aiello et al., 2022; Romea et al., 2022; Racionero-Plaza et al., 2021), fostering the growth of inclusive and dialogic societies in the face of adversity.

5.2 Scientific Evidence Dissemination: Towards Inclusive Science Communication

The engagement of citizens in democratic societies is hinges on their capacity to comprehend scientific knowledge and utilize it in real-life scenarios (Díez-Palomar et al., 2022). An individual's capability to discern misinformation from factual evidence is largely dependent on their scientific literacy (Pandya & Dibner, 2019), a concept that has gained significant importance in recent decades (Díez-Palomar et al., 2022).

Previous research indicates that higher levels of scientific literacy correlate with a range of benefits, including improved health, educational achievements, increased empowerment and civic engagement, enhanced employment opportunities, and better decision-making skills, among other significant advantages (Rowlands et al., 2015; Christensen et al., 2016; Jufrida et al., 2019; Rudolph & Horibe, 2016; Austin & Arnott-Hill, 2014; Yacoubian, 2018). In particular, scientific health literacy is particularly important in combating bias and discrimination against immigrant communities (De Botton et al., 2021). However, effectively delivering scientific evidence to society, especially to marginalized groups with limited academic backgrounds, remains a challenge (Buslón et al., 2020).

The rise of social media has transformed knowledge exchange, bridging the gap between academic professionals and the public (Collins et al., 2016). It encourages public discussions on scientific advancements, thereby enhancing awareness and interest in science (Oliver et al., 2023). The COVID-19 pandemic saw an increase in educational dialogues on social media (Gulati et al., 2020; Puigvert et al., 2022). However, the absence of traditional quality

assessments on these platforms often leads to misinformation (Lewandowsky et al., 2012; Lazer et al., 2018).

During the early stages of the COVID-19 pandemic, social media significantly amplified misinformation and conspiracy theories, contributing to public confusion and panic. The World Health Organization (WHO) termed this phenomenon as an "Infodemic" (World Health Organization, 2023), characterized by an overwhelming volume of information, blurring the lines between truth and falsehood. The issues of widespread misinformation and excessive information need to be addressed (Allen et al., 2020), highlighting the importance of disseminating scientific evidence during crises.

The article "False News Around COVID-19 Circulated Less On Sina Weibo Than On Twitter. How To Overcome False Information?" (presented in Chapter 3) investigates this issue. It found that during the early stages of the COVID-19 pandemic, more false news was published and shared on X (previously known as Twitter) compared to Sina Weibo, while science-based evidence was shared more on X than on Sina Weibo, but less than false news.

Sharing science-based evidence is crucial in combating false information. Public engagement in limiting the spread of misinformation and promoting science-based evidence is also vital. Ensuring citizen's access to scientific evidence on societal topics serves as a strategy to combat misinformation, potentially altering public opinion on critical issues (De Botton et al., 2021). Robert Merton (1973), the founder of the sociology of science, already stressed the

importance of treating scientific knowledge as a public asset, advocating for its dissemination to the wider public instead of confining it within the scientific community.

Strategies to enable public access to recent scientific evidence and broaden the dissemination of science are essential (FECYT, 2022). In the current digital age, innovative platforms such as Sappho and Adhyayana are at the forefront of these efforts. Developed through the European Commission's H2020 ALLINTERACT project, these platforms provide tools to differentiate scientific claims from hoaxes, particularly regarding gender and education (FECYT, 2022). Moreover, various entities, including associations, schools, museums, and non-governmental organizations (NGOs), are actively working to make science more engaging and accessible to the public. These initiatives do more than just provide access to knowledge; they strive to empower individuals through social learning experiences (Zerai et al., 2017), fostering a deeper understanding and appreciation of scientific concepts. Researchers play a pivotal role in this ecosystem, disseminating the latest evidence with social impact across media channels, encouraging dialogue between science and society, and considering marginalized and vulnerable groups. By keeping these diverse audiences in mind, researchers can help bridge the gap between science and the broader community.

Inclusive Science Communication (FECYT, 2022) bridges the gap between scientific knowledge and the public, empowering individuals to critically evaluate information. It fosters a society capable of making well-informed decisions, particularly during critical moments. By enhancing access to scientific insights through various channels, inclusive communication

could ensure that a wider spectrum of society, including marginalized and vulnerable groups, gains equitable access to scientific results (FECYT, 2022). This approach strengthens public trust in scientific data and reinforces the understanding that diverse perspectives are crucial in shaping a comprehensive view of complex scientific issues. The promotion of inclusive science communication is instrumental in cultivating a society that values diversity, knowledge-sharing, and informed decision-making, contributing to a more resilient and cohesive global community.

5.3 Cultural Knowledge of Migrant Groups: Fostering Innovative Problem-Solving Strategies and Social Cohesion

Migration represents a complex global phenomenon, reflecting humanity's ongoing pursuit of betterment and survival. Its reasons vary widely, ranging from seeking work and economic opportunities to escaping conflict and environmental disasters. As of July 1, 2020, international migrants represented about 3.5% of the global population, totaling 281 million people (United Nations, 2023). The Gallup World Poll surveys further reveal that a 15% of the world's adult population aspires to migrate, if possible (Esipova et al., 2018), underscoring the universal appeal of migration.

Despite migration's potential benefits, recent years have been a resurgence of hostility towards immigrants in Europe and Western nations (Akbaba, 2018; Eberl et al., 2018). This anti-immigration sentiment is often amplified by social media (Ekman 2019). Media portrayals

of immigration play a crucial role in shaping public opinion, with narratives often depicting migrants negatively, framing them as threats to economic stability, cultural identity, or public safety (Eberl et al., 2018). Research examining the portrayal of immigration in the media, particularly in European migration contexts, shows a diverse range of narratives. Migrant groups are typically underrepresented in media coverage. When they are represented, the depiction is often negative, framing them as threats to economic stability, cultural identity, or public safety. This leads to a predominantly unfavorable portrayal of migrants in the media (Eberl et al., 2018).

This biased and intolerant narrative in the media profoundly impacts public opinion, and shapes attitudes towards immigration. This is particularly evident in discussions around welfare systems and public healthcare services (Abbas et al., 2018), where immigrants are often viewed negatively. These prejudices, driven by misinformation and fear, create substantial barriers against migrant communities. Misconceptions about immigrants include them being public health risks or economic burdens, affecting not only the first generation but also their descendants (De Botton et al. 2021; Rosa & Diego, 2022; Portes & MacLeod, 1996). Such misrepresentations hinder the potential integration and contribution of these groups to their host societies.

The way host societies perceive and interact with immigrants plays a significant role in determining the immigrants' ability to make positive contributions to their new communities (Esses, 2021). Here, the concept of cultural intelligence, as described by Flecha (2000),

becomes crucial. This concept argues that every person inherently possesses academic, practical, and communicative skills, regardless of factors like cultural background, language, educational level, or socioeconomic status (Aubert et al., 2009). Cultural intelligence holds the potential for social transformation, suggesting that all individuals, including immigrants, are capable of effectively addressing the challenges they face. Recognizing and leveraging this intelligence can lead to more harmonious and productive interactions, thereby facilitating immigrants' integration and enriching the host society's cultural and social fabric.

The article "Coping of Chinese Citizens Living in Spain during the COVID-19 Pandemic: Lessons for Personal Well-Being and Social Cohesion" (Chapter 4) exemplifies this. It demonstrates how the cultural knowledge of migrant groups, such as Chinese citizens in Spain, provides unique insights and alternative solutions for coping during crises like the COVID-19 pandemic. This knowledge can enhance not only the innovative knowledge but also the overall social cohesion of host societies.

In conclusion, global migration, with its rich cultural diversity, offers invaluable opportunities for building dialogic, informed and inclusive societies. The COVID-19 pandemic has highlighted our world's interconnectedness and the need for collective resilience. By valuing and integrating the diverse perspectives and experiences of immigrants, societies can develop a deeper understanding and more effective responses to global challenges. Embracing migrant contributions involves not just tolerance but actively learning from their cultural knowledge and experiences. This approach is crucial for societies to effectively navigate the

complexities of our changing world. The way migration is approached today will significantly shape the social resilience and fabric of our societies in the future, especially in facing global challenges.

6. Conclusion

In a world marked by diversity and continual unexpected challenges, exemplified starkly by the COVID-19 pandemic, the importance of resilience against future uncertainties has been underscored. Declared a Public Health Emergency of International Concern by the WHO in early 2020, COVID-19 pandemic rapidly evolved into a global pandemic, leading to widespread social disruption, financial insecurity, mental health problems, and economic recessions in numerous countries (Holingue et al., 2020; Glowacz & Schmits, 2020; Xie et al., 2020; Prime et al., 2020; Roy et al., 2021; Jiskrova et al., 2021; World Travel & Tourism Council, 2020). These challenges underscore the unpredictable nature of crises and the necessity to proactively prepare and fortify our resilience against future uncertainties.

This thesis has delved into the roles of the Dialogic Approach, Scientific Evidence with Social Impact, and Cultural Knowledge of Migrant Groups in fostering dialogic, informed, and inclusive societies, especially during challenge times. The findings illuminate the transformative potential of these elements:

Integrating the Dialogic Approach for Co-Creation of Knowledge with Social Impact: The research (Torras-Gómez et al., 2019) highlights the importance of the dialogic approach in the co-creation of knowledge, especially in democratic and rapidly evolving societies. It bridges the gap between scientific communities and the general populace, ensuring inclusivity in the knowledge creation process. This approach is essential for societal transformation and aligns

with modern society's increasing demand for dialogue. The article also demonstrates how the dialogic approach facilitates participatory and collaborative research, aligning with the trends in public and dialogic sociology. It emphasizes the role of varied perspectives in making the research process more comprehensive and reflective of a diverse society. This approach is particularly relevant in addressing real-world challenges, making the knowledge produced adaptable and sustainable.

Empowering Communities through Inclusive Scientific Communication: The study (Rodríguez et al., 2020) underscores the critical role of making scientific evidence accessible and inclusive. The widespread dissemination of scientific insights, particularly via diverse channels like social media, is pivotal for equipping societies with the tools needed to make well-informed decisions, thereby enhancing their resilience. This approach becomes increasingly critical in times of crisis, contributing significantly to the fortification of societal resilience. The study brings into focus the ongoing battle against misinformation emphasizing the importance of a society that not only values but actively engages in knowledge-sharing and critical evaluation of information.

In this era inundated with a plethora of information streams, often diverse and conflicting, the strategy of embracing inclusive scientific communication is indispensable. It stands as a cornerstone in the development of informed communities, ensuring that all members, including marginalized groups who have been historically underrepresented or excluded from scientific discourse, have equal access to scientific knowledge. By ensuring that scientific

communication is accessible and inclusive, we can empower all groups with valuable knowledge, thereby bridging the informational gap and promoting a more equitable understanding of science across all sections of society. This inclusive model of communication not only informs but also empowers, fostering communities where every individual, irrespective of their background, can contribute to and benefit from scientific advancements.

Leveraging Cultural Knowledge of Migrant Groups for Innovative Problem-Solving Strategies and Social Cohesion: The study (Guo et al., 2020) reveals the invaluable contributions of migrant groups in fostering social cohesion and innovative problem-solving. This research underscores the crucial importance of the cultural knowledge and experiences that migrants bring, spotlighting their role in crafting adaptable and resilient societies. Embracing and integrating the diverse perspectives of migrants enables societies to formulate more effective responses to global challenges. The study demonstrates how insights from migrant groups lead to a deeper understanding of complex issues, potentially inspiring innovative solutions that might not arise from a homogeneous cultural viewpoint. This rich integration of cultural knowledge from migrant groups not only enriches societal problem-solving approaches but also significantly strengthens social cohesion.

The cultural knowledge and experiences shared by migrants are vital resources that can be harnessed for societal growth and resilience. When societies actively engage with and incorporate these diverse perspectives, they open up new avenues for innovative thinking and problem-solving strategies. This process is not only about recognizing the value of different

cultural backgrounds but also about creating an environment where such diversity is seen as an asset, contributing to the collective well-being and progress. In doing so, societies become more robust, capable of navigating and overcoming the complexities of modern global challenges. All in all, leveraging the cultural knowledge of migrant groups for innovative problem-solving and social cohesion is a proactive step towards building a society where diverse perspectives are not only welcomed but are seen as crucial for informed decision-making and societal advancement. This approach ensures that the collective wisdom of all community members, including migrants, is valued and utilized, making scientific understanding and problem-solving a shared and inclusive endeavor.

The co-creation and the achievement of social impact from scientific knowledge, serves as critical intermediaries that bridge Dialogic Approach for Co-Creation of Knowledge with Social Impact, Empowering Communities through Inclusive Scientific Communication, and Leveraging Cultural Knowledge of Migrant Groups for Innovative Problem-Solving Strategies and Social Cohesion, to facilitate the realization of dialogic, informed, and inclusive societies, particularly in times of challenge. The Dialogic Approach is instrumental in co-creating knowledge that resonates with a diverse range of societal voices, ensuring that the process of knowledge generation is inclusive and impactful. This approach is complemented by the empowerment of communities through inclusive scientific communication, which is vital for disseminating this co-created knowledge effectively and broadly, reaching all echelons of society. Moreover, the cultural knowledge of migrant groups acts as a beacon for innovative problem-solving, injecting a diversity of perspectives and experiences into the knowledge pool.

These three dimensions intertwine to form a comprehensive approach where the generation and dissemination of knowledge are not just academic exercises but dynamic processes that directly contribute to building societies that are more dialogic, informed, and inclusive, especially during times of societal upheaval and change.

In summary, this thesis demonstrates that fostering a dialogic, informed, and inclusive society is a multifaceted endeavor, requiring the integration of diverse approaches and perspectives. It underscores the importance of the Dialogic Approach in co-creating knowledge with social impact, empowering communities through inclusive scientific communication, and acknowledging and leveraging the unique contributions of all societal segments, including migrant groups. The Dialogic Approach fosters a participatory and collaborative environment for knowledge generation, while inclusive scientific communication ensures the dissemination of this knowledge across all sections of society. Simultaneously, the cultural knowledge of migrant groups enriches this process by introducing innovative problem-solving strategies and strengthening social cohesion. As we move forward, the insights from this thesis can guide efforts to build more resilient, adaptable, and inclusive societies, capable of effectively responding to the challenges of an ever-changing world.

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