

Introduction: Science and Democracy

There has been a growing concern in most liberal democracies about a rising wave of attacks against the legitimacy of science and the scientific method, including not only efforts to discredit individual scientists but also a far-reaching campaign against institutions of higher education, researchers, public intellectuals and experts. The COVID-19 pandemic has brought to the forefront of the public debate the relationship between science and society. Paradoxically, when the world has been struggling against one of the worst healthcare emergencies in modern times, science has been taken hostage by political controversies and highly divisive public debates. Public trust in the authority of science has been under extraordinary pressure for some time. Crucial areas of human activities and public policies, such as agriculture, vaccines, climate policies and healthcare, are influenced not only by technological advances and scientific innovation but also by the mobilization of raw emotions and populist political strategies that escape evidence-based solutions to social, economic and political problems. In populist regimes, science is subject to public delegitimization and denigration. For instance, in July 2020 the White House Press Secretary claimed the rise of hospitalizations was due to catch-up in elective surgeries. The Trump White House claimed also that hydroxychloroquine was a treatment for the COVID-19 virus. Similar attitudes were recorded in populist regimes like Mexico and Brazil.

The anti-experts and anti-science populist campaign accelerates the deterioration of the relationship between science and society

(Mede and Schäfer, 2020). Unfortunately, this is occurring at a critical juncture when governments globally have placed public engagement and citizen science at the top of their priorities. Citizen science is part of a global paradigm that is gaining ground globally. It refers to the practice of public participation and collaboration in scientific research to increase scientific knowledge (Parisi, 2023). National research agencies and international organizations have equally embedded citizen science to build partnerships between research projects, scientists and local communities. For instance, the *Implementation of Federal Prize and Citizen Science Authority: Fiscal Years 2017–2018*, published by the White House Office of Science and Technology, shows how citizen science activities and projects conducted by federal US agencies are widespread and embedded in research and innovation projects. Platforms such as ‘CitizenScience.gov’ help federal agencies accelerate innovation through public participation, collaboration and partnerships with the communities. Likewise, ‘EU-Citizen. Science’ is a platform that plays an important role in sharing resources and knowledge about participation in science in Europe by the public. In 2015, the European Citizen Science Association set out the basic principles of citizen science. These include public participation in the design and implementation of research projects, on a voluntary basis. The United Nations Educational, Scientific and Cultural Organization (UNESCO) has also contributed to the global practice of citizen science by supporting Citizen Science Global Partnerships, a network of associations and groups that seek to promote and advance citizen science for a sustainable world. For instance, engagement with local communities through a participatory approach has been used in flood and drought risk management. Another exemplary use of citizen science is the partnership with Australian communities for the Bushfire Recovery for Wildlife project, supported with AUS\$200 million from the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia’s national agency for research and innovation. The scope for citizen science is global. In this book, we will focus only on the European scenario.

At a time when global and national research and innovation strategies concentrate on the involvement of citizens and society in science and national governments design new methods for improving public trust in research, populist movements have reached

their greatest political salience and have started to win general elections and executive posts. The intellectual preoccupation over a possibly missed opportunity to improve the relationship between society and science in a new, positive direction motivates this book. As one reflects upon the evolution of science in the last decade, oriented towards greater involvement and dialogue with citizens, it is inevitable to be concerned about the contemporary historical conjectures that could hamper even the best government efforts.

The main purpose of *Democratizing Science* is to critically discuss some of the soft governance policy instruments used as remedies to improve the public trust and the legitimacy of science and research, with a focus on the so-called public engagement institutional strategies and policy programmes both at the European and national government levels. We adopt the definition by [Rowe and Frewer \(2005\)](#), who refer to ‘public engagement’ as forms of knowledge that entail an interaction between the academic community and a non-expert public. The book will review different policy approaches adopted by governments to encourage the involvement of citizens in the production of knowledge through new co-production arrangements, participatory mechanisms, local community engagement and other practices. I am particularly interested in how the role of citizens has evolved in the last 40 years, starting from the early 1980s, when the organizational model of public services and, more generally, government institutions changed under the New Public Management (NPM) environment ([Mattei, 2009](#); [Milner et al, 2021](#)). A fundamental and long-lasting reform in the role of citizens was realized in the 1980s when NPM was introduced ([Hood and Dixon, 2015](#)). Governments’ role became that of market-driven service provider and citizens’ role altered to that of customers with extended voice options with the freedom of choice. There was a growing concern for performance and governmental outputs, unlike the input legitimacy of the 1960s.

What policies can governments adopt, and have adopted in practice, to rebuild public trust in scientific knowledge in a post-truth era? How has the relationship between science and society changed over time, from the early 1980s to the present? *Democratizing Science* investigates the new forms of knowledge production that ‘bring citizens in’ to the process of research design, data collection and communication of results ([Irwin, 1995](#)). It

focuses on the origins of the new participatory turn in knowledge systems (Jasanoff, 2003).

Why have governments in the last ten years reoriented their research strategies and funding towards so-called citizen science? How can we explain such steady and widespread policy direction that moves away from the public understanding of science approach towards the public engagement model? These are the key questions that this book wishes to reflect upon, drawing upon a multidisciplinary and rich scholarly literature. Given that public engagement is a slippery concept and has by now achieved the status of a ‘magic concept’ (Hupe, 2022), the book offers a critical reflection on its multiple dimensions by unbundling its potential from political rhetoric, which is also associated with participatory practices. By no means do I suggest that the new participatory turn in knowledge production is a golden value or standard. In contrast, the book explores the perils of adopting a ‘populist’ approach to science policy not driven by intellectual curiosity, and blue sky research, but exclusively based on economic and societal instrumental needs and demands arising from narrowly localized contexts. We will then concentrate on government agendas to democratize science from a critical perspective that aims to highlight the evolution of the role of citizens, the new strategies to interact with them, but also the risks of bringing citizens in and leaving science out.

The discourse of democratizing the processes of state governance has travelled across different jurisdictions, institutions and policy sectors. The articulation of the conception of ‘participation’ and ‘public engagement’ shows varying characteristics across policy domains. In medical care and technology, for instance, the focus is on activating patients and their associations and identifying new ways of interaction and collaboration between the state, professionals and patients (as users). There are lots of experiences collected in health-policy making of citizen juries (Street et al, 2014). Most public engagement activities in this domain are understood as a feature of civic epistemologies as defined by Jasanoff (2005). In most European countries, the public engagement practice associated with technology assessment is now well established in the field of artificial intelligence, genetically modified plants, HIV studies and neuroscience, just to mention a few. These practices are linked to a post-positivistic conception of policy making (Héritier, 1993),

not exclusively based on technocratic rationality, but on input of different groups with varying values, interests and needs. The technocratic relation of science and politics, which dominated in the new era of new managerialism, slowly paved the way to the inclusion of multiple and complex epistemic communities and societal groups (Mantovani, 2016).

The thrust of this book is that the public engagement agenda, currently adopted and institutionalized in many countries around the world, offers a potential remedy to diminishing trust in science and is a fruitful way forwards to democratize academic projects meaningfully and efficaciously. However, not all practices of public engagement are without risks, and in some cases, citizens are recruited in large population projects as volunteers for data collection in unethical ways. It is also unclear what a citizen is in the interaction between scientists and stakeholders, as new types of nontraditional citizenship escape the nation state. The book will invest much effort in discussing ecological citizenship and its implications for public engagement. Thus, the discussion in this book presents multiple facts about the concept and practices of interacting with citizens, and it also offers a critique of the rhetoric associated with citizen science. Public engagement is instrumental to this broader government *political* agenda to provide legitimacy to possibly unpopular marketization ideas.

Therefore, public engagement is defined as the interaction between researchers and organizations with stakeholders outside of academia for the mutually beneficial transfer of knowledge, resources and methods. The original approach of the book is to focus for the first time on the *political dimension* of these government agendas and to analyse public engagement as an institutionalized policy area beyond individual behaviour and attitudes. Unlike other books, which focus on individual behaviour, mainly in the field of behavioural economics, the chapters in this book offer a critical understanding of governments' policies to democratize science and design innovative approaches to support public co-production of knowledge.

Despite the need for a few critical reflections, the shift towards greater openness, transparency and interaction with citizens is a hard-won gain for public accountability, a constitutive element of liberal democratic systems (Mattei, 2018).

Democratizing Science points to the advantages of investing in public engagement practices and co-production arrangements as a way to reconfigure the relationship between universities and educational institutions and society, which has radically changed due to the effects of marketization reforms associated with the ‘entrepreneurial state’ (Greve et al, 2016). NPM and its marketization element, from the early 1980s, have proposed a new model of public sector organizations, inspired by the private sector and by a view of citizens as customers and clients. Contracts are at the basis of the interaction between science and the public, and trust is somewhat left at the margins of such a framework of relationships. **Chapter Three** of this book will discuss this in detail. The organizational changes associated with marketization, particularly in the delivery of public services, have significantly impacted schools, universities and, generally, places where knowledge is produced, transmitted and used. This phenomenon has been widely studied in the public policy and public management literature. This book starts from a discussion of critical junctures of the 1980s reform agenda and proposes to analyse public engagement as the new millennium response to it. Public engagement can be viewed as a post-NPM trend, whereby public participation becomes part of public services modernization (Fenwick and Mcmillan, 2012; Burchell et al, 2017).

A crisis of public trust in science

There is growing concern in most liberal democracies about the surge of attacks against the public legitimacy of science and the scientific method. This includes not only efforts to delegitimize individual scientists and their expertise but also the social locations of knowledge production, such as universities, research centres, teaching hospitals and schools. Public trust in the scientific community is under huge pressure. In the post-truth era, evidence-based public policy is increasingly challenged by a new reconfiguration of ‘scientific truth’. Crucial areas of human activities and public policies, such as healthcare, food, agriculture and climate policies, are subject to the manipulation of public sentiment, ideologies and affective political strategies that depart from policy making based on evidence, data and reason.

Although the public debate on the post-truth society extends to a wide range of government activities and policies, in the medical sciences and healthcare policy, the rise of fake health news has been most divisive and politically salient given the high risks involved for the health and wellbeing of citizens. The effectiveness of medical treatments depends on patients' trust and collaboration in the professional advice they obtain from their care professionals and caregivers. A decline in public trust in expert knowledge leads to an increase in the use of unproven treatments for many illnesses and self-diagnoses. Misinformation poses the greatest threat to patients who suffer from a progressive erosion of their social networks due to diseases that limit their active participation in social life.

The question we need to address first and foremost is what the social and political causes are of the breakdown of confidence in science and the scientific method. What are the main political manifestations of the changing relationship between truth and public policy making? Second, we need to examine the propitious organizational conditions that have contributed to the move towards engagement with society. We will do so in [Chapter Two](#) of this book, when we more directly explore the organizational fragmentation brought about by NPM reforms.

Science has traditionally and historically been the most important counterweight against false statements and manipulations ([D'Agostini and Ferrera, 2019](#): 66). Commentators across different social backgrounds are concerned about 'the crisis of trust' in science and scientific knowledge. In Western liberal democracies, we are experiencing a significant decline in trust in scientific authorities. The attacks against science are organized by groups that advance their own cultural domains and systems of beliefs, such as religious groups, industry groups (challenging the existence of climate change, for instance) and social movements (for example, the movement against the use of pasteurized milk in the United States embraced by famous public figures). These groups hold views against scientific knowledge and defend their beliefs as sacred ideologies that are not subject to analytical and critical questioning. Misinformation, not scientific findings, spread quickly through the internet and social media, such as Twitter, Facebook and Instagram ([Guess et al, 2019](#)). They produce cascade effects whereby people engage with the information without checking the sources and quality of

the claims (Sunstein, 2009; Margetts, 2018). Maurizio Ferrera, in an influential scholarly book, suggests that misinformation spreads almost like an ‘autoimmune syndrome of the democratic formula’ (D’Agostini and Ferrera, 2019: 84).

The breakdown of social trust represents a potential twilight of stable liberal democratic institutions (Bennett and Livingston, 2018). In the United States, the post-truth era was coined with reference to the presidency of George W. Bush by E. Altermann in a famous book entitled *When Presidents Lie* (2004). It appeared first in US public debate where post-truth was associated with pathologies of contemporary political systems and democracies (Margetts, 2018), such as rumours, fake news and political lying. One of the most influential studies on the post-truth era is R. Keyes’ 2004 book *The Post-Truth Era*.

Social media platforms are implicated in the deterioration of public debate and pathologies such as fake news. Are some population groups more vulnerable than others? False analogies, logical fallacies, religious beliefs and ideologies rooted in unrealistic expectations are diffused through social media and reach millions of people. Fake news is defined as distorted or false versions of events that are widely disseminated either for the purpose of disruption or for financial gain (Bistagnino and Fumagalli, 2018).

The problem of declining confidence in science is ultimately a struggle for the legitimacy and cultural authority of science and secular institutions. Gauchat has argued that the legitimacy problem remains understudied and undertheorized (Gauchat, 2010). This book contributes to the analysis of this field of studies by advancing our theoretical understanding of the drivers and causal mechanisms. Some scholars suggest that concern about a crisis of trust in science is associated with the ‘very limits of modernity’ (Yearley, 2000: 105). Ulrich Beck maintains that the public holds the scientific community responsible for the negative externalities of industrialization (1992): toxic waste, plastic in the oceans, climate change, the melting of the Arctic, overuse of drugs, genetically modified organisms, and so on. The public no longer looks to scientists and scientific knowledge to provide common values that improve everyday life (Collins and Evans, 2007). Gauchat demonstrates how trends in public trust in science in the United States have been steadily declining from 1974 until 2010, especially

among conservatives who have lower trust in science (Gauchat, 2010). Political disinformation is also the subject of a study by the Hewlett Foundation (2018) and a mushrooming body of academic literature (Allcott and Gentznow, 2017; Bistagnino and Fumagalli, 2018; Margetts, 2018).

What is the solution to the decline in trust and legitimacy of the scientific community? What can scientists do to rebuild trust? Our point of departure is that the scientific community has a social role and social locations, such as universities, laboratories, research institutions and scientific associations. These institutions are responsible for engaging with the public in the co-production of knowledge. There is increasing doubt among many scholars that the public is sufficiently engaged with scientists (Collins and Evans, 2007; Allum et al, 2008; Moore, 2008). When we refer to a 'scientific community', I am not talking about a group of individuals who are isolated from society and advancing their own wishes. A scientific community is a social project and a social entity that is engaged in the creation of a collective good (Goddard et al, 2000). A scientific community is not a religious church but a self-correcting system whereby we build upon the successes and mistakes of others. As Calhoun argues, the university is responsible for the creation of the public good (2006). The future model of the European university is the 'engaged university' (European Commission, 2015; Mattei, 2018), as Chapter Five will discuss.

In a post-truth era, it is crucial to boost efforts to spark renewed trust in science by stimulating a two-way dialogue with the public by fostering closer interaction between scientists and local communities. The 'co-production' of knowledge is one of the most effective instruments to rebuild legitimacy and effectively debunk fake health news. What are the practical and empirical aspects of co-production processes? The empowerment of users of public services represents a significant paradigm shift in the relationship between science and society. In the medical sciences specifically, the rise of fake health news is a contemporary hazard for human health and wellbeing. A decline in public trust in expert knowledge leads to an increase in the use of unproven treatments for many illnesses and self-diagnoses (Grant, 2009). Cancer care features prominently in the post-truth world, which is dangerous. For instance, the most popular article on Facebook with the word 'cancer' in 2016, which

received more than 1.4 million shares and likes, was a story related to the miraculous effects of dandelion on curing prostate and lung cancer due to its properties of boosting the immune system in 24 hours. In an article in the *Independent*, the journalist Katie Forster discredited this fake news (2017).

The medical treatment of cancer works as long as patients and their caregivers trust the knowledge and expertise of professionals and the scientific knowledge supporting them. Patients' and caregivers' distrust may have two main reasons. First, no information is available to exhaustively explain the clinical condition of the patient. This may increase the patient's uncertainty about the future, with a consequent increase in fear and anxiety that in turn leads to a need for information and a need to look for possible actions (Ravenek et al, 2017). Second, information may be provided to patients and caregivers but may not be understood or memorized because of nonoptimal communication between doctors and patients or because of the emotional state of patients, which impairs understanding (Pravettoni et al, 2016).

Once fake news circulates on social media, it is very difficult to debunk it with fact-checking (Sunstein, 2009). It is challenging to counterbalance bad science with rebuttals and good arguments against fake news. In their book, *The Debunking Handbook*, two Australian academics (Cook and Lewandowsky, 2011) show that rebutting bad science does not work because misinformation is sticky in the brain and difficult to remove using data and real facts.

Knowledge systems in a populist era

In the book, the strategy is to focus on those institutions that have traditionally been at the heart of knowledge systems – schools and universities. Working with schools is one of the most important strategies of many public engagement practices run by academics and scientists who wish to raise awareness in young pupils and arouse their enthusiasm for specific subjects and issues. However, one also needs to be cognisant of the normative frameworks that are embedded and promoted in state-funded schools. Education continues to be a transmission belt for ideological principles and modern values (Halsey, 1997). Ideas about national identity in

Europe have long been forged in schools through the teachings of history, civic education and languages (Tröhler, 2020). These ideas are coherent in Europe with the rise of the modern state, rooted in nationhood and characteristics such as homogeneity, belonging and cultural roots (Nussbaum, 2012). The political community is defined by members of the nation state who are educated in citizenship through schooling. Schools are institutions of knowledge and scientific instruction but also vehicles for the transmission of cultural values, traditional beliefs and identity formation (Mattei and Broeks, 2018). Education has been subject to massive international economic penetration in Europe in the last 30–40 years (Ball, 2012; Sahlberg, 2016). The marketization of education concerns not only Anglo-Saxon systems but also traditionally social democratic ones (Imsen et al, 2016). This process of depoliticization associated with marketization has not made political parties and partisan ideologies irrelevant (Seppanen, 2003; Lundahl et al, 2013). Despite all these policy changes, education remains a politically contested and highly divisive policy arena that continues to mobilize political ideologies, professional groups and their vested interests.

In the literature on the relationship between science and society in the context of marketization and the profound transformation of governance structures since the 1980s, it is slightly surprising how little attention has been given thus far to the strategies taken by radical right populist parties on education (Giudici, 2020, 2021). Unlike the parties of the extreme right, which were often excluded from participation in government (Riera and Pastor, 2021), populist parties in Europe have been making inroads into national governments since the early 2000s (Albertazzi and McDonnell, 2015; Mudde, 2017; Taggart and Pirro, 2021). The study of the policies implemented during their time in government, however, has mainly been limited to those issues that have had a clear electoral yield: migration, law and order and, to some extent, Eurosceptic positions (Minkenberg, 2001, 2018). The limited attention to education issues, however, is an obstacle to understanding the effects of the permanence of radical right populist parties in national political systems in terms not only of policy making but also of political culture and broader understandings of democracy (Urbiniati, 2019). There is no doubt that party ideologies on

education have short- and long-term effects on political socialization and democratic legitimacy.

Radical right populist parties are generally viewed by educators as not having a policy agenda on education and knowledge systems, apart from a vague reference to a mythical past associated with nativism (Mudde, 2007), where a homogeneous people is presented as the precondition and the target of education policies aiming at reproducing models of citizens' socialization that guarantees continuity instead of innovation. Education in general and the role of compulsory schooling in particular also emerge as privileged battlegrounds for the populist opposition between the elite and the people.

Populism is a highly contested concept in political science (Tarchi, 2015, 2018). A limited agreement has been reached on how populism should be interpreted (as an ideology, a political style or a discursive practice). Despite the many differences in the nature and definition of populism, there is some consensus on the lowest common denominator of populism (Mudde, 2004; Urbinati, 2019). In the empirical manifestations of populism, the opposition between the people and the elite is centred on the exaltation of the in-group and the exclusion of the out-group. The defence of the community is built based on the exclusion of the bearer of diversity (Mudde and Rovira Kaltwasser, 2013; Mudde, 2017).

In this regard, we should not forget that Italian compulsory schools and universities are mostly public and run by the state. Schooling, therefore, lends itself to becoming a polemical target in right-wing populist mobilization. Alongside the criticism of political elites' wasteful management of the education system, one can find the traditional populist opposition to the intellectual elites, considered responsible for imposing a 'single way of thinking' (*pensiero unico*) and a standardization in the learning process of citizens. Identity has also always been a key issue in the analysis of the ideology of far-right parties and movements (Bar-On, 2007). The call for a return to traditional values, which accounts for a very large part of the programme platforms of populist parties in relation to family policies, also fits well with populist proposals on education.

Studies on the educational preferences of radical right populist parties are scarce and most often focus on the UK and US cases (Stevens, 2001; Ansell and Lindvall, 2013; Brown, 2021). These

studies are mainly concerned with standardization in education and the need to introduce pro-competitive and pro-choice mechanisms. As some scholars argue (Apple, 2000; Mudde, 2017; Taggart and Pirro, 2021), populist right parties have invested their energy in ‘politics of recognition’ and identity formation in education, rather than equality of outcomes or redistributive issues.

Overview of the book

The book begins with the need to bring some conceptual and definitional clarity to the term ‘public engagement’, which is used in the policy-making process to describe a mix of norms, practices, political goals and aspirations. It is one of those umbrella terms that have been used to refer to different types of interaction between the public and scientists. The activities included in public engagement practices are extremely diverse and wide-ranging. [Chapter Two](#) focuses on bringing some conceptual clarity with a view to reviewing a wide range of policy frameworks provided by the European Union (EU). Research assessment agencies have worked hard in the past ten years to define what should and should not be included in the public engagement activities of researchers and universities. The discussion in [Chapter Two](#) will contextualize the study of public engagement strategies against the backdrop of declining trust in scientific authority and the general distrust for science fuelled by populist leaders and the post-truth society. It is worth noting that in the book, we are less interested in individual behaviour and specific instances or types of activities; instead, we look at public engagement insofar as it is an institutionalized government strategy and a policy domain, with vested interests, actors, policy instruments and distinct decision-making processes. The book does not narrowly focus on one jurisdiction or individual organization but offers a macrosystem view that captures changes at the national and European level.

[Chapter Three](#) discusses the different conceptualization of citizens’ involvement in the context of market-based environments and organizational models associated with the ‘entrepreneurial state’, initially introduced in the early 1980s in the UK. NPM has created the push towards greater involvement of external stakeholders and the public in the governance structures and internal processes of

public organizations, with an increase of public–private partnerships and growing emphasis on performance and accountability (Pollitt and Boucaker, 2001; Hood and Dixon, 2015). Following a review of the key tenets of the paradigmatic change associated with NPM, the chapter discusses the implications of adopting new governance arrangements in schools, such as Citizen School Charters and school autonomy, as an instrument of the entrepreneurial state, which is free from government controls and autonomous in designing its own strategies, recruiting teaching staff, and engaging with society and communities mainly through citizens’ involvement as customers and external actors.

Chapter Four concentrates instead on the participatory turn in the context of New Public Governance and the conceptualization of citizens as partners of the enabling state (van der Meer et al, 2018). According to this new paradigm, citizens take an active role as partners in both policy and public service delivery. They are no longer the passive recipients of welfare benefits. We will look at the programmatic reforms in the EU aimed at improving the participation and engagement of the public in research and innovation. The discussion will trace the evolution of the relationship between citizens and governments, moving along a trajectory that has transformed their role from consumers in private market accountability systems to co-producers of knowledge (Pestoff, 2018). The chapter explores the changes associated with public engagement and viewing citizens as partners in the process of knowledge production and transmission. The new framework proposed by citizen science is based on the centrality of trust and confidence in the relationships between actors and partners, unlike the competition and contractualization of relationships inspired by NPM and marketization (Hupe, 2022). Public management strategies view citizens and the public in a substantially different way from clients. Citizens enter voluntarily into new collaborative governance arrangements with state institutions, and the relationship between science and society is viewed as an interactive process marked by a high level of hybrid accountability systems (van der Meer et al, 2018; Benish and Mattei, 2020). The chapter will also explore some nontraditional forms of citizenship that have recently gained traction, such as the ‘ecological citizenship’ linked to climate change policies, protecting the environment and the United Nations

(UN) Sustainable Development Goals. Ecological citizenship, as Dobson has argued (2003), is a nonterritorial type of citizenship that emphasizes the duty to protect the environment and engage with climate action over rights. It means caring for others and for the protection of the environment, biodiversity and sustainability.

Chapters Five and Six illustrate the applicability of public engagement in the field of education at different levels, in schools and universities, drawing from contemporary policy challenges such as environmental citizenship teaching (Chapter Five). In search of the ecological citizen, Chapter Five analyses a specific case study in this area of public engagement. It explores the adoption by national governments of a new type of sustainability education in compulsory schooling as an instrument for improving the participation of young people and their families in local knowledge systems that are concerned with climate change, waste management and, generally, environmental sustainability. In the UK, a bill has been discussed since 2019 by Parliament on the adoption of sustainability education in all schools. In Italy, the Italian Parliament passed a law in 2019 that introduced the provision of environmental citizenship education in all schools. As part of a larger research project, the author in this chapter also reports some of the results of a pilot interview project with teachers conducted in local schools in Milan, Italy, from May until November 2022. The purpose is to illuminate some of the concerns with the operational governance of transforming engagement into a meaningful practice beyond an instrument of political convenience. By no means do we suggest that this case study is representative, nor unique; on the contrary, it illuminates the challenges of reconceptualizing the relationship between state organizations, local communities and citizens in the context of public engagement strategies to mobilize young people in the field of climate change. The interviews with teachers indicate the potential gap between the rhetoric of ambitious projects and the reality on the ground, where the operational governance of public engagement becomes more salient and affects the quality of the interaction of schools with families and communities.

Chapter Six is dedicated to the role that universities as independent actors play in the new knowledge systems oriented towards public engagement as an institutional goal. The triple helix model of innovation, developed by Carayannis and Campbell in 2009, has

significantly transformed the strategic position of universities in relation to other stakeholders by incentivizing them to operate as ‘entrepreneurial’ actors (Etzkowitz, 2003; Mattei, 2014) that are able to attract joint ventures with private firms, research contracts with external partners, and diversify their income revenue. The process of adaptation of universities to marketization and financialization demands, not least entailed by the entrepreneurial university model and globalization (Mattei et al, 2023), affects the quality and nature of public engagement with citizens in all its varying forms and implications for the relationship between science and society. The marketization of public services presupposes strong central governments and administrative audits and controls of access to different income streams. How do universities guide processes aimed at promoting democratic citizenship at the local level? What are the effects of the creation of new public engagement initiatives and public engagement programmes for university autonomy? To what extent does the growing commitment of universities to social responsibility and entrepreneurship contribute to local democracy? Is the ‘market logic’ of social responsibility a principle of institutional design that is complementary with traditional university autonomy? If so, under what conditions? These questions will remain with us for a long time, as the world economy and security are rapidly changing.

Chapter Seven will present the author’s reflections on the potential benefits of the new relationship between science and society envisaged in contemporary science policies but also on the risks of governing the process of ‘bringing citizens back in’ in a rather populist and ineffective way, which may do more harm than good to the original aspirations of the public engagement project. Further research and attention are needed on the operational governance of citizen science and what it means to be a ‘citizen’ in the process of democratizing science.