DELIVERABLE 7.4
A Framework for Education and Public Engagement

WP 7
Deliverable 7.4 Education and Public Engagement Framework for Ocean Literacy

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SAFE WAVE project synopsis

The Atlantic seaboard offers a vast marine renewable energy (MRE) resource which remains largely unexploited. These resources include offshore wind, wave and tidal energy. This industrial activity holds considerable potential for enhancing the diversity of energy sources, reducing greenhouse gas emissions and stimulating and diversifying the economies of coastal communities. As stated by the European Commissioner of Energy, Kadri Simson, during the Energy Day in the framework of the climate conference (COP25) held in Madrid (2-13 December 2019), *"the European experience shows that the benefits of clean energy go beyond reduced greenhouse gas emissions and an healthier environment. Clean energy transition boosts the economy and creates jobs. The European Green Deal is also a growth strategy"*. In the same framework of COP25 and during the Oceans Day, the European Commissioner for Environment, Oceans and Fisheries, Virginijus Sinkevičius, explained that *"fighting climate change and protecting marine life biodiversity is a centrepiece of the EU's ocean policy. Due to climate change, our oceans are facing serious challenges, which require an urgent and comprehensive response. But oceans are also a part of the solution"*. Ocean energy is one of the pillars of the EU's Blue Growth strategy. It could provide clean, predictable, indigenous and reliable energy and contribute to the EU's objective of reaching a share of renewables of at least 32% of the EU's gross final consumption by 2030. As it was emphasised by Virginijus Sinkevičius, *"Marine renewable energy has an incredible potential. The offshore wind sector is growing strongly enough to compete with traditional energy sources. The emerging technologies such as wave and tidal energy will take the same pathway."*

The nascent status of the Marine Renewable Energy (MRE) sector, and Wave Energy (WE) in particular, yields many unknowns about its potential environmental pressures and impacts. Wave Energy Converters' (WECs) operation in the marine environment is still perceived by regulators and stakeholders as a risky activity, particularly for some groups of species and habitats.

The complexity of MRE licensing processes is also regarded as one of the main barriers to the sector development. The lack of clarity of procedures (arising from the lack of specific laws for these types of projects), the varied number of authorities to be consulted and the early stage of Marine Spatial Planning (MSP) implementation are a few examples of the issues frequently identified as contributing to delays in obtaining projects' permits.

Finally, there is also a need to provide more information on the sector not only to regulators, developers and other stakeholders but also to the general public. Information should be provided focusing on the ocean energy sector's technical aspects, effects on the marine environment, the part it plays in local and regional socio-economic aspects, as well as its effects on a global scale as a sector producing clean energy and thus having a role in contributing towards the decarbonisation of human activities. Only with an informed society will it be possible to carry out fruitful public debates on MRE implementation at the local level.

These non-technological barriers that could hinder the future development of WE in EU are being addressed by the WESE project funded by EMFF in 2018. The current project builds on the results of the WESE project and aims to move forward through the following specific objectives:

1. Development of an **Environmental Research Demonstration Strategy** based on the collection, processing, modelling, analysis and sharing of environmental data collected in WE sites from different European countries where WECs are currently operating (Mutriku power plant and BIMEP in Spain, Aguçadoura in Portugal and SEMREV in France); the SafeWAVE project aims to enhance the understanding of the negative, positive and negligible effects of WE projects. The SafeWAVE project will continue previous work, carried out under the WESE project, to increase the knowledge on priority research areas, extending the analysis to other types of sites, technologies and countries. This will increase information robustness so to better inform decision-makers and managers on real environmental risks, broaden the

engagement with relevant stakeholders, related sectors and the public at large, and reduce environmental uncertainties in consenting of WE deployments across Europe.

2. Development of a **Consenting and Planning Strategy** through providing guidance to ocean energy developers and to public authorities tasked with consenting and licensing of WE projects in France and Ireland. This strategy will build on country-specific licensing guidance and on the application of the MSP decision support tool developed for Spain and Portugal in the framework of the WESE project. The results of the SafeWAVE project will offer guidance to ocean energy developers and public authorities for most of the EU countries in the Atlantic Arch.

3. Development of a **Public Education and Engagement Strategy** to work collaboratively with coastal communities in France, Ireland, Portugal, and Spain to co-develop and demonstrate a framework for education and public engagement (EPE) concerning MRE, enhancing ocean literacy and improving the quality of public debates.

List of acronyms

EPE   Education and public Engagement

MRE   Marine renewable energy

PiG   Public-in-General

PES   Public engagement with science

PUS   Public understanding of science

RES   Renewable energy source

SRT   Social Representations Theory

WE   Wave energy

Executive summary

This deliverable (7.4) of the SafeWAVE project focuses on creating a framework for the development and implementation of education and public engagement (EPE) programs. To accomplish this task, we begin by developing a generic framework that is applicable to any type of EPE program. Owing to the general nature of such an endeavour, our methodology rests primarily on a foundation of desk-based research in the form of an integrative literature review. This type of literature review gathers and analyses relevant documents from a wide variety of disciplines with the aim of creating new frameworks and perspectives on a topic. This literature review draws from peer-reviewed research in a number of academic journals in the disciplines of sociology, psychology, political science, public administration, education, environmental science, and multidisciplinary fields such as transition theory and management, science-technology-society studies, critical theory, and gender studies. After developing this general framework, we then apply it to the objective of creating a framework for EPE programs that focus on ocean literacy and ocean energy acceptability with a focus on wave energy.

The EPE framework for ocean literacy and ocean energy acceptability programs was co-developed with stakeholders and value chain actors following interviews with key contributors conducted in the early autumn of 2021, as well as with a survey tool sent out to partners with whom the researchers had worked on earlier projects. In addition, tasks 7.2 and 7.3 of the SafeWAVE project detailed many lessons and much information which was gathered from both citizens and experts that were applied to the development of this framework, not least among them the necessity of utilizing an intersectional approach in the program's creation and evaluation.

The framework for ocean literacy and ocean energy acceptability programs culminates in a documented methodological approach for the creation of tailored ocean literacy programs for individual ocean energy projects with a focus on wave energy. This task will be the objective of deliverable 7.5.

1 Introduction

1.1 Background to task

Past experience with marine renewable energy (MRE) has shown that public opposition may hinder the development of MRE projects, slowing down Europe's energy transition. As indicated in the proposal *"SafeWAVE is very aware of the importance of good relationships with local communities and the need to develop good two-way communication with stakeholders to facilitate the successful scaling of ocean energy device deployments. SafeWAVE will work collaboratively with coastal communities in France, Ireland, Portugal and Spain, to co-develop and demonstrate a framework for education and public engagement (EPE), specifically aimed at ocean literacy"*. With this objective in mind, this deliverable is a part of work package (WP) 7 which includes the following six tasks:

7.1. Understanding opposition to renewable energies

7.2. Critical review of education and public engagement

7.3. Identification & characterisation of societal stakeholders

7.4. Constructing the EPE Framework

7.5. Tailoring specific ocean literacy programmes

7.6. Trialling and evaluation of the ocean literacy programmes

This deliverable focuses on Task 7.4, constructing the education and public engagement framework, which will then inform the development of tailored programmes that the SafeWAVE project will trial and evaluate in subsequent tasks.

1.2 Objectives

The objective of Task 7.4. is to develop a framework for education and public engagement (EPE) efforts that can be used to create specific programs for the communities of the SafeWAVE project as detailed in the next deliverable, Task 7.5. Our intention is to design the framework so that it is both general enough to be used in a wide variety of education and public engagement applications, yet informative enough that practitioners can use it as a template to help direct them in the creation of their specific programs. Though the EPE aspect of SafeWAVE centres around ocean literacy and an understanding of ocean energy devices within that context, especially wave energy converters, it is our hope that the framework will find uses beyond this purpose with any endeavour that seeks to engage the public with projects or policies that have the potential to impact them, either positively or negatively. The framework will be designed so that it can be used whether the proposed impact is minor and only requiring the lower levels of participation indicated by the model, or major and requiring the higher levels of participation described. This deliverable ends with a general discussion of how the framework will be applied to the ocean literacy aim of SafeWAVE's EPE program, the specifics of which will be developed in task 7.5.

1.3 Methodology

As the objective of this deliverable is to create a framework, i.e., a generalised structure which delineates the primary components that should be considered in constructing the final product, the data which was gathered and analysed was the bodies of literature which could inform the selection of these primary components. The method of gathering and analysing the data is best described as an integrative literature review. This *"is a form of research that reviews, critiques, and synthesizes representative literature on a topic in an integrated way such that new frameworks and perspectives on a topic are generated"* (Torraco, 2005, p. 356).

Scholarly interest in public engagement accelerated rapidly from the dawn of this century ("Handb. Public Pedagog.," 2010) though the practice itself can probably be said to date back to the ancient Greeks (Lane, 2020). Acknowledging this upswing in research, the majority of peer reviewed articles and books examined were written within the last twenty years, with exceptions granted for important works and foundational texts published before this time. To ensure that the analysis was integrative, sources were chosen from the works of scholars from all over the world and in a wide variety of disciplines including, but not limited to, education, philosophy, sociology, psychology, public administration, political science, and science-technology-society studies. The search and analysis is organised around each of the three terms in *education and public engagement,* extracting themes and multiple meanings from the literature and organising them in relation to each other to create the framework. This search was both systematic and dynamic. Systematically, the approach was to use similar search expressions in multiple databases available through the University College Cork library and set the search parameters to relevancy, citations, and date in that order (Table 1). Dynamically, both a forward and reverse snowballing approach was used for references found in the bibliographies of multiple publications, examining both original sources and other articles linked to these.

Table 1: Search term examples and databases

Examples of search terms	Databases
- Education AND public sphere - Conceptions of publics - The public of public pedagogy - Typologies of public engagement - Social movement and public pedagogy - Importance of place in social representations - Learning out of school - Deliberative democracy AND engagement - Ethics of social intervention - Rationality and emotion in public engagement - And many more	- Web of Science - Science Direct - Sage Journals - JSTOR - ProQuest - Cambridge Core - Wiley Online Library - Taylor & Francis eBooks and eJournals - Scopus - SocINDEX - OneSearch (library's universal search engine for books and journal articles) - Google Scholar – not through the library, but accessed - This list is exhaustive

1.4 Structure

Task 7.4 is to create a framework for the development and implementation of education and public engagement (EPE) for ocean energy projects with a particular focus on ocean literacy. The report begins with the introductory material and then moves to an examination of each of the components in the phrase *education and public engagement*. By deconstructing the phrase, we uncover the meanings associated with each component and are then able to elicit the various relations each term has to the other. These relationships form the supports of our framework.

Section Two of the report focuses on what is meant by 'education' in EPE programs. To understand this aspect, we examine the literature on public pedagogy which has as its sole concern the role of education in the public sphere and beyond the walls of the classroom. We uncovered four themes in this body of literature which apply to the task. There is what may be termed the status-quo approach to education in the public sphere which is referred to as the deficit model (2.1), the importance of democratic processes in public education and the importance of public education to democracy

(2.2), public pedagogy as a cultural and political critique (2.3), and finally, the importance of place in public education endeavours (2.4).

Section Three of the report investigates what is meant by the 'public' in EPE programs. For this inquiry we turn to the literature on public sociology as defining the public is a key feature of that discipline. Though there are many types of publics discussed in the literature, the three which stand out as being relevant for EPE program creation are the traditional, or passive public of corporate PR campaigns (3.1), the participatory public of deliberative democracy (3.2), and the empowered public of community activists (3.3).

Section Four of the report turns to the engagement component of EPE. Here we draw from the science-technology-society studies (STSS) literature as scholars in this field are focused on communicating the benefits or dangers of science and technology to the larger lay-person public. They engage with the public in hopes of drawing forth their participation in science and technology questions that affect society. Here we discuss three different levels of engagement with the public which both reflect and produce EPE program administrators' conceptions of their publics and the types of education themes they are likely to utilise. This inter-relatedness reveals a broad framework that is applicable to many different types of potential EPE programs. The entry level of engagement is consultation (4.1) where the public is seen as passive and the educational technique is the deficit model. When program facilitators genuinely try to partner with the public, the engagement is collaborative (4.2), the public is participatory, and the educational motif is the bi-directional approach of deliberative democracy. If the public is inspired enough to take some sort of ownership role in the project or policy proposal under discussion, then they share in the decision-making tasks and the engagement process is one of co-creation (4.3). The educational themes appropriate are the more empowering ones that embrace the importance they place on their idea of place and their role in the political process.

Section Five describes how this general framework for education and public engagement can be applied to the particular interests of the SafeWAVE project for ocean literacy and

ocean energy development. It draws from the work and input of our partners in Deliverables 7.2 and 7.3, interviews, and the results of a distributed questionnaire. It lays the background for the more detailed EPE program description explored in Deliverable 7.5. In section Six we offer a brief conclusion to this report where we describe how it has met the objectives of the task described for it in the Description of Action for the SafeWAVE project.

2 Education

Before it is possible to develop a framework for outlining how an organization is to go about the work of conducting an education and public engagement program, it is necessary to accurately describe just what is meant by each of those terms – education, public, and engagement.

The educational component of education and public engagement (EPE) programs is one which necessarily takes place beyond the confines of the classroom, literally and figuratively. That is to say, not only do such endeavours take place in the public sphere – community buildings, town squares, public parks, street fairs, protest marches, museums, etc. – but the method of the education is also different than that of the classroom. There are no graded exams, no marked-up papers that the student needs to revise and return, no principal's office, no detention, and there is no state compulsion for the participants to be present. There are indeed more characteristics than these which separate classroom learning from learning in the public sphere and to capture that difference a body of scholarly work called public pedagogy arose in the mid-1990's and continues on through the present, though there were a handful of publications which employed the term dating back to as early as 1894 (Sandlin *et al.*, 2011).

In current use, "*the term public pedagogy is being deployed within scholarship in various fields as a way to describe the 'public engagement' work that has become a fundamental aspect of the vision and enactment of many disciplines within academia*" (Sandlin *et al.*, 2017, p. 823). In our review of this literature there were four recurring themes which we see as informing the educational aspect of EPE. These themes are (1) how most education and public engagement programs fail to do either, educate or engage, (2) how

a public pedagogy is necessary in a democracy and necessarily democratic, (3) how a public pedagogy should foster an awareness of cultural motifs and political economy, and (4) how the sites of a public pedagogy, physical and metaphorical, influence its content.

2.1 The Deficit Model

The first theme in the public pedagogy literature that bears mentioning is that there is an almost universal disdain for what is called the deficit model of communication. This disregard is interesting since this model is by far the most prevalent approach to public engagement and education activities (Petts & Brooks, 2006; Brian Wynne, 1991). The deficit model maintains that the reason there is public opposition to a proposed intervention, project, or policy is that the people just do not know why it is good for them. The purpose of public engagement then is educate the public in a top-down, expert led sort of manner so that they can gain knowledge and reduce the fervour of their opposition, or maybe even decide to join the side of the project promoters (Devine-Wright, 2011).

The reason why this approach is so universally panned by public pedagogy scholars is that it rests on a fundamental misunderstanding of how most people acquire and utilise knowledge. To the extent that a person's knowledge is related to accepting a proposed science-based intervention; the process is much *"more closely tied to individuals' culture, beliefs, values, and attitudes, rather than*

Danger of the Deficit Model

A good example of the dangers posed by the deficit model can be seen in Vandana Shiva's widely acclaimed book *The Violence of the Green Revolution* (1991). In this work, Shiva offers a thoroughly empirical argument of how the western, scientifically backed technological approach to food production in India's "Bread Basket" region of Punjab had devastating effects. Potentially well-meaning agro-scientists descended upon the region with their genetically altered seeds and new farming techniques and proceeded to "educate" local farmers on what they thought was a better way to grow food and produce wealth. These new world evangelists did not seek to understand the region's traditional agriculture techniques and social structures and so the intervention they provided in the top-down, unidirectional method of the deficit model actually had dire ecological and social consequences for the region. In the end, there was not even proof that there were any improvements in crop yield.

scientific understanding" (Nadkarni *et al.*, 2019, p. 305). It is, in fact, a different mode of understanding (Irwin, 1995) as if the scientist and the layperson are not even really speaking the same language (Lévy-Leblond, 1992). Though numerous studies have provided solid empirical evidence of the inefficacy of the deficit model approach (Harrison *et al.*, 1998; Petts & Brooks, 2006; Brian Wynne, 1991) and even its real danger (Shiva, 1991) (see side bar), it still persists. Simis, *et al.,* argue that the reason this model has such staying power is that it results naturally from the way many scientists and policy experts are trained in their various institutions and that its simplicity – people just do not understand the good of the intervention so all that is required is their education – has an appeal to government and corporate policy designers (2016). However, there does seem to be a transition underway where those responsible for EPE programs are starting to realise that the issue is not one of a knowledge deficit as much as it is an issue in the lack of trust people have in government regulators or large companies to have their best interests at heart (Rowe *et al.*, 2005; Walls *et al.*, 2004). The other themes in the public pedagogy literature explore approaches intended to help build this necessary trust.

2.2 Democracy and public pedagogy

Some references to public pedagogy point to educational enterprises which work toward the common good (Paul, 2006). This approach is also reflected in the earlier treatment of this issue where education is seen as necessary to ensure the proper functioning of our civic society (Small, 1917). Another important reference to this idea that democracy needs informed citizens is found in the classic work of John Dewey, *Democracy and Education* (1916). In fact, in Sandlin's literature review of over 420 publications about public pedagogy she found the earlier treatments of the topic often referred to *"schools as incubation sites for the development of an engaged, critical citizenry, a purpose that linked [them] to Dewey's (1916) formulations of education's relationship to democracy"* (Sandlin *et al.,* 2011, p. 343). These earlier views see the formal educational structure as training citizens for their participation in democratic society, but later scholars writing specifically about public pedagogy see in Dewey the seeds of their view that the educational process itself should be democratic.

Neil Hopkins says that *"Dewey viewed the classroom as a place where people discovered and constructed knowledge together as relative equals"* (2018, p. 434). Whether this view was actually maintained by Dewey is debated (van der Ploeg, 2016) and anyone who is not too far removed from the public school system may question its applicability, but what is certain is that contemporary practitioners and scholars of public pedagogy see their brand of education as taking place outside the school and, in these situations, it does reflect what Hopkins claims Dewey thought. O'Malley and Roseboro say *"democratic and participatory engagement with and within local communities is constitutive of our understanding of public pedagogy"* (2010, p. 642) and Jeanne Brady, an often cited author in this field, states that *"public pedagogy is grounded in an ethical commitment to critical democratic principles"* (2006, p. 58).

In the end, both perspectives regarding the relation of education to democracy hold true for public pedagogy. It is just that modern scholars in this specific field are mostly not examining the learning processes in schools. It is true, as Schultz, *et al.* say, that *"active democracies require [the] sustained dialogue and debate"* (2010, p. 368), which is the forte of public pedagogical practices, but it is also true that these dialogues and debates themselves must be conducted in adherence to the principles of equality and liberty that are the hallmarks of democracy. We will return to this latter point in our discussion of the ways of learning embraced by public pedagogy, but first we will turn our attention to what is probably the most unique aspect of this educational approach and that is its examination of the subtle and indirect, yet pervasive, pedagogical processes of popular culture and the underlying political economy.

2.3 Public pedagogy as cultural and political critique

Many education scholars view the pedagogical influence of popular culture and the media which packages it to have even greater influence in shaping how we see the world than does formal education ("Handb. Public Pedagog.," 2010). We are learning creatures and we are learning all the time even if we are unaware that we are doing so (Ellsworth, 2005). We are constantly bombarded by information, images, and representations of reality in our everyday, normal life. The purpose of public pedagogy for these authors is to expose the underlying lessons we are being taught by the media on a constant basis and explore how these are reproduced in the everyday interactions we have with our

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co-workers, friends, family, and even casual strangers (Giroux, 1998, 2000; Stovall, 2010).

This process does not have to be negative. Many practitioners who operate in this arena use popular culture vehicles to challenge stereotypes and misinformation. A study by Castillo-Montoya, *et al.,* shows how Black Lives Matter used social media outlets like Facebook and Twitter to educate visitors using a liberatory pedagogy (2019) and one by Corntassel and Hardbarger shows how a deeper engagement with a community of Indigenous Peoples revealed how they were using their cultural heritage of extended family networks to overcome and subvert the legacy of an imposed colonial value favouring nuclear family structures (2019). These examples show that popular culture and the media can operate in ways that are not just a perpetuation of stereotypes and miseducation, but the facilitator of an EPE program needs to be aware that her participants are subject to those kinds of misrepresentations. The effect of a neoliberal political economy on her participants is, however, more difficult to dislodge.

In the early part of this century, the cultural critique aspect of public pedagogy began to take a backseat to a rising concern that the neoliberal political economy was undermining the whole enterprise of public engagement work. Neoliberalism is basically the idea that capital (but not people) is free to cross borders in pursuit of ever more favourable markets and lower regulations and that this will, in the end, make everything better for everyone. Goods will be cheaper and, with the belief that democratizing values flow with capital, justice and equality will prevail. In practice it has led to a strengthening of transnational corporations that seek ever lower labour costs, lax environmental standards, and weak civic societies that will not be able to oppose their dominance (Chomsky, 1999; J. A. Wilson, 2017). A key component of the neoliberal agenda that stands directly opposed to the aim of public engagement professionals and scholars is that the economic structure it supports depends upon the primacy of the individual, private citizen above the collective will and the ethics of community empowerment (Giroux, 2005, 2007).

According to the extensive literature review mentioned above by Sandlin, *et al.,* Henry Giroux is one of the most prolific writers in the field of public pedagogy and he opened the way for many scholars to follow his lead from the cultural studies aspect of the discipline to the critique of the neoliberal worldview and its dominance in public policy circles. Between 2001 and 2005, *"his scholarship consisted of more than one third of the*

published work during that time period" (Sandlin *et al.,* 2011, p. 341). To show how Giroux made this turn in emphasis and why he feels it important to the success of any effort to engage in public pedagogy, it is worth quoting a passage from him here in full:

> *One of the crucial challenges faced by educators and cultural studies advocates is rejecting the neo-liberal collapse of the public into the private, the rendering of all social problems as biographical in nature. The neo-liberal obsession with the private not only furthers a market-based politics which reduces all relationships to the exchange of money and the accumulation of capital, but also depoliticizes politics itself and reduces public activity to the realm of utterly privatized practices and utopias, underscored by the reduction of citizenship to the act of buying and purchasing goods* (2004, p. 74).

Though any particular education and public engagement campaign may not be dealing with subjects directly related to the power dynamics present in a given society, economy, or government, these issues are likely bubbling just beneath the surface and the facilitators of the program need to be aware of that, need to open space for the exploration of these issues should they arise, and need to anticipate whether these issues of inequality, misrepresentation, and oppression may hinder the engagement process they are hoping to establish (Stovall, 2010). In the next theme of public pedagogy research and practice, we move away from the domain of ideas, signs, and the polemical and turn ourselves to the actual spaces where learning is taking place beyond the school walls and what the nature of that learning is like.

2.4 The importance of place in public pedagogy

The spaces of learning for public pedagogy are different in both material and metaphor from the learning that takes place in a typical classroom. This sense is captured well in Elizabeth Ellsworth's book *Places of Learning: Media, Architecture, Pedagogy* (Ellsworth, 2005). Though she never uses the phrase 'public pedagogy', she is so often quoted by scholars who formally attach themselves to the discipline that Sandlin considers this work to be a "foundational text" (Sandlin *et al.,* 2011, p. 340). Her focus is on learning that takes place outside of the school and the places that help make it happen. For her, learning needs to be understood as an experience, not as the mere acquisition of facts. That kind of knowledge is 'knowledge as a thing made' (Ellsworth, 2005). It is dead, lifeless. Her interest is in 'knowledge in the making' (ibid) and its relation to what she

terms the learning self. This is the self that comes into being as the mind/brain/body entity is experiencing the relational act of learning. She says it is *"an attempt to understand and talk about the nature of reality in a way that acknowledges that to be alive and to inhabit a body is to be continuously and radically in relation with the world, with others, and with what we make of them"* (Ellsworth, 2005, p. 4).

One way to think about how this type of learning is related to the space within which it occurs is to think about the set-up of a traditional school room and compare that to a community visioning exercise that occurs in, say, the dining hall of a local church or town building. The school environment reinforces the hierarchy that is evident in the instruction provided daily. The teacher sits at the front of the class behind a big desk and may lecture from behind a podium, standing, while all the students sit at small desks, all in neat rows, and mind their manners. At the town hall event, round tables are spread around the room and people sit around them, eye-to-eye, engaged in conversation, debate, discussion. The latter is much more reflective of a democratic process and one where ideas are exchanged, not spoken down from on high. Jeanne Bradly puts it better when she says that public pedagogy describes learning that is *situated "in multiple spaces, including grassroots organizations, neighborhood projects, art collectives, and town meetings – spaces that provide a site for compassion, outrage, humor, and action"* (Brady, 2006, p. 58). The space does not have to be the same space each time either.

The "Engaging Youth, Engaging Neighbourhoods" project (a local partnership with some of the University of Norte Dame's community researcher students and professors) wanted to see how youth thought of their community and what they valued in it. The project entailed a photovoice methodology where the youth took pictures of things that were important to them and then discussed them with researchers who were trying to understand their lived experiences. The program facilitated connections between the youth participants and various community leaders, as well as artists and new places in their neighbourhood and surrounding area. The college students learned how to create community partnerships and develop different ways of seeing the world. The professors were able to learn more about the larger stories of hope and despair that were embedded in the photos the youth took (McKenna *et al.,* 2017). The learning in this example was bi-directional between the facilitators and the participants, it was relational and was built on trust. Space for public pedagogy is not just a physical space that helps promote equality and sharing, but it is also a space that embodies a

"particular quality of human togetherness" (Biesta, 2012, p. 684). Creating this space is the process of 'becoming public' (*Ibid*.) and so it is to this second term in education and public engagement that we now turn.

<mark>Figure:</mark>

Table 2: Themes in Public Pedagogy

Deficit model	Democratizing Democracy	Cultural and Political Critique	Importance of place
Predominant mode	Talk-centric	Intersectional analysis	Learning is relational – to each other and the place
Public lacks knowledge	2-way communication	Media is an ed. site	
Top-down, expert led	Requires egalitarianism and inclusivity	Necessarily political (not partisan)	Creating the space is becoming public

3 Public

Possibly from about as early as the late medieval period, but at least no later than the seventeenth century, the term 'public' arose in a distinction between what were lands held by the King that he could separate off as private and a second classification of crown lands that he could not. These were, in essence, public lands (Horwitz, 1982). Though the term may have had a clear referent back then, since that time it has become murkier. As to the 'who' we are engaging when we conduct public engagement programs, there is no clear agreement in the fields of corporate public relations, public pedagogy, public sociology, or political science. Acknowledging this confusion, Douglas Hartman says in his 2016 Presidential Address to the Midwest Sociological Society that he is struck by *"how little sociologists have theorized the notion of 'the public' in talking about public sociology"* (2017, p. 9). This omission is unfortunate because it appears from our review of the literature that how the party conducting the EPE program thinks of 'the public' determines the nature and extent of the engagement they are willing to conduct.

To begin, it has long been acknowledged in the field of public participation that there are many and varied publics. The public is not a homogenous, monolithic body (Cotton

& Devine-Wright, 2012; Michael, 2009). A small community is a public. Within that community there is also the business community, or the community of faith, there is the public school system community of teachers, staff, and students. Within and between each of these, among others, there are other publics which can be categorized along classifications of race, gender, ethnicity, class, or sexual orientation/identification that have been unjustly excluded or shunned from public participation in the past (and also the present) but to which they rightly belong (Dunphy *et al.*, 2017). All of these in addition to the normal practice of designating different publics according to the different roles they play such as the case with designations like government representatives, industry leaders, and researchers. With such a crowded and overlapping field of publics, Glenn Savage, a public pedagogy scholar, has asked his colleagues *"`which public' and `whose public' they are referring to when using the term"*(2013, p. 79).[1] In addition to this confusion, there is another layer of complication when we consider how radically public participation has changed over the last decade in the wake of all the different online fora now available for researchers to explore and with which to engage (Healy, 2017).

In her article about the concept of public, Leena Ripatti-Torniainen states "*at the simplest level, the characteristics of public derive from the basic meanings to which the concept can be reduced*" (2018, p. 1019). In this vein, scholars have referred to accessibility as the primary characteristic, i.e. a public is one to the extent that it is seen or heard as such (Arendt, 1958), or even that public is in reference to issues rather than people because to be public in a collective sense is to "*represent both process and product – the place where a common good transcending the particular and private was discussed, ratified, and promoted, as well as the results of those deliberations*" (Cayton, 2008, p. 2). Our interest is in looking at how publics are envisioned by the practitioners conducting public engagement programs, not in the more abstract or theoretical discussions, as interesting as they are. In trying to unravel how an organiser's conception

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[1] Referenced in (Sandlin *et al.*, 2017, p. 824)

of the public influences the type and intensity of the engagement they practice, and *vice versa* – how their engagement practices reveal their conception of the public, we propose a basic typology of three different publics based upon the different levels of influence they have on the decision-making process: (1) a passive public; (2) a participatory public; and (3) an empowered public.

3.1 The passive public

It is now considered common place to install some mechanism to gather public input regarding matters of technology and science both from government actors (Chilvers & Burgess, 2008) and the private sector (S. E. Owens & Cowell, 2011). The first typology refers to the perspective of the public as exercised by the latter of these two actors. We call it passive because it is restrained from having too much involvement in the decision-making process. It is also restrained in another way. It is representative of the larger public, the Public-in-General, or PiG as Michael terms it (2009). No public engagement activity is likely to reach every single person affected by the intervention proposed by the program administrators. This subset is either self-selected by those choosing to attend the event that is open to the PiG, or the members are specifically chosen by the administrators because of their representative qualities (targeted surveys), or some combination of both processes (focus groups). This is a public as defined by Dewey in his *The Public and its Problems* (1927) *"as a group of people bound together by a set of circumstances outside their sphere of control"* (Hill, 2010, p. 594). These members are bound by outside circumstances to be representative of those potentially affected by the intervention and, as such, they are actually existent and can be found by program administrators, it is who they go and look for when they plan their EPE program. To understand how they are bound in their options of participation, to demark how they are different from publics as envisioned by government or educational institutions, it is helpful to examine how this type of public is generally conceived of by the industry representatives who are responsible for the public engagement activities prescribed by their respective companies.

To understand how this type of public is limited in its participation opportunities, we looked at three studies where the authors of which each interviewed executives from three different industries knowledgeable of their companies' engagement theories and practices to determine how they viewed the publics with whom they interacted. These industries are the electricity transmission and distribution industry (Cotton & Devine-Wright, 2012), the chemicals industry (Burningham *et al.*, 2007), and the renewable energy industry (Barnett *et al.*, 2012). Though representatives from all three industries did indicate that public engagement was necessary, each study also observed that 'the public' was only rarely, if ever referred to. For example, Burningham, *et al.,* state *"[a]lthough one of our key research interests was how our interviewees constructed publics or lay people, we quickly realized that they did not use these concepts. Rather their focus was firmly upon `consumers' and/or `neighbors'"* (2007, p. 27). Further, Cotton and Devine-Wright found that the *"references to the `customer' were negative … expressing an absence of ability or interest"* (2012, p. 21). These characterizations of the public needing the provision of scientific knowledge so that they will not object to the project or intervention planned for them by experts is reflective of the deficit model of public pedagogy described in section 2.1 (Irwin & Michael, 2003; Brian Wynne, 2006). This approach is more like engagement theatre rather than the hard work of engagement actual. It embodies an approach where engagement is merely providing information about the project the details of which have already been decided by the technical experts and permitting authorities. "`Consumers' are *allowed* to comment" (Cotton & Devine-Wright, 2012, p. 30) [italics in the original] during these engagement sessions, but that is all.

All three studies noted that there was reference by some of the interviewees to the three primary motivations for public engagement from the corporate perspective as initially suggested by Fiorino (1990) and popularised by Stirling (2008) – namely: the normative motivation, it is just the ethical thing to do; the substantive motivation, the public has information that can improve the intervention; and the instrumental motivation, an informed public is less likely to object to the proposal. Though all three

were mentioned, the interviews themselves revealed that the only motivation guiding the representatives was the instrumental one. This disjunction between what is verbally acknowledged as the reasons to conduct EPE programs and what is the real, or sole reason for doing so, is coined 'deliberative speak' by Hindmarsh and Matthews. It is a pervasive quality of the interviews described in these three studies, so their definition is worth quoting in full:

> To clarify what we mean by 'deliberative speak', we refer to a strategic language comprising a rhetorical array of terms reflecting deliberative principles and ideals of active public engagement—such as 'inclusive', 'informed', 'transparent', or 'participatory decision-making'—accompanied by a lack of appropriate processes and practices of active public engagement to adequately address those principles and ideals (2008, p. 219).

The point of bringing up this disjunction between what they know is a more authentic form of engagement and what they practice is not to disparage corporate practices. It is meant more to show that their engagement pedagogy and practices are a result of their perspective of the public or of what are their publics. As one interviewee said *"I think that people generally speaking are, and I don't mean this in a nasty way but are pretty self-motivated, a little bit selfish and are, are only girded into action when they can see you know the direct impact on them or their loved ones"* (Burningham *et al.,* 2007, p. 31). This speaker does not view his public as being composed of people who have the general welfare in mind when they want to engage with the company. People for him are self-motivated, economic-maximizing, individual consumers, and, as such, should not have an undue amount of say in what the company does outside of what products they should produce for consumers. One renewable energy developer even intimated that the only reason his company conducts public engagement activities is because it is assumed that it is supposed to. In speaking about the fact that many of his competitors get their projects built without any such activities, he says *"we do constantly review this, what is its value to the organization"* (Barnett *et al.*, 2012, p. 41). For this speaker, there is not even an obvious instrumental motivation to spend time and effort on such programs. This view of the public as passive, selfish, and ignorant produces public

engagement practices that reflect a deficit model pedagogy and an unwillingness to interact more than necessary.[2] We wish to note that of the three studies there was one company whose representatives did not express this perspective of the public. Interviewees of one large, multinational, well-known chemical company stood out from the others. Burningham, *et al., "found people talking about consumer-citizens, rejecting deficit models of public knowledge and looking for ways to engage the public even in `difficult' issues"* (2007, p. 40). Being a large and well-known company, maybe they had more resources to commit to public engagement programs or maybe protecting their brand's image played a role, or then again maybe it is just the exception that proves the rule. Whatever the reason, it does offer the possibility of a less limited industry view of the public, one more consistent with the three other classifications that we found in the literature.

3.2 The participatory public

The second type of public we found in the literature of public sociology we refer to as participatory. Like the previous one, this public is existent. It consists of actual people who can form a representative body of the whole population that may be affected by the proposed project or intervention. Unlike the last one, this public is not just the passive receivers of information or the check-box obligation of corporate public relations persons to say that they have consulted with the public. This public comes together for the express purpose of participating in the decision-making process. It is a public that is the embodiment of democracy in action (Dewey, 1927) or the public that stands against institutional or governmental power (Habermas, 1991), but it is a public that is there to be heard and whose input must be seriously considered. In fact, it is their input which is expressly sought.

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[2] It should be noted that this view of the public from the corporate PR professionals could also be a justification for not wanting to conduct EPE programs rather than a cause. Burningham, *et al.,* make the claim that it just might not be realistic to expect companies to commit to the same kind of engagement intensity as NGOs or academics (2007).

According to King and Rivett, there was a change in the way universities distributed knowledge to the general public from the last decade or so of the last century. Instead of supporting programs where the information flow goes one way, as is the case with the pedagogical approach with the passive public, the emphasis changed to a genuine information exchange and the establishment of collaborative relationships with their publics (2015). Saltmarsh and Hartley claim that the university *"must assume a joint responsibility with the communities with which it works to confront problems and enact change through every democratic means possible. It requires linking the pursuit of knowledge with the pursuit of a healthier society and a stronger, more robust democracy"* (2011, p. 4). Mike Michael in his discussion of engaging with publics around issues of science describes it as a move from the field of the 'public understanding of science' (PUS) to the field of 'public engagement with science' (PES) (2009).

Alison Mohr in her discussion of the different types of publics constructed by different engagement processes sees evidence that some approaches construct the public as consumers, our passive category, whereas others view the public as citizens (2011), our participatory category. The public pedagogy theme most closely aligned with latter view of publics is, most obviously, the theme of democracy – democratic in its practice and strengthening democracy in its society. More specifically, this is a deliberative democracy which requires people to participate, debate, compromise, listen, weigh options, organise, and support action if action is deemed necessary (Felt & Fochler, 2010). It requires them to *"deliberate in particular ways through formalized mechanisms of voicing"* (Michael, 2009, p. 622). Engaging with a public like this is not easy. It is not easy for the participants of the EPE program or the facilitators. In truth, this view of publics may be a bit idealistic. If our first type of public was a bit cynical, this one may be a bit rosy. Still, it is the one most thought of and written about in the literature. Yes, sometimes the issues are too complicated and jurisdictionally overlapped to be suitable for a deliberative democratic process to provide tangible results (Brooks *et al.,* 2020) and sometimes the deliberative body does not adequately represent or consider intersectional publics (Dunphy *et al.,* 2017; Knowles & Clark, 2018), but this is the type

of public envisioned throughout the literature on the topic (van der Vegt, 2018). Though not without its problems, viewing the public as capable of rational debate and intelligent contributions opens the door for pathways to further democratize democracy (Sintomer, 2018) while producing better results and decision guidelines for government officials, academics, and entrepreneurs. The next two types of publics in the literature could evolve from processes designed for this present public as they are further examples of the democratizing process, but the key phrase to note here is "could evolve." These publics are not found. They either emerge or are consciously created.

3.3 The empowered public

Empowered publics represent the height of citizen power and participation of all the publics we discuss. It could also be argued that they are the most effective at creating change in society.[3] The empowered public has actual decision-making power. They are not merely serving on an advisory board. Their decisions will have a role to play in whatever policy change, project, or regulation that is up for debate before them. They have an ownership stake. Not necessarily a financial stake, though they might, but at least a stake in the ownership of the policy or planned intervention.

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[3] There is a fourth type of public that we encountered in the literature which may be more effective at creating change, the emergent public. It is *"the kind of public that comes into being only in relation to texts and their circulation"* (Warner, 2002, p. 50). This is a public that did not exist before people started coming together over a story they read in the paper or something they saw online or in social media. Examples of this type of public are occurrences like the Black Lives Matter movement which started as a hashtag on social media and exploded into an international phenomenon involving tens of thousands of participants (Lundgaard *et al*., 2018), or the Arab Spring which is probably the first revolution organized through social media and propagated by cell phones (Fragkonikolopoulos, 2012). This type of public is not limited to the modern age. The Mothers of the Plaza de Mayo was a public of women who gathered weekly in a public square in Buenos Aries to peacefully petition for the return of their children who were "disappeared" by the United States-backed military dictatorship ruling Argentina from 1976-1983. The "texts" they organised around were the circulated lists of the disappeared, the photos of the loved ones they displayed, and even the names of the missing which were stitched into their children's nappies that they wore as head scarves (Goddardl, 2007). These examples suggest *"that individuals become members of a public when they are united by their response to an issue"* (Featherstone *et al.,* 2009, p. 217). We do not consider this type of public in our typology because it does not apply to EPE programs. These publics cannot be predicted, anticipated, or planned for by EPE program administrators (Mahony *et al.,* 2010).

If the passive public is that which is envisioned by industrialists and the participatory is that which is envisioned by academics and government officials, then the empowered public is that which is envisioned by the social activist, public scholar, or the policy entrepreneur. The intention of these publics is to make specific change, not just protest or rubberstamp a project, not just raise awareness, but to help create policy, often, specific policy. Their participants are dedicated and passionate. In the first two publics types, the motivations of the participants are assumed to be reason-based. In the passive public, it is the consumer, the rational economic maximiser; in the participatory public, it is the rational citizen, the utilitarian balancer of competing public goods. The defining characteristic of the empowered public is its passion, its dedication. Not that the participants are not reasonable, it is just that their reason is not dispassionate. They have a cause they care about (Peltola *et al.,* 2018).

The two previous types of publics all follow Dewey's conception of publics being composed of individuals. Douglas Hartman instead points to a less well-known contemporary of Dewey, a gentleman named Walter Lippman, for an alternate conception of who makes up a public. Channelling Lippman, he says that *"the real composition or operation of social organization and decision making in the modern, industrial world happens not in and through individual citizens, but in large-scale organizations and bureaucracies organized, operated, and run by elected leaders and institutional administrators"* (2017, p. 10). Lipmann's modern world was the early twentieth century. Since the 1970s there has been an increasing focus on the role of governance, as opposed to government in *"social organization and decision making"* (Tshuma, 2000) and so we take the unit of analysis here to not only be government and institutional bodies, but also nongovernmental organizations, unions, civic groups, churches, etc. In fact, government bodies can sometimes operate in opposition to the public will (Boyask & Vigurs, 2018) and these other groups, to paraphrase Immanuel Kant *"constitute a public counterforce to the ruling authority through conscious action and are capable of judgement in public"* (Ripatti-Torniainen, 2018, p. 1023). The type of public we are attempting to capture here is not just the public of concerned individuals,

but a public that is also composed of the multitude of civic, business, and government bodies that are themselves composed of individual persons.

Here is a fundamental difference between the empowered public and either the passive or participatory publics. These latter two are existent to the extent that they represent the general public before the EPE program administrator even comes to town. The empowered public is created (or emergent, see footnote 3) for a specific purpose by the activist, policy advocate, or community organiser and the most direct and effective way to do this is by reaching out to citizens in the places where they are already practicing their citizenship – the groups and civic organisations that already exist in the community (Wolff, 2001). These persons are already involved in an organisation that is centred around some central purpose. They will most often already have established relationships with other members of the same body, there will be established procedures for decision making, and they are already in a position to have more influence with the power structures in society than the average citizen alone. This kind of public has only recently made its way into the awareness of public sociology scholars (Chilvers *et al.,* 2018). Boyle, *et al.,* refer to this type of public as *"intermediaries at the grassroots"* (Boyle *et al.,* 2021) and Chilvers, *et al.,* refer to them as *"ecologies of participation"* (Chilvers *et al.*, 2018).

These publics are admittedly difficult to capture in neat descriptive terms because this is such a new perspective on the participatory base of a public engagement program. Another way to describe them is to borrow the phraseology of Boyask and Vigurs when they say "*alongside the contract between individual members of `the public' and the state sit other publics that organize themselves around different sets of principles, and at times, interact with the public participation process of state"* (2018, p. 222).

Engaging with groups who are already organised as a sort of public in microcosm, though one usually of single purpose, has some advantages for both scholarship and societal change. The pedagogical approach is still one of deliberative democracy like as that which is present with the participatory public, but this public likely is familiar with such

democratic decision making from their own internal operations. Also, since the participants in a specific activity already know each other, responses to queries are not as likely to suffer from performative shading (responding in a way intended to make people think of oneself in a light that may not actually reflect their true stance) since the other participants might be able to question the speaker's response based upon what they know of him or her (Featherstone *et al.*, 2009). Gehrke refers to this process as organic public engagement. Differing from the cynical or the idealist view of engagement, the organic approach – meeting people in the places and times where they are already enacting their practice of citizenship – demonstrates ***"that attempts to facilitate collective decision or action benefit greatly from an emphasis on actually existing local configurations and practices"*** (2014, p. 78). This observation reveals that the public pedagogy theme of how the place interacts with the learning could positively impact the specific EPE program design. Adopting this view of the public might be able to help researchers *"understand the dynamics of diverse interrelating collectives and spaces of participation and their interactions with wider systems and political cultures"* (Chilvers *et al.*, 2018, p. 200). Table 3 below summarizes all the public types and their associated pedagogical theme with some comments that reveal how each perspective of the public may enable or hamper effective participation.

Table 3: Publics and Pedagogical Theme

Publics Type	Pedagogical Theme	Attributes That May Enable Participation	Attributes That May Hamper Participation
Passive, existent, primarily mere receivers of info	Uni-directional, top-down, Deficit Model	Easily calculable, less costly engagement process and more manageable	Not really engagement and therefore fails on both substantive and normative grounds
Participatory – existent, active, receive and supply info	Bi-directional, participatory, "democratizing democracy"	Instrumental, substantive, and normative. Strengthens society, may empower active citizenship and still calculable	Requires more resources of time, people, and money. Idealistic and the marginalized may not self-select to participate
Empowered – created from existent, established orgs. or a new community entity. Active, participatory, and capable. Shared citizen leadership if not wholly citizen led.	Multi-directional, participatory. How the sites of the public pedagogy influence its content. Democratic practices already in place. Politically and culturally aware.	Actualizes the learning-self, democracy in action, passionate about change, dedicated participants. Changing the locus of attention from the individual to the org/inst/grp may garner deeper info and more readily affect change.	Most demanding for the EPE initiator, only heterogenous in the aggregate, difficult to coordinate, requires long-term commitment or the establishment of a separate entity and continued enthusiasm.

4 Engagement

Whereas determining the meaning of 'education' relied upon examining different themes in the literature of public pedagogy and determining the meaning of 'public' rested upon an exploration of different ideas in the realm of public sociology, the definition of 'engagement' seems relatively uncontroversial. As Rowe and Frewer point out *"a general definition of public participation with which few would argue is the practice of involving members of the public in the agenda-setting, decision-making, and policy-forming activities of organizations/institutions responsible for policy development"* (2005, p. 4). Reed, *et al.,* add that this involvement can be either active or

passive and that there is a distinction between stakeholders and publics (2018) while Rempel, *et al.*, highlight that it is *"subset of democratic activity that focuses specifically on the inclusion of non-technical publics in the development and governance of new technologies"* (2018, p. 4), but, in general, practitioners seem to agree on what engagement is. The diversity of understandings come into play in discussing the broad types of engagement, or the levels of engagement.

Over the years scholars and public engagement professionals have developed a number of different typologies to capture the extent to which the public participates in decisions that affect them. The most famous and most often used is Sherry Arnstein's Ladder of Participation (as shown in Figure 1 below). Arnstein's ladder has eight rungs with the lowest depicting nonparticipation and the highest depicting citizen control of the development or policy intervention. Though others have developed different typologies

based on characteristics such as information flow (Rowe & Frewer, 2000), or facilitator motivation (Okali *et al.,* 1994), or even considered replacing the ladder altogether (Collins & Ison, 2006), Arnstein's model is incredibly resilient with many practitioners using it even today and with scholars citing it with ever increasing frequency *(Reed et al.,* 2018). To the extent that her ladder is altered, it is usually just by condensing the levels and maybe using different terms (Reed, 2008). We here will also follow this path, using her insights as something of a template but altering and reducing her terms to align with our more practically orientated purpose.
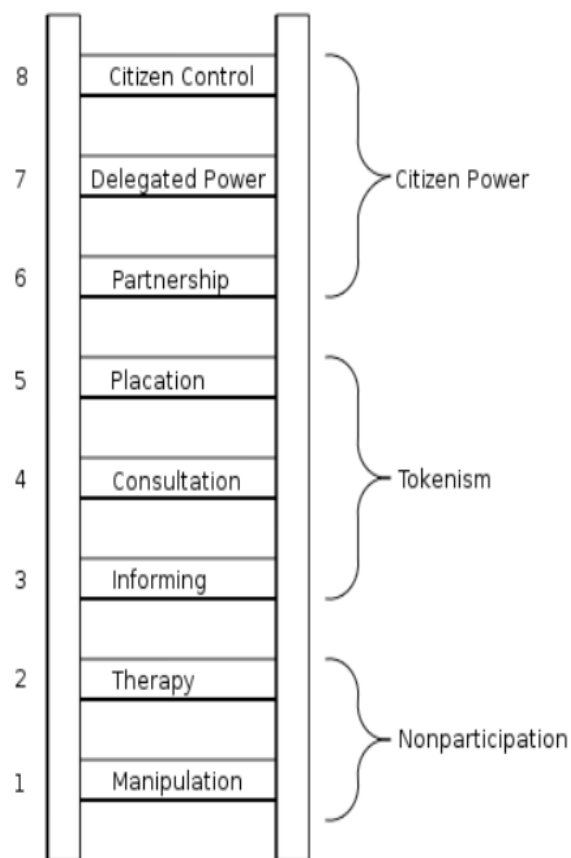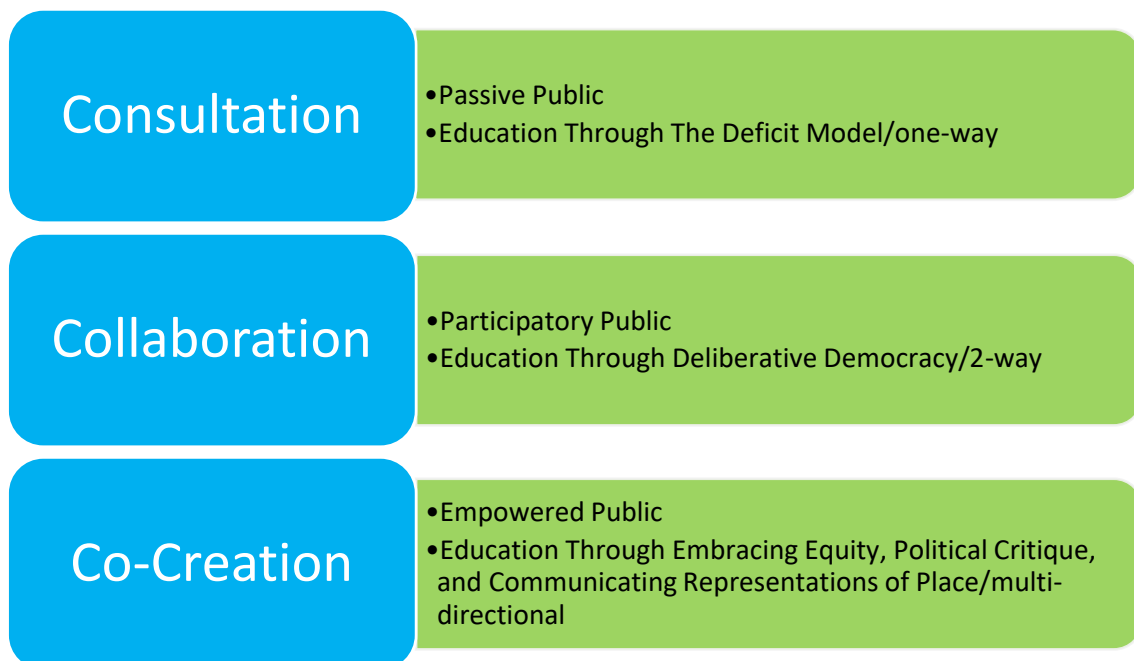

Fig. 1: Ladder of Participation
(Arnstein, 1969, p. 217)

Following the four themes we saw in the public pedagogy literature and the three types of publics, we were able to extract from the public sociology literature three broad types of engagement from the science, technology, and society literature that roughly map onto our previous investigations and which parallel the model set out by Arnstein's ladder of participation. The framework outlined in Figure 2 below comprises three types of participation found in the literature, which follow the spirit of Arnstein's intention. Unlike Arnstein, but in-line with Davidson (1998),[4] we do not assume a hierarchical structure to the levels of participation – citizen control always being best and consultation always being inferior. Rather, we suggest that different levels of participation are appropriate for different types of publics depending upon the impact of the intervention upon said public.

Figure 2: EPE Framework

Consultation	• Passive Public • Education Through The Deficit Model/one-way
Collaboration	• Participatory Public • Education Through Deliberative Democracy/2-way
Co-Creation	• Empowered Public • Education Through Embracing Equity, Political Critique, and Communicating Representations of Place/multi-directional

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[4] Davidson is credited by Reed (2008) as developing this metaphor and this source is cited, however, the original could not be located through UCC's databases.

4.1 Consultation

Though consultation represents the least active form of engagement in our typology, there is still participation taking place. It is a top-down process that is most often a vehicle for information distribution (Chilvers *et al.,* 2005), but can also include contributions from the public related to their provision of what would be required for them to offer their support for the project or intervention (Haggett, 2011). This type of participation rests on the deficit model of the pedagogical themes because it assumes that it is the public which is lacking in knowledge or understanding and it is the public which has to change, not the institution providing the EPE program. In this type of engagement the public has one of two roles – accept the project, if that is what is proposed, or change their behaviour, if that is the requirement of the intervention (S. Owens & Driffill, 2008). Though this level of engagement is the minimal that we consider to count as public participation, it is by far the most prevalent (Braun & Könninger, 2018; Devine-Wright, 2011). This type of engagement usually takes place after the project has already been decided upon (Tobiasson *et al.*, 2015) and is undertaken at this time only because it is required (Chilvers *et al.,* 2005) and the backers are trying to avoid public opposition. In fact, the national planning acts in many countries – e.g. England & Wales, Norway, Ireland, and the Netherlands – which are designed to streamline the process of approving many large renewable energy projects to help in meeting European emissions targets count on the abbreviated period of public consultation this type of engagement calls for (Barry & Ellis, 2011).[5]

All of this is not to imply that consultation as a form of engagement is necessarily bad. Not every intervention or every project has to be brought up before every citizen and debated endlessly and there are some issues about which the public is uninformed and which they need to know about (*e.g.,* vaccination roll-out). In many instances, a top-

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[5] England and Wales – The Planning Act 2008; Ireland – Planning and Development Strategic Infrastructure Act, 2006; The Netherlands – 2004 Spatial Planning Bill. Norway not specified (Barry & Ellis, 2011, p. 40)

down, one-way communication is all that is required even considering the qualifications of equity and justice (Reed *et al.*, 2018). Unfortunately, this type of engagement has been used many, many times when another type of engagement would be more appropriate. It turns out that *"there are many examples of participatory approaches … failing to deliver desired beneficial environmental or social outcomes. For every example of a participatory process that has led to a tangible environmental and social benefits, there is an example of a process that failed to meet its goals or the expectations of those who participated"* (Reed *et al.,* 2018, p. S8). Zoellner, *et al.,* trace this failure to procedural justice issues. These cases exhibit instances of where intervention backers failed to engage stakeholders and the public in a direct and meaningful enough way to generate trust. The lack of engagement led to distrust of the project backers and then to project opposition despite the benefits to the community being clear (2008). Building this trust is probably the main benefit of our second engagement typology.

4.2 Collaboration

Our second type of engagement is called collaboration and it represents an increase in public participation. The emphasis shifts from a unidirectional information flow and an attempt to convince the public of the worth of the intervention, as typified in consultation, to a collaborative process where the public's values, concerns, and knowledge are incorporated into a consensus-building, decision-making process (Harris, 2002). This type of engagement exemplifies the public pedagogical theme of deliberative democracy. In a deliberative democratic process, the central mechanism for making decisions is reasoned debate and not just voting. This characteristic has led Simone Chambers to refer to deliberative democracy as talk-centric, as opposed to vote-centric, democracy (2003, p. 308). Michels and de Graaf describe deliberation succinctly:

> *Deliberation involves discussion and the exchange of arguments in which individuals justify their opinions and show themselves willing to change their preferences. Participants discuss problems and the proposed solutions to these*

problems. A deliberative process assumes free public reasoning, equality, inclusion of different interests, and mutual respect (2010, p. 480).

There is an inference in the discussion so far that decisions are reached through a process of consensus, that people who were once in opposition to a given idea are brought on board by a reasoned discourse. Both Harris and Haggett appear to exhibit this inclination (2011; 2002), but it is not universal. Barry & Ellis raise the point that how disputes are solved in the deliberative model really showcase its value over the consultation type of engagement. They observe that the deliberative process allows conflicting parties to acknowledge *"that there is no rational solution to their conflict, nevertheless recognize the legitimacy of their opponents"* (2011, p. 35). They argue that this open and honest acknowledgement of dissenting voices is what leads to the acceptability of the proposed intervention or project. The fact that EPE program administrators take the time and effort to really try to understand all the views about their proposed action is the thing that really builds trust between them and the community (Devine-Wright, 2011). This is a truth that inappropriate use of the consultation method[6] of engagement fails to realise. Ideally, deliberation will change some minds, but that is not even the most important aspect of the process. Goodin and Niemeyer noted in their study that many respondents did change their mind after the information phase of their public engagement program but not really after the deliberative phase which occurred later (2003). This seems to indicate that what is important about the deliberative aspect is that it respects and values the input of citizens and that everything is conducted above board. People appear to distrust a consultation-only process because it does not do this, even if it conveys information that does change peoples' minds. Consultation is seen as a way to dominate the public and limit their freedom whereas the collaborative method welcomes and acknowledges the worth of their input even if it is at odds with what the program presenters want (Barry

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[6] An inappropriate use of the consultation method is when it is chosen for its convenience and expediency when the degree of the intervention or the size/impact of the project ethically require a deeper form of engagement.

& Ellis, 2011). In point of fact, however, there is no real dispute as to whether an EPE program should use consensus or majority-rule. It will probably use both.

In 2015, the Irish Citizens' Assembly was formed to deliberatively discuss a number of policy areas and submit their legislative proposals to the Oireachtas (Irish parliament). This incredibly successful example of deliberative public participation (the UK and France are both considering forming their own as a result) used both consensus and majority-rule depending. The report by Muradova*, et al.,* about the Assembly discusses how the body used majority-rule in deciding what to recommend to lawgivers and consensus in how to say it (2020). The positive experience demonstrated by the Citizens' Assembly notwithstanding, most examples of collaborative public engagement affecting policy are rare (Haggett, 2011, p. 24). That may be because most of this type of engagement is conducted for academic research purposes and not important policy decisions (Pallett *et al.*, 2019, p. 600). The next type of public engagement specifically seeks to change policy and searches for citizen input at the earliest point possible.

A critique of the collaborative type of public engagement is that it still relies on a deficit model. In place of a lack of knowledge, the deficiency under this critique is that the program facilitators perceive the public to lack trust, that they are untrusting of science or government intervention in their lives and so the wise leaders of progress have to step in (Kearnes & Wynne, 2007). If the process is conducted with the aim of establishing trust, instead of genuinely seeking public input, it comes off as insincere and actually damages the chances that the public will accept the proposed plan or project *(Stilgoe et al.*, 2014). The collaborative model also does not really change the power structure. The public contributes to the decision but they do not really play a role in the decision beyond that point (Braun & Könninger, 2018), but there are new ways of engaging the public which truly try to foster a co-creative process for technology innovation and policy formation (Solman *et al.,* 2021). We refer to this type of engagement, fittingly enough,

as co-creative. It combines the partnership and empowerment rungs of Arnstein's ladder.

4.3 Co-creation

Co-creative engagement specifically seeks change, a change brought about by a partnership between government/academic/corporate representatives and the public. The process is still deliberative, but the public has greater influence over the direction of the intervention through the representatives of the organizations in the decision-making process who voice their interests (Mackenzie & Warren, 2012). Formation of this engagement type *"constructively advances an argument that has been building in the participation literature amongst practitioners for some time about the need for governing institutions to more carefully listen to and be responsive to public voices rather than ritualistically carrying out invited public engagement processes as an end in themselves"* (Pallett *et al.,* 2019, p. 609). The pedagogical theme exhibited in the engagement sessions is both that of deliberative democracy and an emphasis on place, along with the bi-directional, co-creative aspect. The mention of place here is important for two reasons. The first is that the public engagement topics will often revolve around the publics' conceptions of place and how it relates to the proposed intervention. The second reason that considerations of place are important is that they relate to the shift in power dynamics. Instead of a selected public arriving at a town hall or community building for a day-long workshop with government officials or other engagement professionals as they might under the collaborative typology, the program initiators come to the publics in the places where they normally conduct the business of their organisation or group, either as already existing or newly created for this express purpose. Instead of having to heed the call and arrive at a place of government or institutional power, the publics are met on their own terms at the places where they exercise their power as active citizens. The place of engagement emphasises that program facilitators are seeking an equal partnership. As mentioned earlier, viewing the public in this way is a relatively new approach and there are not too many examples of

it (Pallett *et al.,* 2019). One possible example, however, may be the practice of creating test beds and living labs.

Engels, Wentland, and Pfotenhauer state that *"test beds and living labs represent an experimental, co-creative approach to innovation policy that aims to test, demonstrate, and advance new sociotechnical arrangements and associated modes of governance in a model environment under real-world conditions"* (2019, p. 103826). They add that *"importantly, as societal interventions, they are tied to collectives rather than individuals"* (2019, p. 103828). The government works in partnership with the groups and does things like help with financing activities, providing space, or streamlining permitting and regulatory requirements. These test beds and living labs do not only, or even primarily, test technologies – they test social acceptability and future pathways for socio-technical change. The policy structure the public helps create, the decisions they participate in, will have a lasting effect on how change takes place (Engels *et al.,* 2019). The publics of the co-creative engagement type may arise from a collaborative engagement process (Pallett *et al.,* 2019) or through the efforts of policy entrepreneurs trying to create the publics that will change the status quo (Frisch Aviram *et al.,* 2020).

4.4 Interim summary

The purpose of this general framework is to clarify the relationships between the three legs of any education and public engagement program and show how the different characterizations of any one element have parallels in each of the other elements. In this way it helps the program organiser clarify his or her objectives and strategies. For instance, if a researcher wishes to learn how public engagement might improve the design of a new public park, she can see from this framework that a simple survey will not be adequate. Though such a one-way information gathering tool might help determine if people want another park (consultation), it is not the two-way sort of dialogue that is required to substantively improve the project. Such a goal requires the collaborative form of engagement that might come from a deliberative workshop or two

on the topic. Likewise, it is probably not necessary to try and spur a social movement to help improve the project design, so the coalition building and organization forming activities of the co-creative engagement process is likely over-kill, and far too expensive.

In section five of this report, we apply this general framework to the SafeWAVE project and use it to create a documented methodological approach for the development of tailored ocean literacy programmes for individual ocean energy projects with a focus on wave energy.

5 Applying the general framework: A methodological approach for achieving SafeWAVE's EPE objectives

The methodological approach to creating and implementing the EPE programme we propose here was co-produced with knowledgeable stakeholders. We conducted a half-day workshop with two EPE experts, conducted a number of formal and informal interviews with other experts, emailed questionnaires to nine other willing recipients, and built upon the information gathered from interviews that were conducted in the completion of deliverables 7.2 and 7.3. The input from these parties was invaluable in forming the ten guiding principles behind the components of this methodological approach for creating SafeWAVE's EPE program that we will discuss in this section of the report. Before we do that, however, we wish first to briefly describe the general perspective we plan to bring to the EPE programme and where on the general framework that perspective sits.

5.1 The role of social representations theory

Wave energy development occupies a unique place in the technology-society arena of conflict. For the most part, wave energy is fairly well regarded among the general public, but also, like with other forms of renewable energy, that favourable attitude can turn to

antagonism the closer it gets sited to where people live and work (McLachlan, 2011). That being said, wave energy is much less visible than wind turbines or solar panels so one is left to wonder what it is that constitutes the sometimes negative response (Chozas *et al.,* 2010).

Though the not-in-my-backyard (NIMBY) idea is often cited as a reason, most scholars feel this pejorative explanation does not get to the root of why people may favour renewable energy in general but object to it close to home (Devine-Wright, 2011). A theory which has gained some ground in offering a more workable approach is the social representations theory (SRT). The scholar most closely associated with this idea is Serge Moscovici, though many others have written on it. Basically, the use of this approach is that it grounds opposition to new renewable energy projects not in a derogatory rendition of peoples' motives, but as a natural product of the way people incorporate change. Under this theory, people do not accept change simply by replacing one idea with another, newer one. On the contrary, people hold both ideas at the same time even if they are contradictory. What SRT proposes is that people come to accept the new idea through a process of making the unfamiliar familiar. This is accomplished through a process of how they represent their reality not only to themselves, but maybe even more fundamentally in how they represent their reality to each other (Moscovici, 2001). The mechanics of how people assimilate the idea rest on the actions of anchoring and objectification (Höijer, 2011), a description of which goes a little beyond our present purpose. Basically, people's representations change through the process of communicating with each other at different levels and in different ways (Bauer & Gaskell, 1999) and this communication is what we will try to enable through our EPE programme.

The EPE program is going to try and get a sense of what the ocean means to the residents and of what some of their activities might mean to the ocean. We envision this educational exchange as a bi-directional process with most of the time being spent by the participants speaking with each other to unpack the symbols they apply and the

meanings they embed in their representations. This part is the educational phase. The engagement phase will revolve around trying to find representations of wave energy that are the least incongruous with their now more fully actualized representations of their relationship with the ocean. This latter part may take on the form of a visioning exercise – the participating body working together to envision a future with wave energy that is consistent with their understanding of their relationship with the ocean and the aspirations they have of how that relationship could improve for the benefit of both.

The ideas we have expressed above are reflective of the collaborative type of education and public engagement programme we discuss in our general framework. The participatory public we hope to gather for this series of workshops will have a voice in all stages of the program, even in its design. As such, our methodology for the programme design and implementation hinges greatly on making sure we handle our approach to this high level of participation in the correct manner. It is for this reason that we will here discuss the methodology of creating the programmes as being a product of the values we bring to each of the component parts of the process.

5.2 Values and guiding principles

In section 3.1, we raised the issue of 'deliberative speak' as being the reason why so many EPE programs fail to generate that level of trust with their publics which is constitutive of a successful intervention or project approval. Following Hindmarsh & Matthews (2008), we wish to point out that a poorly executed EPE program is not only ineffective, it may actually be counterproductive. If the public perceives hypocrisy in the actions of program administrators, they may quickly switch from tacit support to vehement opposition (Reed *et al.,* 2018). To avoid this occurrence, we suggest that program administrators continually reflect upon whether their process is exhibiting the values appropriate for each component of the engagement process. This value landscape, these evaluative criteria, fit into the normative motivation for public engagement.

As the reader may recall from 3.1, there are three primary reasons for embarking on an education and public engagement campaign: there is the instrumental reason, public engagement will help ensure the success of the intervention or planning approval for the project; the substantive reason, the public has knowledge which can help improve the intervention or project; and the normative reason, the public has a right to have a say in policies or industrial/commercial operations that may affect their lives (Fiorino, 1990). Andy Stirling points out that the first two relate to the ends of the public engagement campaign and that the normative motivation relates to the means. He further argues that the best way to achieve those ends is to focus on the normative motivation in designing and conducting the public engagement process (2008). Scholars have written about the various values that should be exercised in the EPE process.

Gene Rowe *et al.*, (2008), point to nine criteria, of which 'representativeness', 'involvement', 'transparency' and 'resource accessibility' roughly equate to what Stirling uses (2008). Wynne speaks of 'social learning' (1992) and 'reflexivity' (2002) which speak to both sides of the 'informed' criteria of Stirling (one from the audience, one from the presenter). Stilgoe *et al.,* also speak of 'reflexivity' as well as 'inclusion' and 'responsiveness' (2013). Macnaghten & Chilvers in a meta-analysis of seventeen different public engagement programs and forty in-depth interviews in the United Kingdom boil down the responses of EPE participants to five concerns. Though we will return to a discussion of these values in subsequent work (D7.5) when we will be describing the evaluation criteria of our specific EPE programs, we include them here because they form the basis of how each part of a successful EPE programme should be approached. They form the guiding principles of the programme's development and implementation strategy.
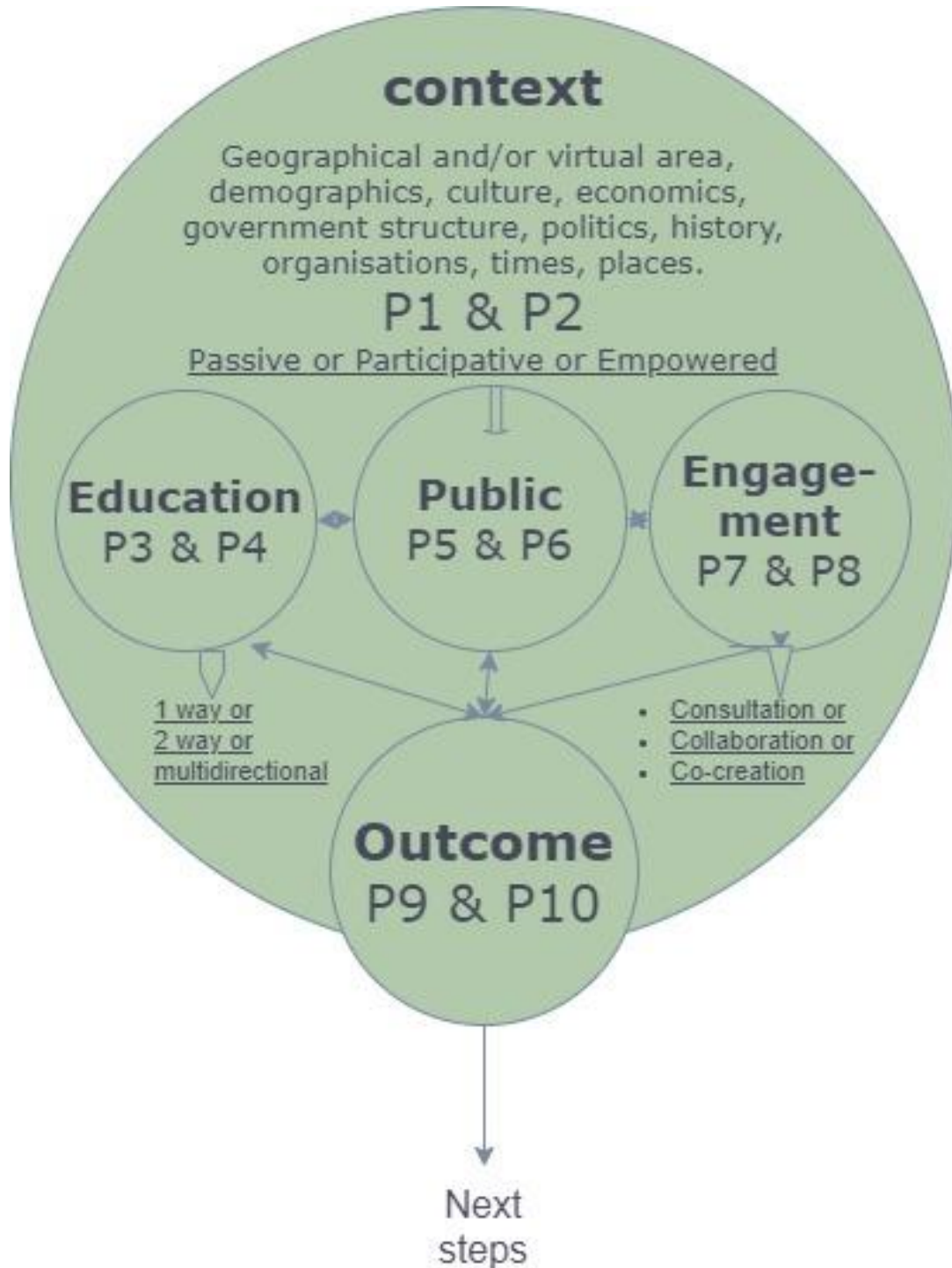
We begin with a basic schema of what this methodological approach, based upon our general framework, looks like. Then we move on to describe each component by referencing two guiding principles which are related to this aspect of the methodology. This relationship of any given principle to the framework component under which it is

subsumed is not intended to be exclusive. Some principles can well apply to more than one component and there can be overlap between types of actions that are taken in fulfilment of one principle that could conceivably be taken in fulfilment of a different principle. The configuration above regarding the principle placement is descriptive of places in the process where certain principles seem most applicable. It is not prescriptive of the only places where the principles apply or limiting of the number of principles which apply to any given framework component. The questionnaire we distributed described each guiding principle and asked the respondent whether they agreed with it or not. The questionnaire further asked the respondent to comment on the guiding principle. All the questionnaires returned to us agreed that each of these guiding principles is important and they each also included a comment about each one. In our construction of this section of the report, their comments about the principles form the basis of our descriptions about how a particular principle is executed with competence and a contrasting example of what would constitute how a principle is poorly executed. Their contributions to this analysis are immeasurable. Each component of the methodology concludes by indicating how the two principles relate to ocean literacy about ocean energy projects. This information is based upon the whole of our research to this point, including deliverables 7.2 and 7.3, but we will continue to pull in new references where appropriate.

Figure 3: Ten Guiding Principles for EPE Effectiveness

For the EPE programme to be effective …

Principle #1 (P1): It must be reflexively planned
Principle #2 (P2): It must make a difference to the participants and their community
Principle #3 (P3): It must facilitate open and interactive spaces for learning
Principle #4 (P4): It must foster respect and transparency
Principle #5 (P5): It must strive for both inclusivity and diversity
Principle #6 (P6): It needs to have flexibility built into its design
Principle #7 (P7): Its process should be seen as a collaborative partnership for the common good of the community.
Principle #8 (P8): It should encourage actionable dialogue
Principle #9 (P9): It should be designed to meet measurable goals
Principle #10 (P10): Its outcome should include a co-created plan for action.

Figure 4: **EPE programme methodology**

5.3 Context

Each engagement process is unique to its circumstances, audience, and location. It is designed to meet specific objectives which are formed around the needs of the participants and those of decision-makers. The initiating institution needs to conduct a thorough examination of the area (physical and/or virtual, depending upon the issue) not only to gain a thorough understanding of the physical geography, but to become familiar with the demographics, culture, economics, government structure, politics, history, and organisations of the area where they hope to enact the EPE programme (Bull *et al.,* 2010).

Principle #1 (P1): It must be reflexively planned

Make sure the planning process is adequate to meet the needs of participating and nonparticipating stakeholders.[7] If the intervention is place-based, make sure all relevant information is gathered and analysed so that the program facilitators are familiar with the needs of the community, its political and cultural tensions, as well as its demographic make-up and any current events of concern. This work should lead to a synthesis of perspectives from multiple actors in a common understanding of the intervention goals (Chilvers, 2013).

Competently executed: If done right, participation begins at this very first stage when stakeholders, community leaders, subject experts, and the program facilitators gather to plan and organize the process. A key best practice in this regard is to have a community liaison person in place at the first possible opportunity and intimately involved throughout the whole process – from planning on through program evaluation many months after the formal end of the engagement activities (Devine-Wright *et al.,* 2017). This person should be a member of the community and have long-standing ties to its people and institutions. A thorough planning process also has a well understood

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[7] Stakeholders includes all those who may be impacted by the proposed intervention or project, not just those with a financial interest or those who might live adjacent to a proposed development site.

budget of both financial and worker resources that will enable it to get the job done and meet the programme goals.

Poorly executed: A poorly planned EPE program does not meet the community needs, tries to apply cookie-cutter formulas, and is led by untrained administrators or ones who have a hidden agenda. If care is not taken in appointing a community liaison person, it could also make the situation worse. If this individual is a polarizing figure or someone who obviously represents one side or one set of interests, the damage to the community's trust in the institution running the program could be long and deep. If barriers to inclusion are not anticipated, whether they be racial, cultural, class, gender, sexual orientation, or accessibility – the contributing information may just come from the same categories of privileged elites or standard majorities which would effectively marginalize entire bodies of knowledge and perspective.[8]

Principle #2 (P2): It must make a difference to the participants and their community

The EPE program needs to not only make a difference in the very particular object of its concern, but the process has to be seen as being worthwhile to the community and to those who directly participated (Hart *et al*., 2009).

Competently executed: If the EPE program has an impact, the participants and the community at-large will develop a sense of ownership of the results that their efforts helped to bring about. The relationship with the institution conducting the program will be strengthened and the community will see that democratic ways of involving people and making decisions has positive effects (Kuyper, 2018). This realisation will help to empower them and prepare them for even greater civic responsibility.

Poorly executed: If the EPE program has no impact on the decisions made or if the process itself devolves into either animosity amongst the participants or results in

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[8] Credit to the National Coalition for Dialogue & Deliberation (ncdd.org) for indicating the utility of including what constitutes bad practices, as well as the usual best practices, when discussing methods of public engagement.

meaningless platitudes and a disaffected populace, then all was for naught. Even worse, it could turn people off the democratic process all together and allow a form political fatalism to sink in.

EPE planning and impact for ocean literacy and ocean energy project acceptability

Planning an EPE program around ocean literacy and ocean energy project acceptability will have to begin by trying to grasp how the public understands the ocean, the relationship (dependency and impact interactions) with it, and the project site as a representation of *place* in their lives. In one sense, the community is not as straightforward as with land-based interventions and the intervention itself seems less intrusive. The dispersed community[9] of water users may be more difficult to assemble or to interact with. The lack of visibility of the test sites may actually hinder engagement since people may not have a feeling one way or the other about them. This difficulty, however, presents an opportunity to engage citizens in a broader and deeper discussion about how their conception of, and relation to, the ocean could be expanded to reveal a potentially symbiotic understanding that could have beneficial ecological and economic benefits for their community and the world at large.

5.4 Education

We understand the educational component of EPE programs to be a 2-way process. There is not only information which we wish to communicate, but there is information which we wish to learn. This component is not a blueprint of what we wish to present. It is rather a process, a dialogue (Burdick & Sandlin, 2013), and not just between us and a public, but amongst us and members of the public, and members of the public with

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[9] With land-based installations there is an obvious community who will be impacted – those living near the installation. With an offshore installation, the community directly impacted are those who use the seas where it is located. These users are not present near the site all the time and though they use it, they may not even live in the community that is onshore adjacent. Further, these users may not even have any contact with other users of the area. It is for these reasons we refer to this community as dispersed. They are not easily locatable and probably do not have readily available mechanisms to operate in a collective capacity.

each other. The notion of process cannot be overemphasized. It is about communication and relationship building and discovering something new.

Principle #3 (P3): It must facilitate open and interactive spaces for learning

Program administrators need to practice active listening and encourage all participants to do the same. Ideas should be explored without imposing limits set by predetermined outcomes. All participants should be treated with respect even if their contributions run counter to the prevailing mood. The inclusion of diverse voices is not just for the sake of trying to be politically correct or sufficiently broadminded. There is real, lived knowledge in the experiences of people that is too often ignored in the overly scientific, expert driven information phase of public engagement workshops. The literature sometimes touches upon this shortcoming of standard approaches, criticizing them for ignoring the depth and complexity of indigenous knowledge systems and the cultural insight provided by minority voices (Peterson St-Laurent *et al.,* 2020; Webler *et al.,* 2016). The administrators of the EPE program also have to be aware that their audience is not composed of experts. There are ways to present material in a citizen-friendly way (M. G. Wilson *et al.,* 2020) that may take advantage of advances in digital technology which allows a more interactive, hands on learning style appreciated by a broader audience of participants (Girling *et al.,* 2017). Education – as a participatory process of self-development through learning– is the reason for the EPE program.

Competently executed: The facilitators are skilled and impartial and are able to encourage everyone to participate, to not only share their views but to listen attentively to others when they speak (Di Martino, 2020). During the process everyone will hopefully learn a little something about themselves as well as about each other and the topic at hand. When participants disagree, they hear each other out and learn to respect their differences and not impugn the other's character. In the process, new understandings are generated and new possibilities are discovered.

Poorly executed: It is just public engagement theatre. The facilitators practice one-way communication, or they put on a show of listening while all the time constructing their predetermined resolutions. Without adequate guidance from the facilitator, participants merely preach their own positions to each other and nothing is really learnt. Some people override others while others shrink from raising their own points of view. Exchanges are either hollow or fraught with conflict and animosity. Everyone leaves dissatisfied.

Principle #4 (P4): It must foster respect and transparency

If the facilitators present themselves with a respectful attitude and conduct all processes in a fair and transparent manner, participants are more likely to trust the results of the deliberation (Burchell, 2015). This principle goes to the heart of establishing and maintaining a good relationship with the community. If there was only one value cited as being important for public engagement practices, it would be transparency. Transparency is the most important aspect if EPE program administrators hope to secure the trust of the public with whom they are working (Brian Wynne, 2006). The biggest hurdle to cross in working with the public is that there are so many instances of governments, corporations, and even academic institutions taking advantage of the public and being untruthful with them that earning their trust again is difficult, yet it is essential for the success of an EPE program. However, this goal cannot be achieved by any direct route (Stirling, 2008). Like with happiness, it can only be achieved by doing things that are true and authentic, and then the blessing may be conferred as a product of good work, not as a goal sought and achieved (Chilvers *et al.,* 2018; Devine-Wright, 2011). If the public trusts that the program facilitators are indeed genuinely listening to them and incorporating their perspectives, not only will they not allow their disagreement with parts of the planned intervention to prohibit its enactment (Aradottir & Hjalmarsson, 2018; Barry & Ellis, 2011), but it may even allow them to see that to which they objected so strongly in a previous situation in all together new and more favourable light (Men & Tsai, 2014).

Competently executed: The participants are the most important part of the EPE programme, and they should be made to feel that way. Care must be taken to ensure that they are comfortable, welcome, and not distressed by the program or its events. The atmosphere must be nonconfrontational, well managed, and as friendly as possible. All information and decisions should be shared with participants in a timely manner and all documents related to the procedure, including program evaluation and assessment, should be made public.

Poorly executed: Facilitators are condescending or self-righteous, or they allow other participants to act in this manner without being checked. There are multiple instances of people talking over each other or interrupting. Factions arise in the gathering without a facilitator stepping in to redirect the conversation. Information about the event is not shared publicly, reports not published. Facilitators do not incorporate participant comments into documents. Participants lack trust in organizers or hide their own feelings.

Relationship between EPE learning environment, respect, and transparency on ocean literacy and ocean energy acceptability

What we hope to learn through an EPE program is not only how participants interact with the ocean and the place it occupies in their lives, but we also hope to get a sense of whether their ideas of this place will allow them to consider all the possibilities available to them through an ecologically sound development of its energy generating potential. Some of the knowledge we hope to bring forth from the narratives they share is not just how they are affected by the ocean, but how they, and by extension all of humanity, affect the delicate balance of systems and living organisms in the ocean.

5.5 Public

As to the "who" we are engaging when we conduct public engagement programs, there is no clear agreement in the fields of corporate public relations, public pedagogy, public

sociology, or political science. It has long been acknowledged that there are many and varied publics. The public is not a homogenous, monolithic body (Cotton & Devine-Wright, 2012; Michael, 2009). A small community is a public. Within that community there is also the business community, or the community of faith, there is the public school system community of teachers, staff, and students. Within and between each of these, among others, there are other publics which can be categorized along classifications of race, gender, ethnicity, class, or sexual orientation/identification that have been unjustly excluded or shunned from public participation in the past (and also the present) but to which they rightly belong (Dunphy *et al.,* 2017).

Principle #5 (P5): It must strive for both inclusivity and diversity

The EPE program should be based on an inclusive process which aims to capture the broad range of voices. In order for a public engagement process to have legitimacy, it must involve representatives from all the affected parties in that public including, and maybe most especially including, those who are often marginalised in the making of public policy decisions (Macnaghten & Chilvers, 2014). The participants of an EPE event should reflect the range of stakeholders affected by the proposed intervention or proposal and reflect the diversity of the community that may be affected whether for good or ill.

Competently executed: Efforts should be made to include people of different ages, races, ethnicities, genders, social classes, roles(government officials, industry leaders, NGO representatives, etc.), and locations as appropriate. Diversity can be as important as representativeness in ensuring a range of opinions (Cormick & Hunter, 2014). Efforts also need to be made to include people from marginalised or seldom-heard groups. People with disabilities, the elderly, commuters, and residents of disadvantaged neighbourhoods are all possibilities. Hard to reach groups might require special effort, but if a separate initiative is undertaken to reach them facilitators should make sure that it does not increase their feeling of exclusion by separating them from the process.

Poorly executed: Participants are the usual group of "volunteers" with just a touch of token diversity. Marginalised groups are not sought, and the participant group does not accurately reflect the demographics of the community or those directly affected by the proposed intervention or project.

Principle #6 (P6): It needs to have flexibility built into its design

The EPE program needs to be sufficiently flexible to respond to stakeholder needs. Part of this flexibility resides in the utilization of various tools to encourage the participation of all the different target groups. Some people learn better with hands-on activities while others learn better through text or maybe through a digital interface. If there are different languages spoken in the audience, then those languages need to be used in the communication efforts of the facilitators. However, in order to avoid the process becoming a farce of inclusion, the program has to be designed so that the people's voices are genuinely heard and integrated into the process. In this respect, care needs to be given to organizational and logistical considerations in addition to selection criteria.

Competently executed: If polling activities are of primary focus, facilitators should consider reaching a statistically significant portion of the general public, the number for which may be quite high. In a similar vein, if the aim of the program is to exhibit how important the issue is or how much people care about it, a large number is probably preferable. However, if genuine dialogue between contrasting perspectives is the end desired, the group should be of a manageable size to allow enough time for everyone to be heard and for longer conversations to take place.

Poorly executed: If facilitators convene a large gathering for what is supposed to be a deliberative dialogue it will likely result in just a few more forceful speakers getting their way and there being little feedback provided to the participants. Such an event only has the appearance of public engagement. Likewise, a program event that is scheduled for the middle of a weekday is not likely to attract day laborers. An event held at a country

club may provide adequate space, but it is likely to intimidate some economically disadvantaged participants who would just rather not go than feel out of place.

Relationship between participating public composition and flexible design with ocean literacy and ocean energy development acceptability

The direct effects of ocean energy development may only be encountered by a dispersed public of ocean users in the area. This public could include commercial fishermen, recreational boaters, surfers, and marine conservationists, all of whom have different availabilities. Multiple events will likely be required. In addition, the participatory public drawn from these groups may not, however, be representative of the larger community inland that could benefit from ocean energy development. The composition of the participatory group, therefore, needs to draw from both, but the overall size needs to remain manageable in order to help ensure meaningful exchange of different ideas, so again, multiple events with various groups will likely be required.

5.6 Engagement

The definition of 'engagement' seems relatively uncontroversial. As Rowe and Frewer point out "*a general definition of public participation with which few would argue is the practice of involving members of the public in the agenda-setting, decision-making, and policy-forming activities of organizations/institutions responsible for policy development*" (2005, p. 4). A little narrower, Rempel *et al.,* say it is a *"subset of democratic activity that focuses specifically on the inclusion of non-technical publics in the development and governance of new technologies"* (2018, p. 4) There is an interesting relationship between the public, the educational approach, and the engagement components of any EPE program in that the characterization of each is determined in relation to the other. The engagement strategy chosen by the convening body of the EPE program reveals how they conceive of their public and what educational approach to use. Likewise, who they determine their public to be will dictate their

engagement and education strategy. If a facilitator is wedded to a particular education approach, they likely have already chosen how and whom to engage based upon it.

Principle #7 (P7): Its process should be seen as a collaborative partnership for the common good of the community.

The entity conducting the EPE program should be doing so on an equal footing with the participative body that has gathered for the program.[10] They both bring different skill sets and knowledge to the topic. This collaborative approach will improve the chances for success (Wilsdon & Willis, 2004).

Competently executed: Organisers, public officials, and participants work together to establish a shared vision of their common future and plan the steps to get there through discussions where differences are explored instead of ignored. The event(s) is(are) planned to allow enough time and proper facilities to encourage productive working together. People from all different backgrounds, education levels, and worldviews work together in the planning and presenting of information all the way through implementation of any agreed action plan.

Poorly executed: Though event organisers may attest to partnership ideals, the information flow, activity design, allotted time, and final work product all indicate that decisions were already made and that what the organisers desired was a veil of legitimacy. Experts dominate conversations and try to steer discussion toward a pre-ordained conclusion. References to complicated data sets or obscure publications is used to supress participant input that may be more narrative in nature or embody aspects of local histories and experiences.

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[10] In the body of our document, we do draw a distinction between collaboration and co-creation as forms of public engagement, but they both exhibit qualities of a partnership. The difference between collaborating and co-creating is one of the degree to which the public wishes to accept responsibilities of leadership for the innovation or project development.

Principle #8 (P8): It should encourage actionable dialogue

Engagements embody a process of reasoned discussions where options are weighed and all viewpoints are given a fair hearing that is both equitable and reasonable. Actionable dialogue occurs when we are able to reduce our defensiveness and begin to inquire *"into the shared 'field' or background conditions out of which [we] speak to harness the possibility of collective intelligence"* (Isaacs, 2001, p. 22). It is a more deliberate way of communicating than we are accustomed to, but one that offers the promise of understanding and finding a common ground for communal action.

Competently executed: Facilitators establish clear rules of communication so that citizens can express their views in a clear and understandable fashion to other members of the deliberative body. Members respect each other and there is enough time allocated so that meaningful exchanges can take place. Priority is given to participant discussions over expert presentations. The process follows a logical path through learning and discussion so that participants can build on previous insights. There are many ways for participants to express their views.

Poorly executed: There is an emphasis on expert information instead of citizen participation. If the discussions are not well managed, louder voices may dominate and shyer participants may remain quiet. Though exchanges are intended to be reasonable, if another extreme emerges that accuses someone's idea of being emotionally based that could also hamper an authentic exchange of viewpoints. Reasonableness is a standard of the expression of the idea, not of its basis. That someone has an emotional reason for believing something does not make the belief invalid.

The relationship between partnering in a deliberative dialogue with ocean literacy and ocean energy development

In a very real sense, the ocean is probably the greatest common pool resource we have. Working together in a deliberative democratic fashion with clear rules and expectations for involvement parallels the methods discussed in depth by Elanor Ostrom in her work

on common pool resource management. This may prove a fruitful approach to discussing the role of ocean energy development for coastal communities in a manner that is consistent with our obligations to return ecological balance back to this most important of resources.

5.7 Outcomes

In the schematic we presented at the outset of this present section, we indicate that a methodological approach to the creation of an EPE program should take into account that it is a beginning, not an end to itself. That is, a successful EPE program sees itself as part of an even larger process of instilling a culture of participation back into our civic life. Following that observation, our last two principles relate to the program evaluation and action plan that could come at the end of an EPE process in preparation for the next.

Principle #9 (P9): It should be designed to meet measurable goals

Try to include items in the programme that could be used to evaluate whether the program met its goals. These items should lend themselves easily to the creation of performance indicators that will help gauge whether the results of the program match the clearly defined goals that were laid out in the beginning. If we have a way to learn how we could make the program more effective, we can be more successful on our next attempt (Gastil *et al.*, 2012).

Competently executed: A well run EPE program will involve the participants in the evaluation process and communicate the results back to the participants sometime not too long after the process has ended. Pre-, post-, and maybe six-month follow-up surveys could be useful tools. Participants could be asked if they learned anything they did not know before, or if their opinions had changed about anything, and the follow-up could assess any longer-term benefits. Insights from whatever evaluation tools used could then be applied to future EPE designs to make them better.

Poorly executed: Not doing an evaluation, or not including and informing the participants if it is done, are both hallmarks of a poorly managed EPE program. Omitting this step usually indicates that the EPE program was just there to tick off a box on some planning department's checklist of obligations before issuing permits. If not designed well, the indicators themselves may be confused with the program goals leading to a sense of accomplishment when there is none or a sense of failure when the program actually succeeded.

Principle #10 (P10): Its outcome should include a co-created plan for action.

Ending with a concrete plan for next steps helps reassure the participants that their time and efforts were well spent and that their efforts meant something to the bigger picture. An action plan based upon seizing opportunities will likely generate more interest than one based upon averting disaster (Todhunter, 2011).

Competently executed: Facilitators and participants work together to create an action plan based on their discussions that have concrete deliverables, timelines, and assigns task completion to respective parties who will be held to account. The particular decisions are reached by consensus and offer progressive, yet not unrealistic, goals. Ideally, a future time is set to reconvene. If not that, then a time is set to announce the next EPE campaign.

Poorly executed: The EPE program is seen as a one-off event and there is no action plan because it is assumed that all the action that is going to take place has already done so with this particular event. If there is an action plan, it is vague, with no concrete deliverables mentioned, no timetables, and/or no parties assigned any responsibility for completing any of the tasks. The public has no part in deciding upon the actions, or even if any are required.

The relationship between end-of-event EPE activities with ocean literacy and ocean energy acceptability

Humanity's relationship with the ocean is in dire need of repair and both marine systems and marine life are nearing a tipping point in their ability to absorb the excesses characteristic of industrial and post-industrial human existence (von Schuckmann *et al.,* 2021). We have to take action to begin this repair and coastal communities are in the best position to start. However, it is not all doom and gloom. There is also amazing opportunity for coastal communities to secure social and economic benefits from a healthier relationship with their big blue neighbour. Ocean energy development offers one of the greatest opportunities for these communities to both prosper and contribute to a future with a healthy ocean and a balanced ecosystem.

6 Conclusion

This report created a framework for the development and implementation of education and public engagement (EPE) programmes about ocean literacy with a focus on ocean energy projects. It built on the critical review in Task 7.2 and was informed by stakeholder details discussed in Task 7.3. The report begins by establishing a general framework applicable to any EPE program drawn from a broad integrative literature review of relevant research in the fields of sociology, political science, psychology, public administration, education, and science-technology-society studies. After establishing how the components of the general framework relate to each other, the report then applies the general framework to the task of creating a documented methodological approach for the development of tailored ocean literacy programmes about ocean energy projects with a focus on wave energy. The participatory co-design process of this latter stage revealed the importance of taking an intersectional approach to the design and implementation of the EPE program, an approach which facilitates consideration of the socio-demographic specificities of the intended public to be engaged (including for example gender, economic privilege, educational attainment, and life stage). This report provides the foundation and structural skeleton upon which Task 7.5 will build specific and fleshed out EPE programmes.

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8 ANNEX: Questionnaire

**Ten Guiding Principles for the SafeWAVE
Education and Public Engagement (EPE) Programme**

*Below are the ten working guiding principles for the SafeWAVE H2020 project's EPE
programme. Please review and indicate whether you agree with each principle, and
whether you have any additional insights of other principles that should be considered
as part of a Marine Literacy Programme.*

Principle #1: It must be reflexively planned
Make sure the planning process is adequate to meet the needs of (non)participating
stakeholders.[11] If the intervention is place-based, make sure all relevant information is
gathered and analysed so that the program facilitators are familiar with the needs of
the community, its political and cultural tensions, as well as its demographic make-up
and any current events of concern. This work should lead to a synthesis of perspectives
from multiple actors in a common understanding of the intervention goals.

Do you agree with this principle, Yes or No?

Please comment:

Principle #2: It must make a difference to the participants and their community
The EPE program needs to not only make a difference in the very particular object of
its concern, but the process has to be seen as being worthwhile to the community and
to those who directly participated.

Do you agree with this principle, Yes or No?

Please comment:

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[11] Stakeholders includes all those who may be impacted by the proposed intervention or project, not
just those with a financial stake.

Principle #3: It must facilitate open and interactive spaces for learning

Program administrators need to practice active listening and encourage all participants to do the same. Ideas should be explored without imposing limits set by predetermined outcomes. All participants should be treated with respect even if their contributions run counter to the prevailing mood. Education – as a participatory process of self-development through learning– is the reason for the EPE program, its "why."

Do you agree with this principle, Yes or No?

Please comment:

Principle #4: It must foster respect and transparency

If the facilitators present themselves with a respectful attitude and conduct all processes in a fair and transparent manner, participants are more likely to trust the results of the deliberation. This principle goes to the heart of establishing and maintaining a good relationship with the community.

Do you agree with this principle, Yes or No?

Please comment:

Principle #5: It must strive for both inclusivity and diversity

The EPE program should be based on an inclusive process which aims to capture the broad range of voices. In this respect, care needs to be given to organizational and logistical considerations in addition to selection criteria.

Do you agree with this principle, Yes or No?

Please comment:

Principle #6: It needs to have flexibility built into its design
The EPE program needs to be sufficiently flexible to respond to stakeholder needs. All roles need to be outlined and defined for participants in a transparent and open manner.

Do you agree with this principle, Yes or No?

Please comment:

Principle #7: Its process should be seen as a collaborative partnership for the common good of the community.
The entity conducting the EPE program should be doing so on an equal footing with the participative body that has gathered for the program.[12] They both bring different skill sets and knowledge to the topic. This collaborative approach will improve the chances for success.

Do you agree with this principle, Yes or No?

Please comment:

Principle #8: It should encourage actionable dialogue
Engagements embody a process of reasoned discussions where options are weighed and all viewpoints are given a fair hearing that is both equitable and reasonable.

Do you agree with this principle, Yes or No?

Please comment:

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[12] In the body of our document, we do draw a distinction between collaboration and co-creation as forms of public engagement, but they both exhibit qualities of a partnership. The difference between collaborating and co-creating is one of the degree to which the public wishes to accept responsibilities of leadership for the innovation or project development.

Principle #9: It should be designed to meet measurable goals
Try to include items in the program that could be used to evaluate whether the
program met its goals. If we have a way to learn how we could make the program
more effective, we can be more successful on our next attempt.

Do you agree with this principle, Yes or No?

Please comment:

Principle #10: Its outcome should include a co-created plan for action.
Ending with a concrete plan for next steps helps reassure the participants that their
time and efforts were well spent and that their efforts meant something to the bigger
picture.

Do you agree with this principle, Yes or No?

Please comment:

Other Comments or suggestions for principles

Thank you again for taking the time to share your perspective with us.