# From conflict to collaboration: The role of expertise in fisheries management

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A R T I C L E   I N F O

A B S T R A C T

This paper illustrates the need for and proposes avenues through which the concepts of Studies in Expertise and Experience (SEE) can be developed towards application to address real-world problems, such as fisheries management. Using analytical literature reviews and reanalysis of four case studies of SEE and fisheries management within the frames of trust and sentiment, this paper shows that the inclusion of interactional expertise can facilitate collaboration. However, those collaborations can disintegrate when latent distrust is triggered in situations where the collaborators have a contentious history. These contentious collaborations are marked by sentiment-laden decision making and judgments of credibility. Combining the concepts of SEE with tools, such as blind reviews, moral imagination, or tools for mitigating implicit bias might help to sustain and improve these contentious collaboration. The research on the application of these tools might move the theoretical concepts of Studies in Expertise and Experience closer to becoming practical instruments that are useful for building and sustaining the collaborations needed to address environmental problems, such as those found in fisheries management.

## 1. Introduction

A sub-field of Science, Technology, and Society (STS), the burgeoning and highly debated (Collins and Evans, 2003; Gorman, 2002; Jasanoff, 2003; Rip, 2003; Wynne, 2003) area of Studies in Expertise and Experience (SEE) has yielded a normative theory of expertise. This theory could help determine who is best equipped to make science and science-policy decisions based on knowledge and experience (Collins, 2004; Collins and Evans, 2002, 2007). Despite the criticism imbuing the debate, the number of scholars working in the field of SEE continues to grow.

For such a young and theoretical field SEE has attracted a breadth of researchers and practitioners. The growth of the field of SEE is in part because SEE offers a promising framework for how to bridge the disciplinary disconnects prevalent in the multidisciplinary approaches needed to address complex real-world problems. The areas of study of those who have published on SEE include psychology (Gorman, 2002), sociology and physics (Collins and Sanders, 2007), environmental studies (Jenkins, 2007), and ethics and philosophy (Selinger et al., 2007). The papers often feature retrospective application of SEE concepts to explain past events in science and science-policy decision making (i.e. decisions that pertain to matters of science or science policy regardless of whether the decision is made by a scientist or science policymaker) (Boyce, 2006; Carolan, 2006; Collins and Evans, 2002; Evans and Plows, 2007; Jenkins, 2007, 2010a; Ribeiro, 2007; Weinel, 2007). In some cases the articles are derived from the author's experience as a participant in the event (Collins, 2007; Collins and Evans, 2002; Collins and Sanders, 2007; Shrager, 2007). All of these articles discuss cases in which, SEE concepts were not explicitly applied as such. Rather the researchers, identified characteristics in the case studies that were in keeping with SEE concepts after the fact. In fact, to date, no studies have been conducted in which SEE concepts were prospectively applied to real-world case studies.

The growing SEE literature of retrospective studies and the wide appeal of SEE reveal the field's practical potential to inform how expertise is discerned and employed in making science and science-policy decisions. But are the concepts of SEE as they currently stand sufficient to inform a substantial progress in how expertise is appropriately used in real-world situations? The SEE literature has not directly addressed this question. However, this paper will build a case drawing on a critical deconstruction of Collins' and Evans' writings and an analytical literature review to argue that they are not sufficient and will then support this argument with case studies from fisheries management. While theories drawn from STS often do not figure prominently in the fisheries management literature, many fisheries management conflicts are

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excellent illustrations of STS concepts. At their heart fisheries management conflicts are often about the implications that scientific findings and technological regulations hold for fishing communities. There are several case studies in the literature focusing on SEE and fisheries management (Jenkins, 2007, 2010a; Johnson, 2011; Johnson and McCay, 2012). This paper will draw on this subset of the SEE literature, examining how SEE helps explain past failures of collaborative efforts in fisheries management, and how SEE might be enhanced with future research.

The goal of this paper is to encourage the field of SEE towards the first steps of honing the theory so that it will be applicable to help solve real-world problems. It will also suggest avenues of future research that could yield tools for addressing the deficiencies in the application of SEE concepts to real-world problems. By no means is the intent to suggest that SEE is an alternative fisheries management scheme. Rather at this stage SEE concepts should be viewed as a knowledge innovation nearing prototype stage. If future development and testing is successful, SEE concepts might be a tool to add to the fisheries management toolkit, as well as to other applied fields, such as environmental management writ large and public health.

## 2. Background

In their inaugural SEE paper, Collins and Evans (2002) divide science studies into three waves. They delineate the First Wave of Science Studies as occurring in the 1950s and 1960s. During this Wave, society accepted that a sound scientific training licensed a person to speak with authority and decisiveness on their and other fields of study. The status quo was top-down decision making with scientists at the top deciding on matters of science and technology.

Collins and Evans define the Second Wave of Science Studies as beginning in the early 1970s and continuing today. This is "the age of democracy" that sought to balance the top-down system and be more inclusive. During this Wave, political rights have become interchangeable with scientific expertise, removing the boundary between scientists and the public. Under this paradigm, any person with an interest in a technical matter has a right to engage in decision making about it. The result is that the decision-making process is laden with too many actors, some of whom have an interest in the problem but no relevant knowledge or skills that can help address it. Finding that neither of these Waves is acceptable for facilitating the best decision making in scientific and technical matters, Collins and Evans proposed a Third Wave of Science Studies (Collins and Evans, 2002).

The Third Wave would be "the age of expertise". Collins and Evans proposed the redrawing of a boundary line, not between scientist and laity, but between experts and non-experts. They suggest that the Second and Third Waves can and should coexist. The addition of the Third Wave will allow people to exercise their political rights to be heard on a matter, but will confer decision-making authority to those with relevant expertise (Collins and Evans, 2002).

SEE identifies different categories of expertises, most notably interactional and contributory expertises. Interactional expertise is the ability to speak about a specialism as though one were an expert in that area. It is gained through immersion in a community or culture and is defined as a solely linguistic ability; an interactional expert would not be able to practice the specialism about which they can converse. Contributory expertise on the other hand, is the ability to make an advancement in a specialist field. As presented by Collins and Evans the designations of these expertises is properly determined by analysis of the written knowledge (i.e. can a person write in such a way that an expert would judge them to be an expert as well). However, this is an arbitrarily restrictive constraint that does not reflect, real-world discernment of expertise, especially the influence of social bias on discernment.

By drawing on analytical literature reviews and case studies that apply SEE concepts to fisheries management, this paper will show that there is a consistent pattern of social issues that hindered the utility of SEE concepts. The remainder of this paper will demonstrate that the issues of accessibility, credibility, and bias that the Second Wave sought to address remain intimately tied to the concepts of the Third Wave. One cannot strive to objectively determine decision-making authority based on expertise without accounting for the fact that people are often sentimental and subjective in their judgments.

The findings section of this paper will show that while one's ability to discern expertise can be beneficial in increasing the effectiveness of some decision-making processes, it can also disrupt those processes if one's discernment is bias. Furthermore, the reliance on social perceptions to discern expertise tends to be a default mechanism related to the fact that technical expertise is built on ubiquitous expertise, i.e. the ability widely held by most members of society to make a technical judgment on the basis of social understanding. Moreover, this default dependence on social perceptions over technical knowledge in making judgments of expertise tends to be triggered in circumstances of controversial, adversarial, and stressful conditions. This paper will illustrate these ideas with case studies where contributory and interactional expertises were engaged but the decision-making processes still floundered. To further support these ideas, this paper will build upon past studies of factors influencing trust and perceptions of credibility as well as research on unconscious bias. Finally, the discussion section will then offer avenues, such as moral imagination, for developing tools that could be combined with the concepts of SEE to allow for more accurate discernment of expertise and facilitate more collaborative multidisciplinary decision making in science and science policy.

## 3. Methods

This study is comprised of four stages: 1) a critical deconstruction of the SEE theory, 2) an analytical review of the applied SEE literature, 3) reanalysis of four existing SEE case studies within the frames of trust and sentiment, and 4) conceptual validation. The central method in each analytical stage was constant comparison, which involves an inductive qualitative process of iterative examination and note-taking to identify meaningful similarities and differences between pieces of data (Bernard and Ryan, 2010).

### 3.1. Critical deconstruction of the SEE theory

Stage one involved a critical deconstruction of the core theoretical writings of Collins and Evans, the founders of SEE. The research questions driving this phase of research was: What are the logical inconsistencies and weaknesses in SEE theory concerning the concept of discernment and application of expertise? And, how might these inconsistencies impact the real-world utility of SEE theory? After identifying these inconsistencies/weaknesses, the study drew on related bodies of research to illustrate that these inconsistencies/weaknesses were relevant concerns.

### 3.2. Analytical review of the applied SEE literature

Stage two moved the study from theory to application. It involved identifying and analyzing SEE literature pertaining to the application of SEE concepts (or more exactly interventions that were characteristic of SEE concepts) to real-world case studies.